

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 89.11.23

ASSESSMENT REPORT 18489

MINING DIVISION: Kamloops

PROPERTY: FY  
LOCATION: LAT 51 15 45 LONG 119 57 00  
UTM 11 5682932 294182  
NTS 082M05W  
CAMP: 039 Adams Plateau - Clearwater Area  
CLAIM(S): FY 2  
OPERATOR(S): Minnova  
AUTHOR(S): Blackadar, D.W.  
REPORT YEAR: 1989, 37 Pages  
KEYWORDS: Devonian, Eagle Bay Formation, Dacite, Rhyolite, Andesite  
WORK  
DONE: Drilling, Geochemical  
DIAD 600.9 m 4 hole(s); NQ  
Map(s) - 1; Scale(s) - 1:2500  
SAMP 23 sample(s); ME  
RELATED  
REPORTS: 17264

LOG # 0301

DRILLING REPORT ON THE FY GROUP

(FY 1, 2, 3, DIXIE 1, 44, 45 Fr, 46 Fr)

KAMLOOPS MINING DIVISION

NTS 82M/5W

Lat: 51° 15' N

Long: 119° <sup>57</sup>/<sub>58</sub> W

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VANCOUVER, B.C.

Owner: Minnova Inc.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

18,489

D. W. Blackadar  
Minnova Inc.  
Feb. 21, 1989

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## I INTRODUCTION

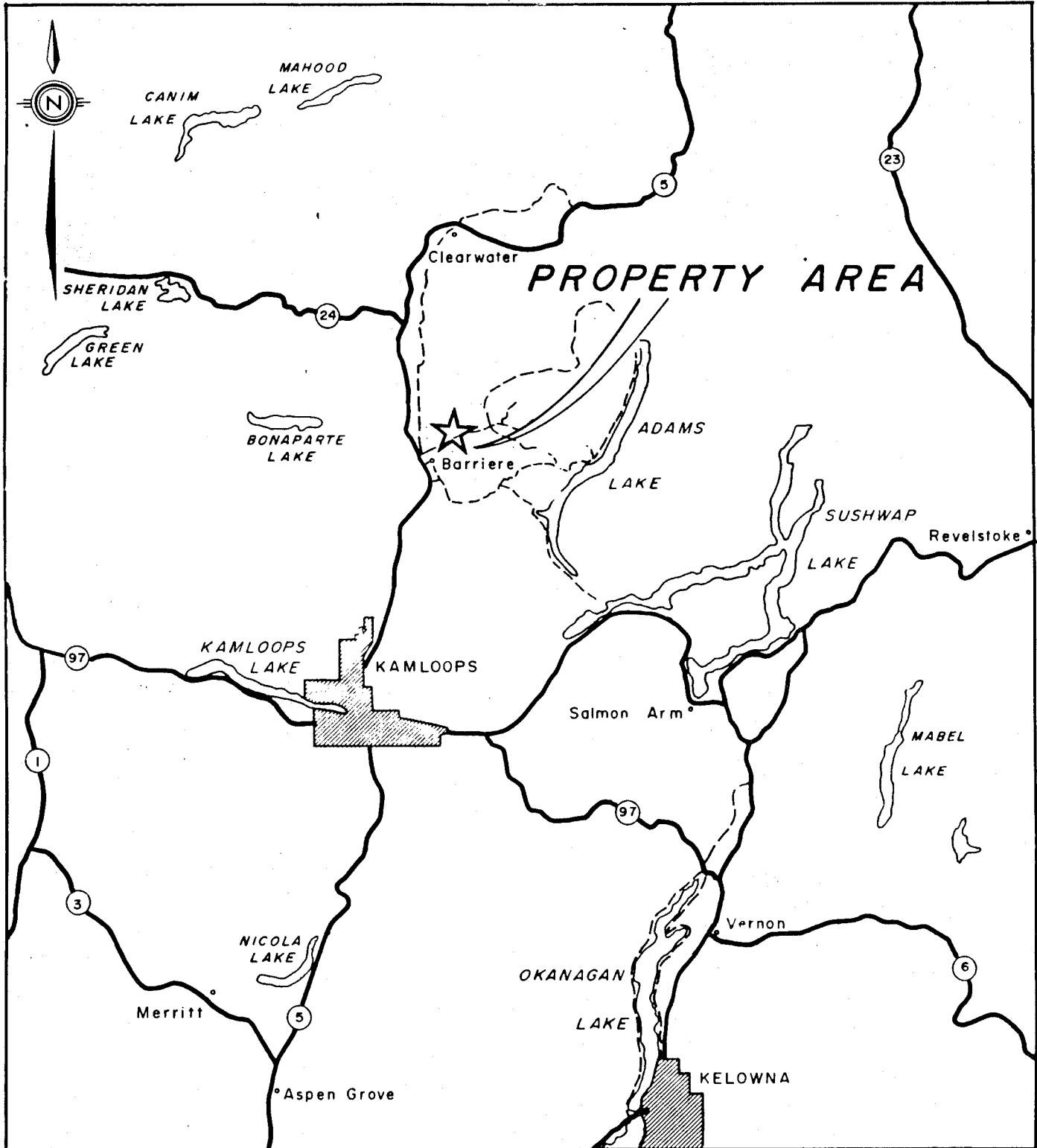
Minnova Inc. is the owner/operator of the FY group located on the Adams Plateau about 12 km northeast of the town of Barriere, B. C. The FY Group is part of an extensive package of mineral claims held by Minnova Inc. in the Barriere area. These holdings are underlain by Paleozoic age felsic to mafic volcanic rocks of the Eagle Bay Assemblage and the Fennel Formation which are highly prospective for volcanogenic massive sulphide deposits. Exploration on the FY Group is being operated by Minnova Inc., in joint venture with Chevron Canada Resources.

This report describes the results of a small diamond drilling program carried out on the property in mid-October, 1988. This program consisted of 4 NQ holes totalling 601 metres. Drill core from the holes is stored at Minnova's warehouse facility in Barriere.

## II LOCATION, ACCESS AND PHYSIOGRAPHY (Figure 1)

The FY Group is situated immediately north of the East Barriere Lake road, about 12km NE of Barriere. Access into the property from the Barriere Lake Road is along the Bottrel Creek logging road for a distance of about 3 km. A well developed network of logging roads provides good access on the property.

The Adams Plateau area consists of high, rolling plateau country incised locally by steep drift-filled valleys. The FY Group lies on a southeast-facing slope of a relatively high plateau extending N-NW from the Barriere River which bounds the property to the south. The property is bounded to the east by the north-trending tributary of the Barriere River, and on the north and west by Sprague and Chip Creeks respectively. Elevations on the property range from about 550m. to 1100m.



**FY GROUP**  
**- LOCATION MAP -**  
JANUARY 1989

### III CLAIM STATUS (Figure 2)

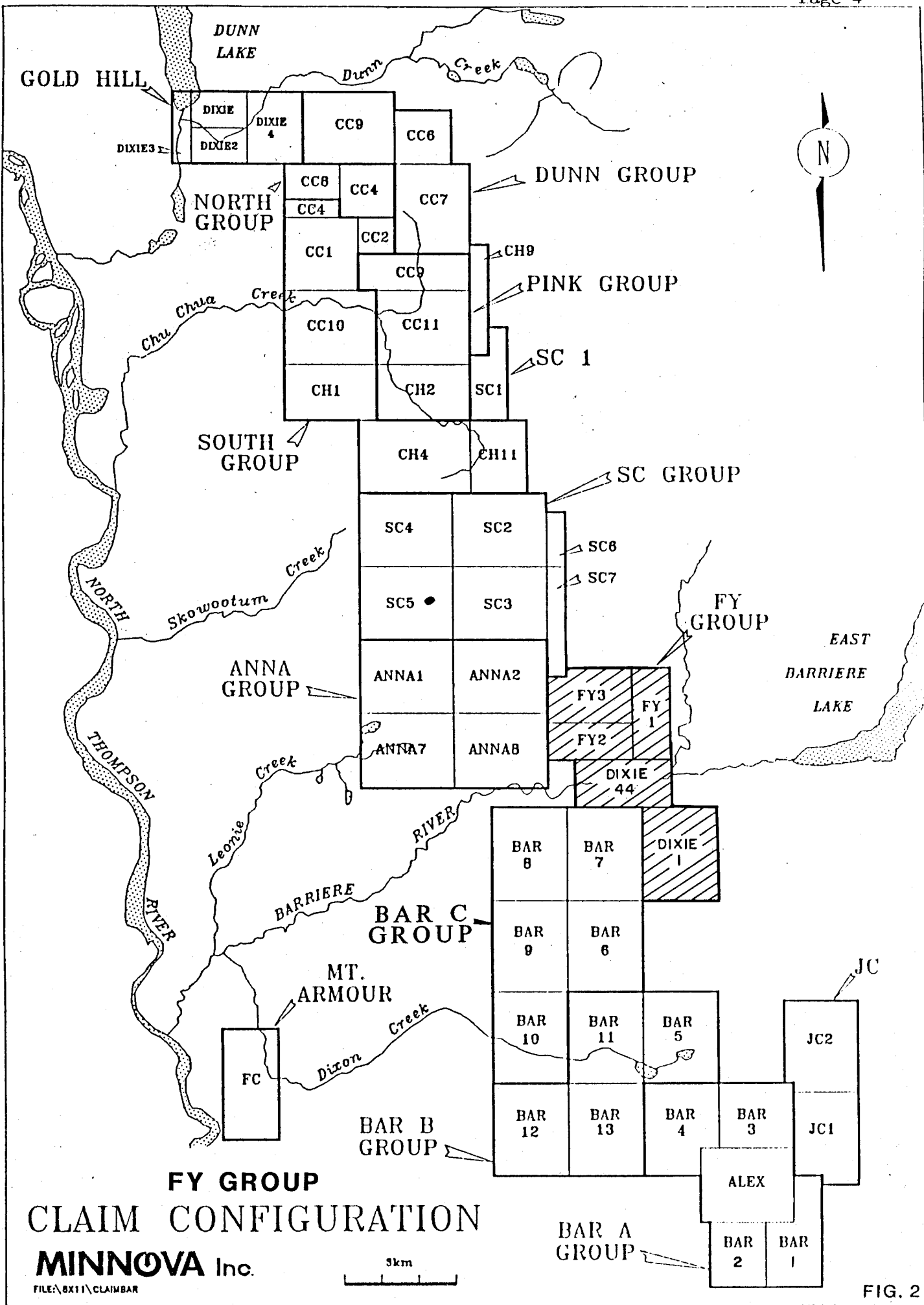
The FY property was re-grouped on November 25, 1988 and consists of 5 claims totalling 86 units, and two fractional claims. All claims are in good standing until 1993. Claim status is summarized in Table 1.

Table 1  
Claim Status

<u>Claim</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Expiry Date</u>
FY 1	6496	12	17/01/1993
FY 2	6497	18	17/01/1993
FY 3	6498	18	17/01/1993
DIXIE 1	5076	20	25/11/1993
DIXIE 44	5527	18	17/02/1993
DIXIE 45 Fr.	5528	1	17/02/1993
DIXIE 46 Fr.	5529	<u>1</u>	17/02/1993
		Total	88

### IV GENERAL GEOLOGY

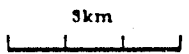
The Adams-Barriere region is underlain by weakly metamorphosed volcanic and sedimentary rocks of the Eagle Bay Assemblage and the Fennel Formation. Rocks of the Eagle Bay Assemblage are generally moderately to strongly foliated and deformed and range in age from Cambrian to Mississippian. In the vicinity of the FY Group, Eagle Bay rocks are probably of Devonian-Mississippian age. Rocks of the Fennel Formation which are less strongly foliated, range in age from Devonian to Permian. Eagle Bay and Fennel Group rocks are juxtaposed along a number of major faults, one of which, known as the Barriere River fault, cuts through the FY property in a northeasterly direction (Figure 3). Fennel Group rocks lying north of this fault have not yet been explored on the FY property. Work to date has focused on the southern part of the property, predominantly the FY 2 claim (FY Grid) which is underlain by northwest-striking rocks of the Eagle Bay Assemblage. These rocks consist predominantly of dacitic ash tuffs with subsidiary units of rhyolite and andesite tuff. All of



**FY GROUP CLAIM CONFIGURATION**

**MINNOVA Inc.**

FILE:\BX11\CLAIMBAR



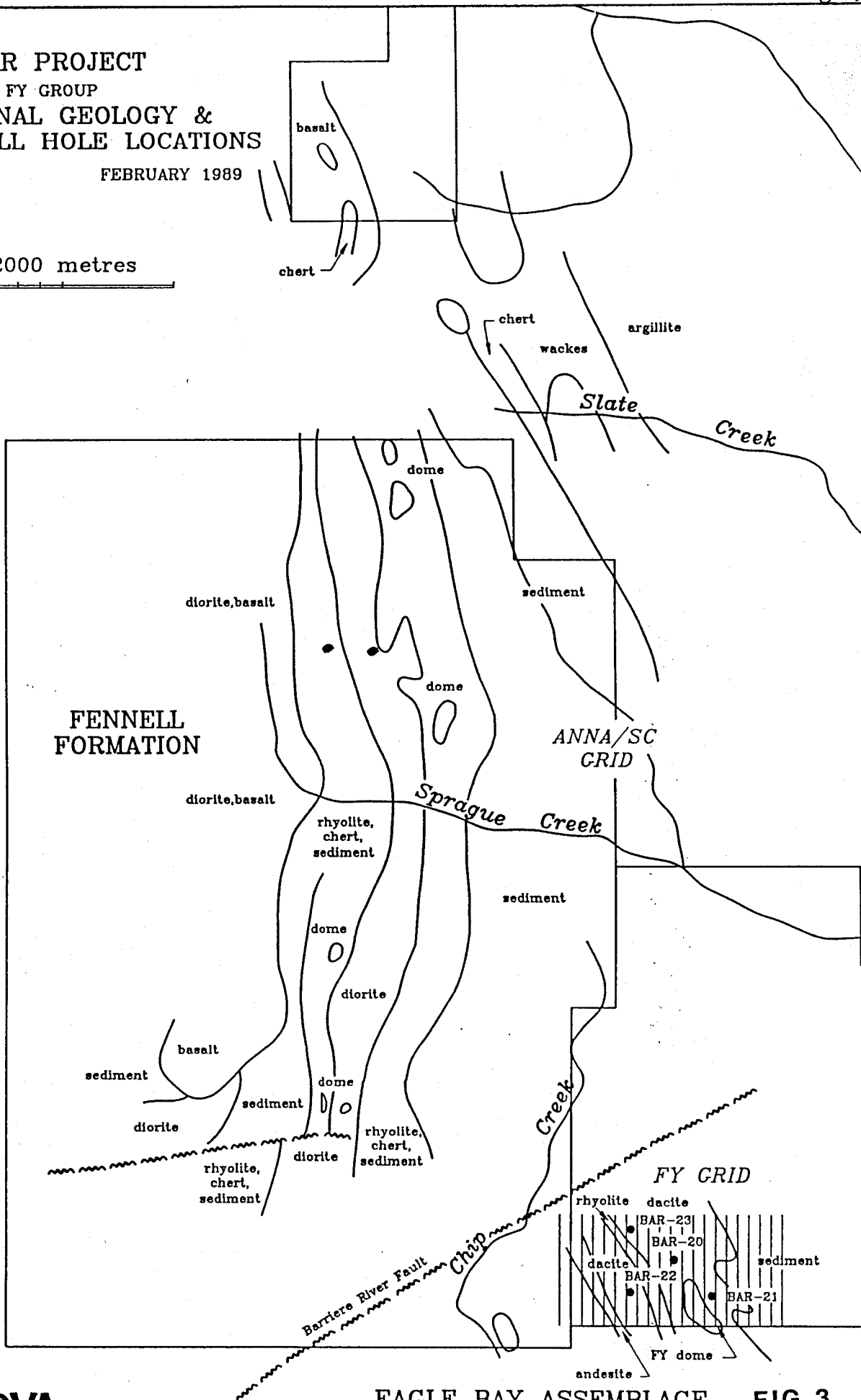
**FIG. 2**

# BAR PROJECT FY GROUP REGIONAL GEOLOGY & 1988 DRILL HOLE LOCATIONS

DWB/sg

FEBRUARY 1989

2000 metres





these units display local lapilli-size fragments. Relatively thin argillite units occur locally within this volcanic package. Trace to 2% pyrite is common throughout the volcanic sequence.

A well defined rhyolite quartz-feldspar porphyry unit (QFP) occurs in the southeast part of the grid. This unit contains 15-25% feldspar crystals from 0.5 to 2mm in size, and up to 10% quartz eyes ranging up to 1.5mm in size. The eastern third of the grid is underlain by sedimentary package consisting of argillite, tuffaceous argillite and silty tuff.

## V EXPLORATION HISTORY

The original FY property comprising FY 1-4, was acquired by Minnova Inc. in 1985. Work carried out on the property prior to 1988 includes linecutting (25 km), geologic mapping and lithogeochemical surveying, and Max/Min surveying. During 1988, detailed mapping and lithogeochemical sampling were carried out in two parts of the grid to better define anomalies outlined by previous work. Max/Min surveying and a soil geochemistry survey were also carried out on the grid, and a small program of diamond drilling was completed.

## VI 1988 DIAMOND DRILL PROGRAM

### 1. Description

A short program of NQ diamond drilling was carried out on the FY grid between October 12 and October 19, 1988. The program consisted of 4 holes (Bar 20, 21, 22 and 23) totalling 601 metres and was designed to test geological, geochemical and geophysical targets for massive sulphide mineralization. Drilling was carried out by Tonto Drilling Ltd. of Burnaby, B.C. Salient information pertaining to the drilling program is summarized in Table 2. Collar locations are shown on Figure 4 at 1:2500 scale. Drill logs and analytical results are included in Appendix III.

TABLE 2  
FY GROUP 1988 DRILL HOLE SUMMARY

DDH	DATE		LOCATION		ELEVATION	AZIMUTH	INCLIN	TOTAL	CORE	ACID DIP TESTS		OBJECTIVE	RESULTS	
	Start	Finish	CLAIM	GRID	STATION			approx. (m)	DEPTH (m)	DIAM.	DEPTH (m)			INCL.
Bar 20	Oct 12	Oct 13	FY 2	FY	L52+50E, 53+50N	935	235	-45	154.5	NQ	32.6 77.7 152.4	-50 -48 -46	1. Test a coincident Max/Min conductor + Na2O depletion zone occurring within a package of dacitic volcanics approx. 50 m structurally above a rhyolite-dacite contact.  2. Test the rhyolite-dacite contact @ depth.	Intersected a uniform sequence of dacite tuffs with a relatively narrow rhyolite interval. Conductor is associated with graphitic argillites.
Bar 21	Oct 14	Oct 15	FY 2	FY	L54+25E, 52+35N	830	235	-45	151.5	NQ			Drill through a QFP rhyolite-dacite dome in an area of overlapping Na2O depletion and Ag enrichment.	Intersected QFP rhyolite flow and dacite tuff. No anomalous trace metals
Bar 22	Oct 16	Oct 18	FY 2	FY	L48+35E, 53+08N	860	235	-45	120.7	NQ	31.1 84.1 114.6	-48 -48 -48	Test a Max/Min conductor with a weak coincident Cu soil anomaly.	Intersected dacitic tuffs with local trace pyrite and pyrrhotite. Conductor is associated with graphitic argillite
Bar 23	Oct 18	Oct 19	FY 2	FY	L48+00E, 56+73N	980	235	-45	174.2	NQ	85	-48	Test a strong coincident Cu and Zn soil anomaly.	Intersected a narrow interval of epigenetic (?), massive sulphide mineralization grading 0.113% Cu, 5.46% Pb, 13.20% Zn, 203 g/T Ag, and 0.91 g/T Au over 0.40 m. Conductor is associated with graphitic argillite
								Total	600.9					

Lithogeochemical and trace element analyses undertaken in conjunction with the drilling program were carried out by Min-En Labs of North Vancouver, B.C. Rock Samples were analyzed for a standard lithogeochemical suite including  $\text{Al}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{MnO}_2$ ,  $\text{MgO}$ ,  $\text{SiO}_2$ ,  $\text{Zn}$ ,  $\text{Ba}$ ,  $\text{K}_2\text{O}$ ,  $\text{Na}_2\text{O}$ ,  $\text{Sr}$ ,  $\text{Cu}$ ,  $\text{Pb}$ ,  $\text{Zn}$ ,  $\text{Ag}$ ,  $\text{Sb}$  and  $\text{As}$ . Selected mineralized or pyritic samples were run for trace element analysis only ( $\text{Cu}$ ,  $\text{Pb}$ ,  $\text{Zn}$ ,  $\text{Ag}$ ,  $\text{Au}$ ,  $\text{Ba}$ ,  $\text{As}$ ,  $\text{Sb}$ ). A standard fusion process with ICP finish was used for the major elements.  $\text{Au}$  was determined by wet geochemical method and other traces by aqua-regia digestion with an ICP finish.

## 2. Results

Bar 20 was drilled in the dacite tuff sequence just northwest of and along strike from the QFP dome. The hole was collared to test a short strike length Max/Min conductor with associated  $\text{Na}_2\text{O}$  depletion identified in bedrock samples. Bar 20 intersected a fairly uniform sequence of dacite tuffs with a relatively narrow rhyolite interval in the upper half of the hole. These volcanics generally contain only trace amounts of pyrite. Weak  $\text{Na}_2\text{O}$  depletion occurs in a rhyolitic to dacitic sequence between 40.80 and 59.0 m (sample BCD 18604). Narrow intervals of argillite debris flow and graphitic argillite within the volcanic sequence are thought to be the source of the Max/Min conductor. Weakly anomalous base and precious metal values are associated with the rhyolite and argillite interbeds.

Bar 21 was drilled to test the QFP dome in an area of overlapping  $\text{Na}_2\text{O}$  depletion and  $\text{Ag}$  enrichment in bedrock samples. The upper half of the hole is a fine to medium grained QFP flow which is rhyolitic in composition ( $<0.3\% \text{TiO}_2$ ). This unit contains trace to 1% pyrite and shows local moderate  $\text{Na}_2\text{O}$  depletion (sample BCD 18617). The lower half of the hole is a relatively uniform dacite tuff sequence. Trace element analyses from this hole are not anomalous.

Bar 22 was drilled in the western part of the grid to test a short strike length Max/Min conductor with a coincident weak soil geochemical anomaly in an area of dacitic volcanics. This hole intersected a monotonous sequence of dacitic tuffs with local trace pyrite and pyrrhotite. A narrow graphitic argillite unit occurring at a downhole depth of about 50 m is thought to be the source of the Max/Min conductor. Trace element analyses from this hole are not anomalous. However, it may be significant that the dacitic volcanics immediately above and below the argillite unit exhibit weak  $\text{Na}_2\text{O}$  depletion (samples BCD 18611 and 18612).

Bar 23 was drilled in the northwest part of the grid in an area of rhyolitic and dacitic volcanics with argillite interbeds. The hole was drilled to test a strong Cu-Zn soil anomaly with adjacent  $\text{Na}_2\text{O}$  depletion and Ag enrichment in bedrock samples. The hole also tested a coincident long strike length Max/Min conductor. The upper part of the hole intersected a relatively monotonous sequence of dacite tuffs with trace amounts of pyrite. A sequence of sericite-altered tuffs occurring between 72.80 and 94.10 m contains 5% disseminated pyrite. A well developed dacite QFP flow flanked by sericitic and graphitic argillite units (Max/Min conductor) extends from 94.10 m to 139.5 m. This unit is massive and strongly quartz porphyritic and contains trace amounts of pyrite. The bottom 35 m of the hole encountered medium to coarse grained andesite feldspar crystal tuff. Potentially significant Pb-Zn mineralization consisting of minor medium brown sphalerite and galena occurs in the bottom 20 m of the hole. This mineralization generally occurs in trace amounts associated with narrow quartz veins. At the top of this interval is a 4-6 cm zone of massive, banded, coarse grained sphalerite and galena. This mineralization is not clearly associated with quartz veins, although its coarse grain size is consistent with vein type mineralization. An assay sample (17807) taken over a 40 cm width across this zone shows a distinctly polymetallic signature, grading 0.133% Cu, 5.46% Pb, 13.20% Zn, 203

g/T Ag and 0.91 g/T Au. While this mineralization is probably epigenetic in origin it is somewhat enigmatic and the possibility that it represents re-mobilized syngenetic mineralization must be considered. This possibility is suggested by the banded texture of the mineralization, by its occurrence at a possible transition from relatively fine to relatively coarse grained tuff and by a core to "bedding" angle which parallels stratigraphy.

#### VII SUMMARY AND RECOMMENDATIONS

The 1988 drilling program on the FY grid has provided useful geological information on this prospective package of felsic and intermediate volcanic rocks. All holes are considered to be technically successful in explaining the geophysical and/or geochemical anomalies which they were collared to test. In addition, Bar 23 has resulted in the discovery of potentially significant polymetallic mineralization which warrants follow-up in 1989. Although significant mineralization and alteration were not encountered in other 1988 drill holes, a number of targets still exist in the area and further work is warranted on the FY grid specifically and on the FY Group as a whole.

Appendix I

Itemized Cost Statement

Itemized Cost Statement

Road and Drill Pad Construction

Ultradiversified Construction, Barriere, B.C.

D-6 Cat: 33 hrs @ \$75/hr	\$2475.00
mob/demob:	300.00
	-----
subtotal	\$2775.00

Diamond Drilling

Tonto Drilling Ltd, Burnaby, B.C.

Longyear 38 drill: 601 m @ \$80/m	\$48,080.00
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Analytical

Min-En Labs, North Vancouver, B.C.

23 lithogeochemical analyses @ \$23.50	\$540.50
13 trace element analyses @ \$14.00	\$182.00
	-----
Subtotal	\$722.50

Water Truck (Oct 11-20, 1988)

Gallant Trucking Ltd., Kamloops, B.C.	\$3107.50
---------------------------------------	-----------

Personnel (Oct 7-25, 1988)

D. W. Blackadar Sen. Project Geologist 2 days @ \$350/day	700.00
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S. Lear Project Geologist 7 days @ \$250/day	1750.00
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G. Sharp Geologist 5 days @ \$250/day	1250.00
--	---------

L. Holder Junior Assistant 11 days @ \$150/day	1650.00
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Subtotal	\$5350.00
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Total	=====
	\$60,035.00

Appendix II

Statement of Qualifications



STATEMENT OF QUALIFICATIONS

I, Donald William Blackadar of 3838 Regent Avenue, North Vancouver,  
B. C. do hereby certify that:

1. I graduated from the University of Calgary with a B.Sc. in Geology in 1975.
2. I graduated from the University of Alberta with a M.Sc. in Geology in 1981.
3. I have been a professional geologist registered in the Province of Alberta since 1978.
4. I have been employed on a full time basis in my profession since April 1975, except for two years spent at the University of Alberta.
5. I am currently employed as a Project Geologist by Minnova Inc. of 4th floor - 311 Water St., Vancouver, B.C.
6. Work reported in this volume was carried out under my direct supervision.

Date: February 21, 1989

Signature: Don Blackadar

Appendix III

Drill Logs (including analytical results)



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.10	Casing «DB»					
4.10 TO 36.70	«DAC T» DACITE TUFF/FLOWS	Colour: med green Grain Size: med. -dacitic tuff? 20% 1-3 mm long white feldspar? crystals  14.3-20.1 -20% 1-3 mm round and fractured qtz eyes in grey-green matrix  34.1-36.6 -tr-2% qtz eyes.		-mod ser. alt. throughout -occasional FeOX (yellow brown) as hole cuts across hillside and is thus relatively near surface at top	30.0-36.6 -tr py as well oxidized cubes	
36.70 TO 40.80	«RHYO»	Colour: black Grain Size: fine -mafic dyke? irregular fragments/inclusions of dacitic tuff in f.g. black matrix  36.7-37.3 -v.f.g. matrix with 20% 1-2 mm long red hematite spots  37.3-40.8 -30% 1-3 mm long white carb spots roughly aligned at 60 deg to C.A. broken lower contact -lower ctc marked by increase in dacitic frags.			-tr. hematite, one py frag?	
40.80 TO 59.00	DACITE- RHYOLITE TUFF/FLOW «DAC-RHY» «T/F»	Colour: med green Grain Size: med. -Qtz eyes, 1-3 mm up to 10%; 10% wh, irregular F.S. in places.  -Transition zone over lower 3 m. Two 50-70 cm long sections of argillite debris flow with pyritic and		-wk-mod sericite alt., ser stronger in more broken zones	-tr. cubic py	-Broken sections 43.3-44.6 52.8-53.4

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		volcanic frags 56.0-59.0 «Debris Flow»				
59.00 TO 82.10	«DAC T» DACITE TUFF	Colour: dark green Grain Size: fine -relatively homogeneous tuff. Much darker than overlying unit. Faint 5-10%, 1-3 mm F.S. crystals		-occasional 5-10 mm long calcite veinlets -minor chl alt.		60.4-64.6 Fault zone
82.10 TO 86.20	«ARG + QV» ARGILLITE + QTZ VEINS	Colour: black Grain Size: aphanitic -massive argillite occasional siltstone beds at 60 deg to C.A. -mod broken throughout, graphite on fractures -good Max/Min conductor		83.3-83.6 white, broken qtz vein  85.3-86.2 broken, white qtz vein	-2% py	
86.20 TO 154.50	«DAC T» DACITE TUFF  E. O. H.	Colour: med green Grain Size: fine - med. -Homogeneous competent dacite tuff. Some 1-3 mm white F.S.? up to 10%		-wk to med. sericite often as 1-3 mm blebs, perhaps alt. F.S. -occasional 2-5 mm qtz veins  125.4-126.2 -mod ser alt., v. minor chl in qtz vein broken over lower 50 cm.  135.8-145.0 -mod. sericite alt., lt brown coloured core	135.8-145.0 -tr. py in qtz veins	

HOLE NUMBER: BAR-20

ASSAY SHEET

DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Cu %	Pb %	Zn %	Ag g/T	Au g/T		
BCD18606	83.30	83.60	0.30	18	28	143	0.6	5							
BCD18607	85.30	86.20	0.90	20	107	32	1.7	5							

HOLE NUMBER: BAR-20

ASSAY SHEET

PAGE: 4

HOLE NUMBER: BAR-20

## GEOCHEM. SHEET

DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	Al2O3 %	Ba %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	Sr %	TiO2 %	Zr %	S %	Total %	Ag ppm	As ppm	Ba-ppm ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
BCD18601	11.50	14.50	3.00	15.33	0.121	3.79	6.89	2.68	1.65	0.24	2.42	0.17	59.67	0.03	0.34	0.002	0.21	93.55	0.1	1	112	11	38	1	88	10
BCD18602	23.00	26.00	3.00	15.77	0.133	5.29	4.75	3.43	1.37	0.24	2.32	0.18	59.34	0.03	0.37	0.003	0.15	93.39	0.4	17	115	15	37	1	45	60
BCD18603	38.50	40.00	1.50	13.94	0.096	2.77	1.22	3.43	0.6	0.11	1.87	0.11	71.1	0.02	0.24	0.004	0.16	95.69	1.5	35	70	21	46	2	21	10
BCD18604	45.00	48.00	3.00	16.42	0.134	2.88	2.57	4.59	0.97	0.13	1.05	0.12	65.73	0.02	0.27	0.005	0.23	95.13	1.3	19	89	22	40	1	34	5
BCD18605	66.00	69.00	3.00	17.01	0.091	3.76	6.3	3.72	1.28	0.17	1.81	0.22	59.51	0.02	0.4	0.005	0.05	94.34	0.6	3	78	11	21	2	53	5
BCD18608	110.00	113.00	3.00	16.49	0.113	3.23	5.11	3.83	1.18	0.15	2.2	0.17	61.52	0.02	0.38	0.007	0.04	94.46	0.8	8	115	11	24	1	43	5
BCD18609	139.00	142.00	3.00	16.58	0.136	4.26	5.01	4.13	1.56	0.18	2.11	0.21	58.24	0.02	0.38	0.007	0.69	93.51	0.9	17	115	13	35	1	32	10

HOLE NUMBER: BAR-20

GEOCHEM. SHEET

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MINNOVA INC.  
DRILL HOLE RECORD

DATE: 23-February-1998

FILE NUMBER: BAR-21

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.05	Casing «DB»					
3.05 TO 14.30	«QFP / DAC» QFP DACITE FLOW	<p>Colour: lt olive-green to lt gray, some rust areas Grain Size: f.g. to m.g. -massive -interfingered QFP and dacitic flows</p> <p>-in QFP 1-3 mm Q eyes 1-2% 1-2 mm Feldspar xtals 5-7%</p> <p>-in dacitic flows 1-3 m Q eyes 1% 2-3 mm feldspar xtals 7-10%</p> <p>-QFP could be altered equivalent to dacite</p> <p>{56.1-57.2} «Ultra Mafic Intrusive» -visible magnetite -black unit</p>		<p>-strong Fe-oxidation pervasively throughout unit and along fissures and cracks. -QFP seems to be more altered with sericite / Fe-ox than dacite</p>	<p>-tr.-1% py -disseminated</p>	
14.30 TO 51.50	«DAC T» DACITE TUFF	<p>Colour: light grey to light green Grain Size: f.g. to m.g. -massive</p>		<p>-sericite alteration tends to decrease as you proceed down hole -0.5 to 1 cm qtz veining</p>	<p>- tr py</p>	

FILE NUMBER: BAR-21

DRILL HOLE RECORD

LOGGED BY: G. Sharp

PAGE: 2

HOLE NUMBER: BAR-21

ASSAY SHEET

DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS
				Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Cu %	Pb %	Zn %	Ag g/T	Au g/T	
BCD18618	61.80	63.20	1.40	14	49	22	.3	5						
BCD18619	65.80	67.30	1.50	10	21	21	.4	5						
BCD18620	70.80	72.00	1.20	9	23	28	.2	5						
BCD18621	75.50	77.00	1.50	11	22	16	.3	10						
BCD18622	97.00	99.00	2.00	8	31	11	.6	5						

HOLE NUMBER: BAR-21

ASSAY SHEET

PAGE: 3

HOLE NUMBER: BAR-21

## GEOCHEM. SHEET

DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	Al2O3 %	Ba %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	Sr %	TiO2 %	Zr %	S %	Total %	Ag ppm	As ppm	Ba-ppm ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
BCD18615	9.30	10.70	1.40	16.71	0.142	3.18	2.38	3.06	0.81	0.12	3.75	0.11	65.13	0.03	0.28	0.004	0.03	95.73	0.8	5	157	16	31	1	24	5
BCD18616	12.30	14.40	2.10	16.88	0.15	2.65	2.45	3.25	1	0.1	3.52	0.11	65.16	0.03	0.29	0.005	0.01	95.6	0.8	14	124	15	16	1	27	10
BCD18617	54.60	56.00	1.40	16.42	0.199	2.69	3	4.54	1.29	0.08	1.15	0.11	66.17	0.02	0.28	0.009	0.04	96.01	0.8	1	165	12	21	1	26	10
BCD18623	105.20	106.60	1.40	14.6	0.164	8.02	3.99	3.51	2.93	0.43	1.94	0.14	56.1	0.03	0.25	0.011	0.03	92.14	0.3	15	130	8	34	1	23	5
BCD18624	117.10	119.00	1.90	15.82	0.131	4.78	5.05	3.39	2.35	0.21	2.56	0.18	58.5	0.03	0.38	0.007	0.02	93.4	0.5	8	133	8	22	1	33	5

HOLE NUMBER: BAR-21

GEOCHEM. SHEET

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 15.70	Casing «DB»					
15.70 TO 50.80	«DAC T» DACITE TUFF	Colour: med. grey-green Grain Size: f.g. -Mostly f.g. tuff, occasional 1-3 mm long white feldspar? crystals		-v. trace chlorite alteration with qtz veins -thin 1-5 mm qtz veins @ 45-60 deg to C.A. 1 Vn/50 cm  44.8-50.8 -mod sericite alt. (pervasive), lt green coloured core. Mod to very broken throughout  50.1 10 cm qtz/carb vein with 2% py	44.8-50.8 -tr. py, coarse cubes	28.0-38.7 -mod well broken sections common
50.80 TO 52.20	«G ARG» GRAPHITIC ARGILLITE	Colour: black Grain Size: aphanitic -v. broken, graphitic argillite, occ grey siltstone layers at 40 deg to C.A.  -lower contact sharp -fault gouge in underlying volcanics		«strong graphite»  -occ qtz veins		Note: good Max/Min conductor
52.20 TO 120.70	«DAC T» DAC/AND TUFF	Colour: med. green-grey Grain Size: fine -relatively homogeneous f.g. tuff, darker green and more chloritic than overlying volcanics. -possibly more mafic composition  -occ faint, lt brown 1-3 mm spots; possibly sericite alt. feldspars.			«tr. py»  -tr. py, concentrated in qtz/chl veins	
				52.2-54.7		

HOLE NUMBER: BAR-22

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 25-January-1990

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		E.O.H.		-mod sericite alt., minor gouge especially near upper contact. -occasional 2-5 mm qtz veins with med green chlorite  82.3-87.2 -10% 1 mm-2 cm chlorite veinlets/patches -2% qtz veins  89.6-92.0 -mod chlorite alt., some sections of broken core	112.5-117.0 v. tr. pyrrhotite as f.g. diss within thin qtz/chl veinlets -tr. cubic pyrite	82.3-85.0 mod broken core

HOLE NUMBER: BAR-22

DRILL HOLE RECORD

LOGGED BY: S. Lear

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HOLE NUMBER: BAR-22

ASSAY SHEET

DATE: 25-January-1990

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS
				Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Cu %	Pb %	Zn %	Ag g/T	Au g/T	

HOLE NUMBER: BAR-22

ASSAY SHEET

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HOLE NUMBER: BAR-22

## GEOCHEM. SHEET

DATE: 25-January-1990

Sample	From (m)	To (m)	Length (m)	Al2O3 %	Ba %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	Sr %	TiO2 %	Zr %	S %	Total %	Ag ppm	As ppm	Ba-ppm ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
BCD18610	22.50	25.50	3.00	17.05	0.108	2.59	3.74	3.69	0.88	0.11	3.65	0.19	63.34	0.04	0.42	0.004	0.02	95.83	1.4	6	168	22	12	1	13	5
BCD18611	47.00	49.50	2.50	17.08	0.125	2.98	6.59	4.61	1.15	0.21	1.56	0.19	60.59	0.03	0.44	0.004	0.01	95.57	0.7	4	139	8	11	1	27	5
BCD18612	52.50	54.50	2.00	16.9	0.124	4.01	5.54	4.41	1.24	0.22	1.74	0.19	59.98	0.04	0.41	0.007	0.01	94.82	0.9	22	136	14	16	1	26	5
BCD18613	62.50	65.50	3.00	18.05	0.125	3.02	6.14	3.7	1.21	0.23	3.39	0.22	58.93	0.04	0.45	0.007	0.03	95.53	0.7	5	149	28	12	2	34	5
BCD18614	96.00	99.00	3.00	17.53	0.125	3.41	6.54	3.9	1.39	0.25	2.75	0.2	59.12	0.04	0.44	0.004	0.01	95.72	0.7	4	166	22	24	1	35	10

HOLE NUMBER: BAR-22

GEOCHEM. SHEET

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.80	Casing «OB»					
4.80 TO 72.80	«DAC T» DACITE TUFF	Colour: grey green Grain Size: f.g. to m.g. -10-20% 1-3 mm white F.S. crystals in f.g. grey-green matrix  57.7-59.3 -ser alt. volcanic fragments in grey cherty matrix		-occasional 1-3 mm wide calc. vein and gashes  17.3-18.9 -strong FeOx. Probably due to near surface oxidation.  -wk-mod pervasive sericite alt.  below 34 m -ser alt mod.		«tr. py»
72.80 TO 94.10	«SER T» FINE SERICITE ALT. TUFF	Colour: light green Grain Size: f.g. -f.g. sericite alt tuffs. No F.S. visible -thin, contorted black layers. Possibly carbon alt along fractures.  -below 90 m, percentage of carbon fract/frags increases to 15%		-wk-mod sericite alt gives characteristic lt green colour to core, but silica alt/flooding results in mod. hard nature		«5% diss py»
94.10 TO 103.70	«ARG» ARGILLITE	Colour: black Grain Size: aph -massive, argillite -graphite on fractures., occasional coarser silt-stone wacke layers  100.5-101.0 m.g., green qtz-eye rhyolite as below: upper etc irregular lower etc broken				«2% py»

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		101.0-102.7 -m.g. wacke, mod ser. alt. -arg frags near lower, broken ctc  Lower ctc sharp at	70			
103.70 TO 136.60	«QFP FLOW» DACITE- RHYOLITE QFP FLOW	Colour: m. green Grain Size: m.g. -rhyolitic QFP flow -subrounded qtz eyes, 1-4 mm (avg 3), 10-30% -1-4 mm anhedral white F.S. 10-20% -subrounded 2-15 mm white qtz frags 5%  -f.g. med green sl. sericitic matrix		-wk sericite alt. matrix -occasional qtz veins		-v. tr. py near lower ctc
136.60 TO 139.50	«ARG+SER T» ARGILLITE + TUFF	-interlayered massive argillite and f.g. lt green sericite tuffs  Argillite tuffs: 136.6-137.4 137.8-138.3 139.2-139.3  Lower contact broken; thin (3 mm) argillite band		-mod sericite alt.		-tr.-2% f.g. diss py especially in tuffs
139.50 TO 174.20	«DAC-AND T» DACITE + ANDESITE TUFF	Colour: grey-green Grain Size: f.g. -10-20%, 1-3 mm white F.S. crystals. -f.g. grey-green matrix  139.5-142.7 -mod sericite alt., lt. green core; mod well broken  142.7-146.2 -mottled black altered F.P. tuff				
				152.7-164.5		

HOLE NUMBER: BAR-23

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 9-February-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		E.O.H.		-wk-mod sericite alt. 5%, 1-5 mm qtz veins  †167.5-169.0† «chl/qtz veins» 5-10 mm wide med green chl/qtz veins	154.0-163.5 -tr-2% med brown, sph-gn concentrated in qtz veins  †154.2-154.4† «SMS gn/sph» -30% gn; 10% sph -lower 8 cm, massive gn	very broken sections: 154.4-154.9 159.2-160.4

HOLE NUMBER: BAR-23

DRILL HOLE RECORD

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HOLE NUMBER: BAR-23

## ASSAY SHEET

DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS
				Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Cu %	Pb %	Zn %	Ag g/T	Au g/T	
BCD17807	154.00	154.40	0.40						.113	5.46	13.20	203.0	0.91	
BCD17808	154.40	156.00	1.60	24	150	4400	2.7	10						
BCD17809	156.00	158.00	2.00	18	1350	475	3.8	5						
BCD17810	158.00	160.00	2.00	13	760	390	3.1	10						
BCD17811	160.00	162.00	2.00	24	420	815	1.4	5						
BCD17812	162.00	164.00	2.00	12	185	340	.5	5						

HOLE NUMBER: BAR-23

ASSAY SHEET

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HOLE NUMBER: BAR-23

## GEOCHEM. SHEET

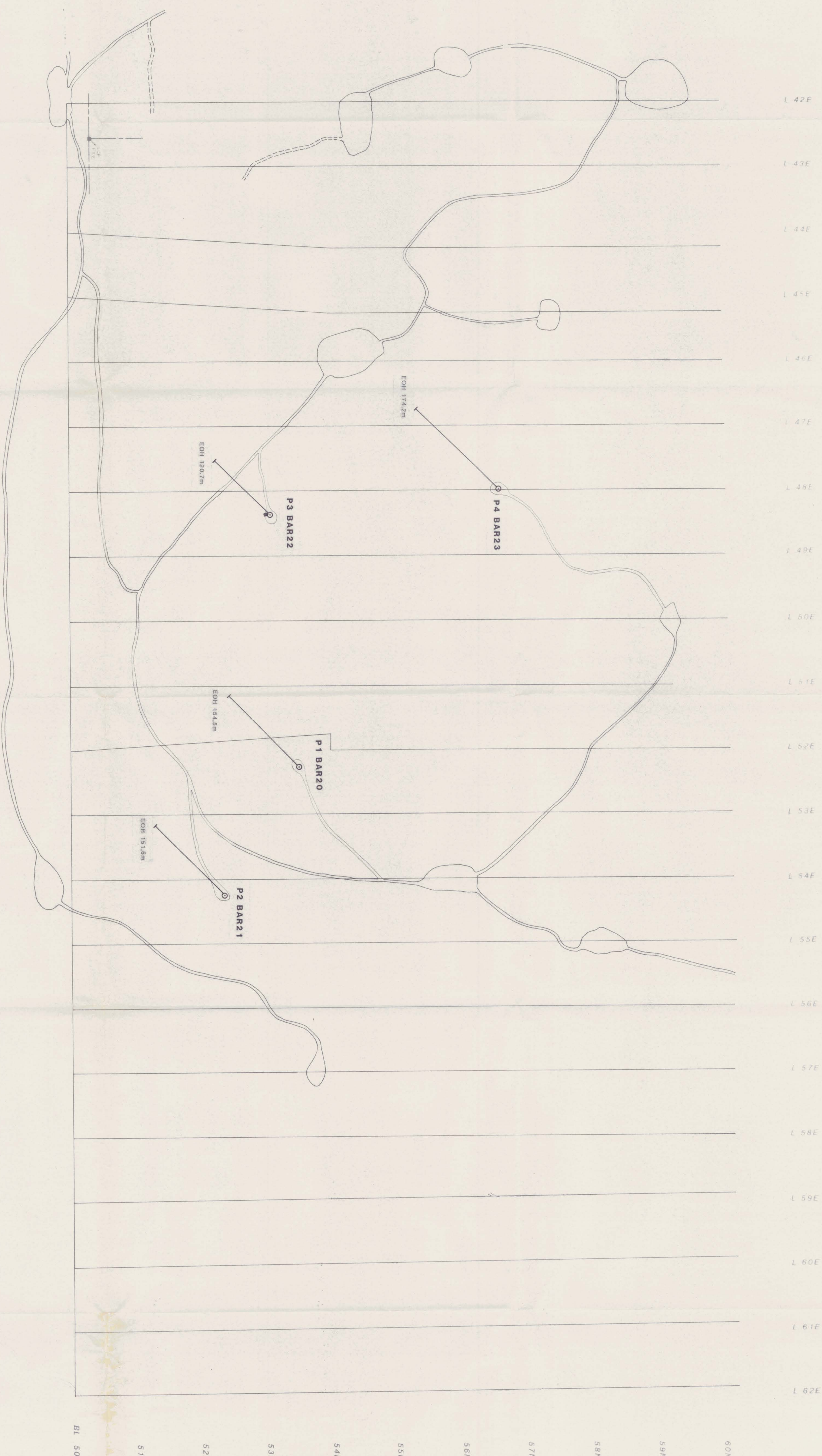
DATE: 9-February-1989

Sample	From (m)	To (m)	Length (m)	Al2O3 %	Ba %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	Sr %	TiO2 %	Zr %	S %	Total %	Ag ppm	As ppm	Ba-ppm ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
BCD17801	11.00	14.00	3.00	17.6	0.119	2.01	3.24	4.07	0.76	0.07	2.7	0.19	65.13	0.02	0.43	0.009	0.34	96.69	0.8	11	165	45	39	1	29	5
BCD17802	63.00	66.00	3.00	17.08	0.121	2.32	4.72	4.67	1.12	0.25	1.79	0.18	63.37	0.02	0.42	0.009	0.13	96.19	0.5	12	142	19	19	1	28	5
BCD17803	108.00	111.00	3.00	15.89	0.097	1.76	3.25	4.2	0.76	0.14	1.81	0.14	67.3	0.02	0.31	0.007	0.78	96.46	0.8	16	117	18	26	1	14	5
BCD17804	131.00	134.00	3.00	16.24	0.105	1.81	3.26	4.14	0.68	0.16	1.87	0.13	67.53	0.02	0.34	0.005	0.42	96.7	0.6	8	133	20	20	1	18	5
BCD17805	138.30	139.50	1.20	18.09	0.103	2.16	5.96	4.95	1.24	0.2	1.67	0.23	60.73	0.02	0.51	0.008	0.14	96.01	0.6	3	98	9	21	1	37	5
BCD17806	139.50	142.00	2.50	18.72	0.116	2.3	7.34	5.43	1.54	0.29	0.88	0.3	57.6	0.02	0.68	0.014	0.54	95.79	0.5	21	113	7	51	1	122	5

HOLE NUMBER: BAR-23

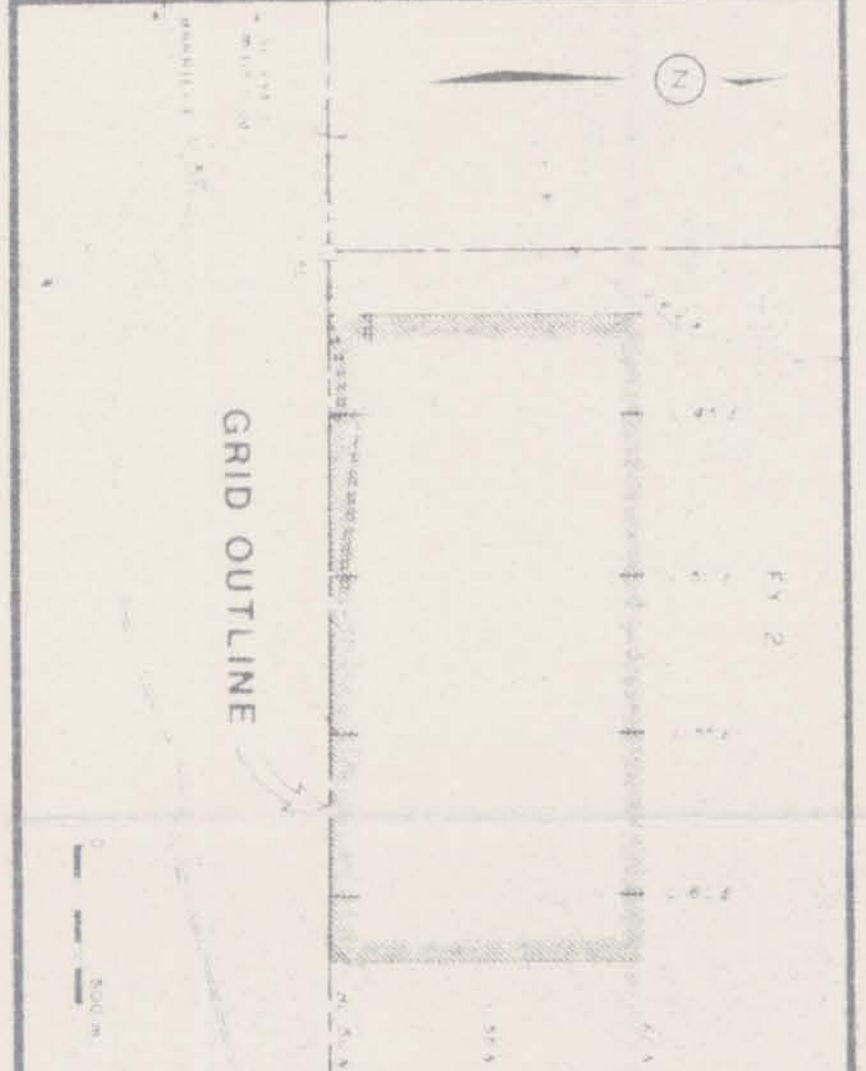
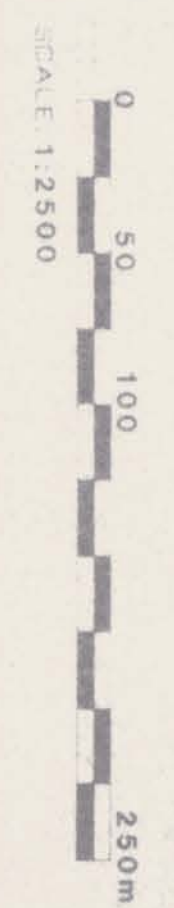
GEOCHEM. SHEET

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**18,489**

**MINNOVA INC.**  
**BAR PROJECT**  
 FV CLAIMS  
**1988 DDH LOCATIONS**



DRAWN BY: P.H.  
 DATE: FEB., 1989  
 N.P.S. 83M SW  
 FIG. NO. 4

CLAIM POST LOCATED WITH RESPECT TO GRID