

ARIS SUMMARY SHEET

District Geologist, Smithers

Off Confidential: 92.08.30

ASSESSMENT REPORT 21879

MINING DIVISION: Omineca

PROPERTY: Fireweed

LOCATION: LAT 55 01 00 LONG 126 25 00
UTM 09 6099482 665170
NTS 093M01W

CAMP: 044 Babine Porphyry

CLAIM(S): Ger 2, Grr 2

OPERATOR(S): Minnova

AUTHOR(S): Wells, G.S.

REPORT YEAR: 1991, 35 Pages

COMMODITIES

SEARCHED FOR: Copper, Lead, Zinc, Silver

KEYWORDS: Cretaceous, Skeena Group, Mudstones, Sandstones, Tuffs, Coal
Massive sulphides

WORK

DONE: Drilling, Geochemical
DIAD 495.4 m 3 hole(s); NQ
Map(s) - 1; Scale(s) - 1:5000
SAMP 37 sample(s); ME

RELATED

REPORTS: 17774, 18501, 21353

MINFILE: 093M 151

**SUB-RECORDER
RECEIVED**
NOV 28 1991
M.R. #.....\$.....
VANCOUVER, B.C.

LOG NO: DEC 04 1991 RD.
ACTION:
FILE NO:

Diamond Drilling Report
Fireweed Property

Omineca Mining Division
NTS 93M/1W

55° 01' N. Lat. 126° 25' W Long.

Owner: Minnova Inc.

Operator: Minnova Inc.

GRR Group

FW 1
FW 2
GRR 3

FW Group

FW 3
Fireweed 1
Fireweed 2
GER 2
GRR 2

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

Minnova Inc.

Vancouver, B.C.

G. S. Wells

August, 1991

21,879

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Diamond Drilling Report
Fireweed Property

1. Introduction

Minnova optioned the Fireweed property in late 1990 from Mansfield Minerals (formerly Canadian United Minerals) to evaluate the extent of sulphide mineralization exposed on the claims. This report describes the results from three diamond drill holes (FW-91, 94, 95) which tested weak IP anomalies in the vicinity of the Far West and Jan Zones. The work was done during the period March 3rd to 9th, 1991 by J. T. Thomas Diamond Drilling Ltd.

a. Location and Access

The Fireweed property is located 54 km northeast of Smithers, B.C. (Figure 1). The claims occur along the southern shore of Babine Lake just east of Smithers Landing. The area is readily accessible from Smithers via a network of primary and secondary logging roads. Topographic relief in the area is low to moderate with elevations ranging from 710 to 1160 meters above sea level. Large areas on the property are clear cuts with the remaining forested patches consisting of balsam fir, spruce and pine.

b. Mineral Rights

The drilling was carried out on the GRR 3 and GER 2 claims which are part of the FW and GRR groups. (Figure 2) The claim status of the claims in these two groups is as follows:

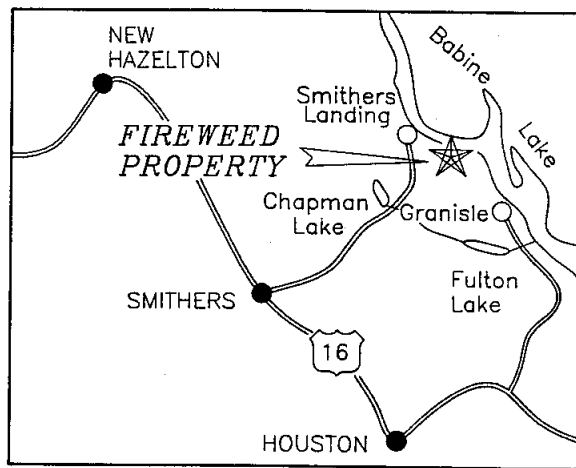
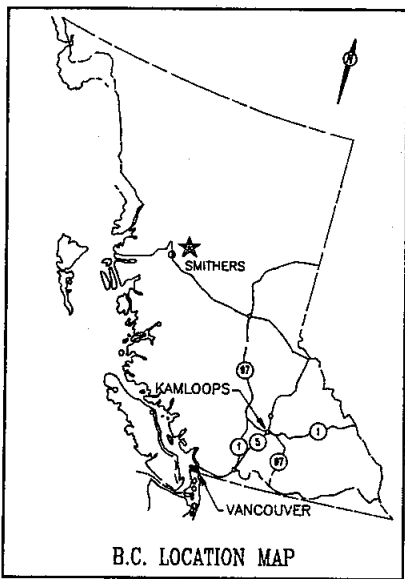
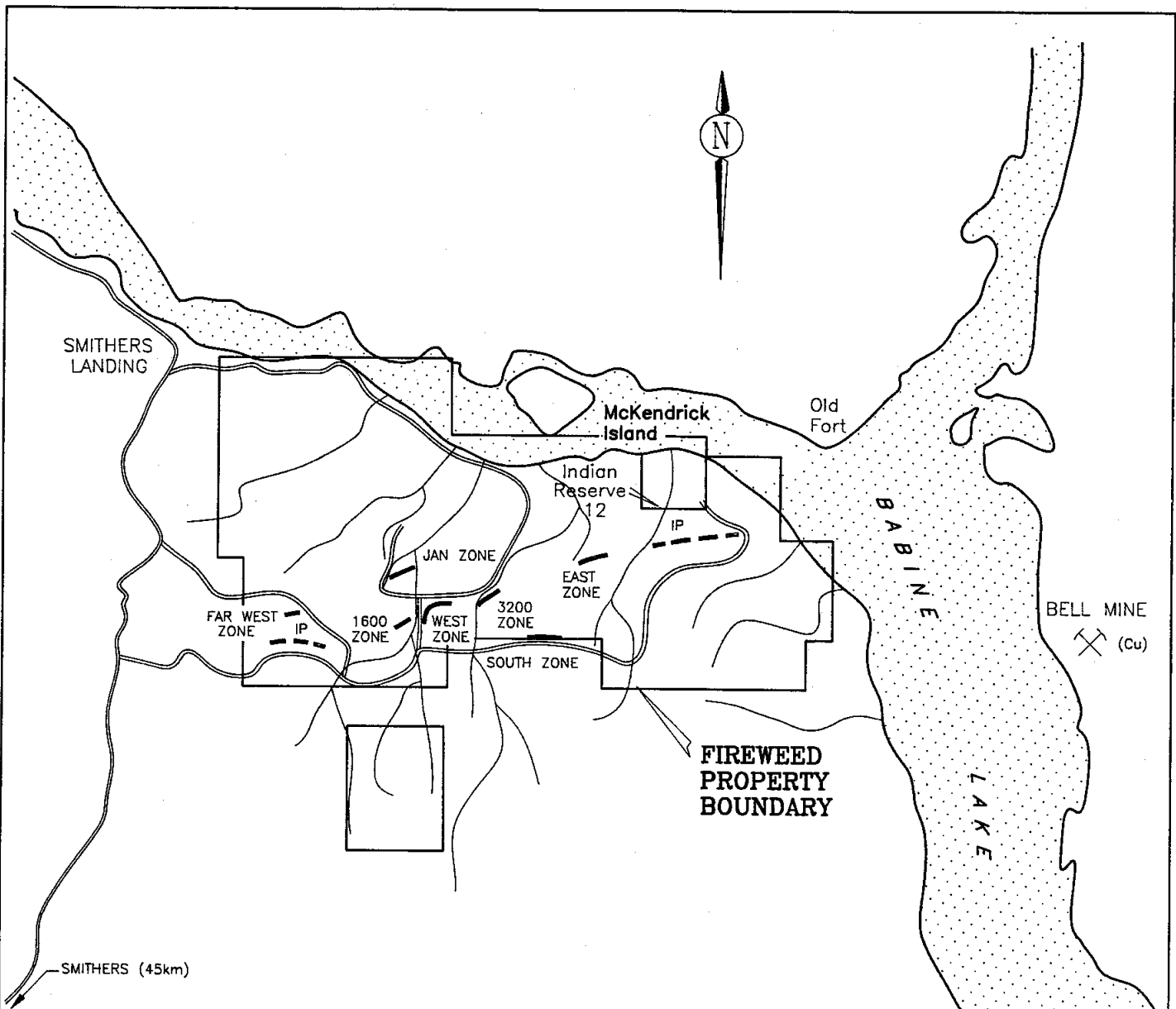
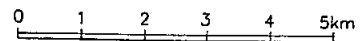


FIGURE 1



**FIREWEED PROPERTY
CLAIM LOCATION MAP**

IDP/sg

OCTOBER 1990

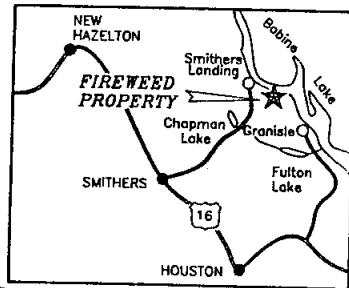
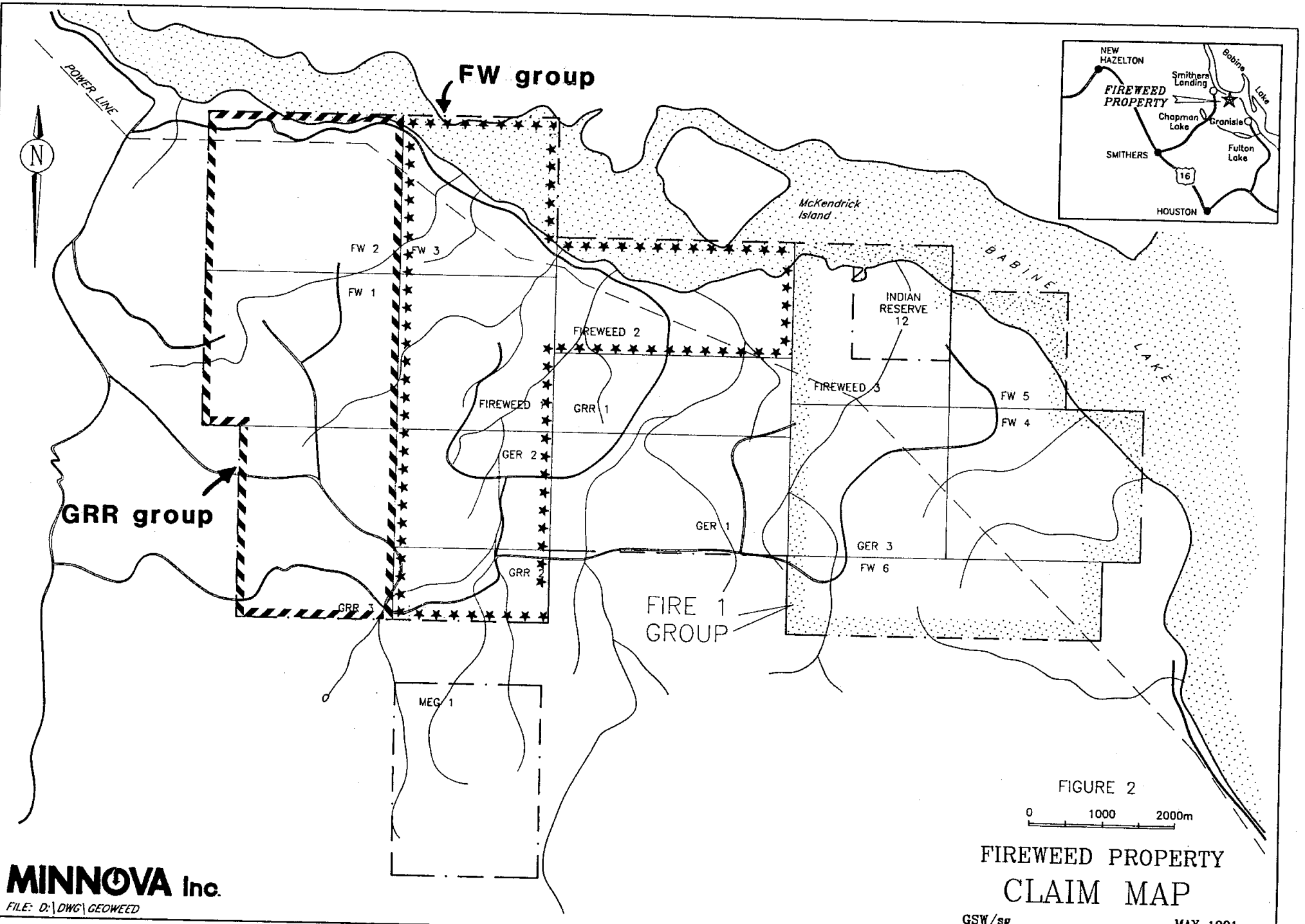


FIGURE 2

0 1000 2000m

FIREWEED PROPERTY
CLAIM MAP

GSW/sg

MAY 1991

MINNOVA Inc.

FILE: D:\DWG\GEOWEED

GRR Group

<u>Claim</u>	<u>No. of Units</u>	<u>Record Number</u>	<u>Month of Record</u>
FW 1	20	9264	Feb.
FW 2	20	9265	Feb.
GRR 3	20	9216	Dec.

FW Group

<u>Claim</u>	<u>No. of Units</u>	<u>Record Number</u>	<u>Month of Record</u>
FW 3	16	9266	Feb.
FIREWEED 1	12	9234	Jan.
FIREWEED 2	18	9235	Jan.
GER 2	16	8677	Aug.
GRR 2	8	9215	Dec.

c. History

The Fireweed property was staked in July, 1987 following the discovery of mineralized float. Canadian United Minerals acquired an option to earn a 100% interest in the claims in August, 1987. They exercised that option subject to a retained NSR royalty by carrying out exploration programs consisting of geological mapping, soil geochemical surveys, geophysical surveys (mag, VLF, IP), backhoe trenching and diamond drilling (79 holes = 14,000 + m). This work has defined six mineralized zones which occur along an east-west trend in the center of the property (Figure 1). The mineralization consists of two types: massive sulphide (pyrrhotite, sphalerite ± chalcopyrite) pipes and breccias which crosscut the sediment sequence and stratiform (py, sph, galena, tetrahedrite) zones which occur in coarse sandstone units.

Mineralization of the latter type is best exposed in the West Zone where an estimated 640,000 tons of 2.2% Zn, 1.3% Pb and 10 opt Ag has been defined.

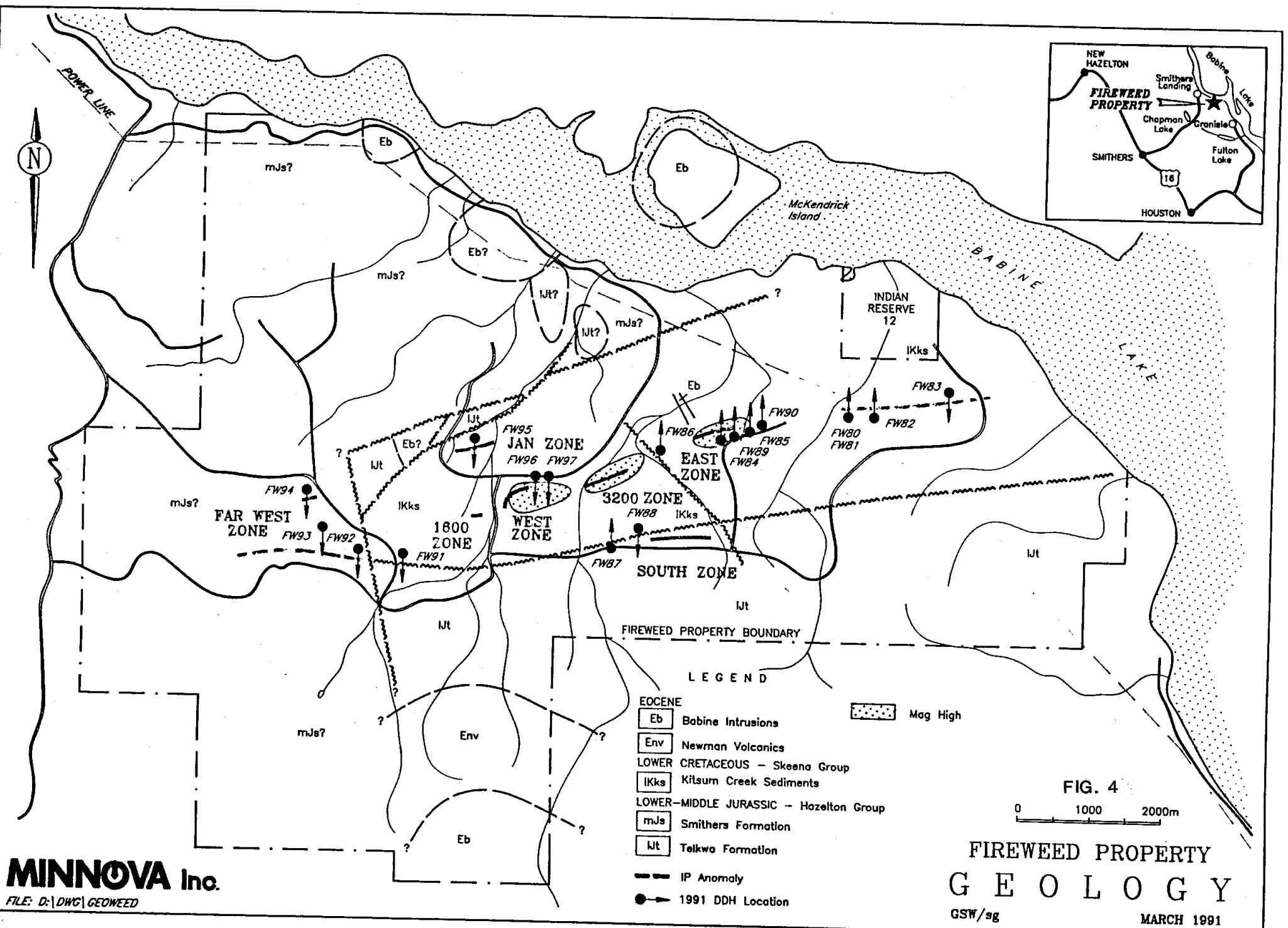
Minnova acquired the property in August, 1990 and carried out linecutting and IP to the east and west of the known mineralized zones. Several weak to moderate IP chargeability anomalies have been defined along the trend of the known mineralization.

2. Work Done

This report summarizes the results of three diamond drill holes (FW 91, 94, 95) which tested IP anomalies in the vicinity of the Jan and Far West zones. The holes are located on the GER 2 and GRR 3 claims (Figure 3). Mineralized samples were split and submitted to Min-En Labs in North Vancouver where they were analyzed for Cu, Pb, Zn, Ag, Au, Sb, Bi, As and Mn using an ICP technique. Detailed drill logs are included in Appendix I. The drill core is stored in J.T. Thomas' yard in Smithers, B.C.

3. Geology

Outcrop exposure on the Fireweed property is poor due to an extensive overburden cover consisting of sand, gravel and clay. The geological picture presented in Figure 4 is based on the limited exposure and diamond drill and trench data. The claim group is underlain primarily by mudstones, siltstones and fine to coarse-grained sandstones that belong to the Kitsum Creek formation of the lower Cretaceous Skeena Group. These sediments are bounded on three sides by lower to middle Jurassic Hazelton Group volcanics and sediments. The entire sequence is intruded by a number of feldspar-biotite and feldspar-hornblende stocks of Tertiary age (Babine Intrusives). The Newman dacitic Volcanics exposed in the southern part of the property are associated with these intrusions.



Mineralization on the property is hosted in the Kitsum Creek sediments and occurs along a 5 km long east-west trend. Two types of mineralization have been recognized - crosscutting massive sulphide (po, sph, ± cp) pipes and breccias and stratiform (py, sph, gn, tet) zones hosted in coarse sandstone units.

4. Diamond Drill Results

Holes FW-91 and FW-94 tested moderate to weak IP anomalies associated with Far West Zone. Hole FW-91 intersected a sequence of sediments and andesitic dikes. The IP response is probably due to coal layers which are interbedded with sandstones and mudstones. Hole FW-94 also intersected a sediment sequence consisting primarily of sandstones and siltstones. The IP anomaly is due to minor coal layers and weakly pyritic (1-5%) sandstone layers. Neither hole intersected economic mineralization.

Hole FW-95 tested an IP anomaly associated with the Jan Zone. Sediments consisting primarily of sandstone with minor fossiliferous sandstones were intersected. These units locally contain 1-2% pyrite which explains the IP anomaly. No economic mineralization is associated with these zones.

5. Conclusions

IP anomalies associated with the Far West and Jan zones were tested by two and one drill holes respectively. Coal seams and weakly pyritic sandstones were intersected in sufficient quantity to explain the IP anomalies but no zones of economic mineralization were outlined. Further drilling in these areas is not warranted.

Gary Wells

6. Itemized Cost Statement

1. GRR group - work on GRR 3 claim filed for \$8,063.82
 -diamond drill hole FW-94

Drilling costs		\$6,903.82
Cat time	6 hrs x \$ 70/hr	420.00
J. MacDonald	1 day x \$300/day	300.00
T. Eldridge	1 day x \$300/day	300.00
Truck/radio	1 day x \$ 70/day	70.00
Food/accomodation	1 day x \$ 70/day	70.00
	Total	<u>\$8,063.82</u>

2. FW group - work on GER 2 claim filed for \$13,782.54
 -diamond drill holes FW-91, 95

Drilling costs		\$11,532.54
Cat time	11 hrs x \$ 70/hr	770.00
J. MacDonald	2 days x \$300/day	600.00
T. Eldridge	2 days x \$300/day	600.00
Truck/radio	2 days x \$ 70/day	140.00
Food/accomodation	2 days x \$ 70/day	140.00
	Total	<u>\$13,782.54</u>

7. 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.

Gary Wells
Gary S. Wells

Date: *Aug. 31 / 91*

Appendix I

Diamond Drill Logs: FW-91, 94, 95

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: FW-91

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: FIREWEED
PROJECT NUMBER: 665
CLAIM NUMBER: GER2
LOCATION: NTS 93M/1W

PLOTTING COORDS GRID: FIELD
NORTH: 120.00S
EAST: 800.00E
ELEV: 900.00

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

COLLAR DIP: -47° 0' 0"
LENGTH OF THE HOLE: 125.00m
START DEPTH: 0.00m
FINAL DEPTH: 125.00m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 180° 0' 0"

DATE STARTED: March 4, 1991
DATE COMPLETED: March 5, 1991
DATE LOGGED: March 5, 1991

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

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

CONTRACTOR: J. T. THOMAS DRILLING
CASING: 24.39 M, PULLED
CORE STORAGE: THOMAS YARD, SMITHERS

PURPOSE: TO TEST FAR WEST IP ANOMALY

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
0.00	-	0° 0'	ACID	-		-	-	-	-	-	
-.01	-	-	-	-		-	-	-	-	-	
-.02	-	-	-	-		-	-	-	-	-	
-.03	-	-	-	-		-	-	-	-	-	
-.04	-	-	-	-		-	-	-	-	-	
-.05	-	-	-	-		-	-	-	-	-	
-.06	-	-	-	-		-	-	-	-	-	
-.07	-	-	-	-		-	-	-	-	-	
-.08	-	-	-	-		-	-	-	-	-	
-.09	-	-	-	-		-	-	-	-	-	
-.10	-	-	-	-		-	-	-	-	-	
-.11	-	-	-	-		-	-	-	-	-	
-.12	-	-	-	-		-	-	-	-	-	
-.13	-	-	-	-		-	-	-	-	-	
-.14	-	-	-	-		-	-	-	-	-	
-.15	-	-	-	-		-	-	-	-	-	
-.16	-	-	-	-		-	-	-	-	-	
-.17	-	-	-	-		-	-	-	-	-	
-.18	-	-	-	-		-	-	-	-	-	
-.19	-	-	-	-		-	-	-	-	-	
-.20	-	-	-	-		-	-	-	-	-	
-.21	-	-	-	-		-	-	-	-	-	
-.22	-	-	-	-		-	-	-	-	-	
-.23	-	-	-	-		-	-	-	-	-	
-.24	-	-	-	-		-	-	-	-	-	
-.25	-	-	-	-		-	-	-	-	-	
-.26	-	-	-	-		-	-	-	-	-	
-.27	-	-	-	-		-	-	-	-	-	
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-.38	-	-	-	-		-	-	-	-	-	
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-.47	-	-	-	-		-	-	-	-	-	
-.48	-	-	-	-		-	-	-	-	-	
-.49	-	-	-	-		-	-	-	-	-	
-.50	-	-	-	-		-	-	-	-	-	

HOLE NUMBER: FW-91

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 24.39	«CASING»					
24.39 TO 45.16	«AND DYKE»	Medium green, porphyritic to sericite texture with in a very fine grained to aphanitic mesocratic to leucocratic matrix; phenocrysts comprise about 25-30% of the rock Massive, no bedding or flow features probably dyke or sill phenocrysts ar about 60/40 white amygdules of analcite and feldspar, and dark green chlorite altered amphiboles phenocrysts are < /= 5 mm; matrix is very light greenish grey Contactt with underlying unit is chilled over 1.0 meter to a very light green-grey aphanitic rock; the contact is irregular and brecciated		Minor calcite veinlets throughout with rare epidote and hematite	Very fine grained disseminated pyrite <1%	Composition is andesite (to latite)
45.16 TO 47.70	«MDST & COA L»	Colour: black Black, massive, mudstone and coal; at least one thin interbed of black porphyritic (fine grained) tuff also some tuffaceous clasts in the coal Sheared throughout to a mylonitic texture of mdst clasts (rounded) within a friable coaly matrix Shear fabric about	45			
47.70 TO 48.87	«AND DYKE»			Shear fabric about 45 deg to c.a.; very fine grained to aphanitic, very light greenish grey dyke		
48.87 TO 53.56	«MDST AND C OAL»	Sheared as above dyke, predominantly fusane 51.6-51.7 -durane-clarane				recovery; 80-85

HOLE NUMBER: FW-91

DRILL HOLE RECORD

LOGGED BY: J. McDONALD

PAGE: 2

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

HOLE NUMBER: FW-91

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
53.56 TO 60.96	«AND DYKE»	Colour: light green Porphyritic dyke as above mdst-coal interval; upper contact is faulted; unit becomes progressively more sheared down hole, manifested by fracturing to brecciation with minor gouge				
60.96 TO 70.10	«COAL & MDS T»	Colour: black Sheared to mylonitized throughout; class of mdst and rare sst and tuff within a matrix of coal 60.96-63.4 -fusane and mdst 63.4-66.5 -clarane and vitrane 66.50-69.50 -fusane and mdst 69.50-70.10 -durane with seams of clarane				
70.10 TO 72.80	«AND DYKE»	Sheared, homogenous				
72.80 TO 77.40	«SST»	Massive, coarse grained 74 -strongly sheared 76.20 -10 cm of clay gouge		Very strong clay alteration of the matrix	<1%	
77.40 TO 88.00	«COAL»	Colour: black Sheared throughout 77.4-79.25 -fusane 79.25-80.75				

HOLE NUMBER: FW-91

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 3

HOLE NUMBER: FW-91

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-durane, fusane and clarane 80.75-81.0 -sst, mudstone 81.0-85.1 -clarane - durane 85.1-85.43 -mdst 85.43-88 -clarane-durane				
88.00 TO 90.12	«ANDESITE TUFF»	Massive, fine grained tuff		Very strong clay alt'n	Py </= 1%	
90.12 TO 91.25	«COAL»	Clarane - durane				
91.25 TO 91.40	«SST»	Colour: grey Grain Size: f.gr.				
91.40 TO 111.35	«COAL»	Sheared throughout, variable 0 to 40 deg 91.40-92.9 -fusane, durance and clarane, some mudstone 5% 92.9-93.9 -clarane-durane, 10 cm of mdst 93.9-94.85 -brecciated sst with 30% coal, 15 and 40 deg to c.a. 94.85-97.56 -clarane-durane 97.56-97.85 -mdst 97.85-98.8				

HOLE NUMBER: FW-91

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 4

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

HOLE NUMBER: FW-91

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-clarane 98.8-101.75 -50% sst, mdst, 50% clarane 101.75-103.5 -fusane and clarane 103.5-104.2 -mdst, minor coal 104.2-110.2 -clarane and durane 110.2-111.35 -clarane, durane and fusane				
111.35 TO 113.00	«AND DYKE»					
113.00 TO 113.70	«COAL»	Durane				
113.70 TO 125.00	«SST AND CG L» E.O.H.	Volcaniclastic and coarse grained grading up to fine grained tops in thick bedded sequences; rounded clasts of slst, mdst and about 80% fld clasts, unit is based by possible ash flow containing about 90% fld crystals (+/- 1 mm)	65	Very strong clay alteration		

HOLE NUMBER: FW-91

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 5

HOLE NUMBER: FW-91

ASSAY SHEET

DATE: 13-May-1991

Sample	From (m)	To (m)	Length (m)	ASSAYS							GEOCHEMICAL							COMMENTS
				Cu %	Pb %	Zn %	Ag oz/t	Au oz/t	MAg g/t	MAu g/t	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Sb ppm	Bi ppm	

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS:

METRIC UNITS: X

HOLE NUMBER: FW-94

PROJECT NAME: FIREWEED
PROJECT NUMBER: 665
CLAIM NUMBER: GRR3
LOCATION: NTS 93M/1W

PLOTTING COORDS GRID: FIELD
NORTH: 515.00N
EAST: 400.00W
ELEV: 900.00

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

COLLAR DIP: -47° 0' 0"
LENGTH OF THE HOLE: 169.82m
START DEPTH: 0.00m
FINAL DEPTH: 169.82m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 180° 0' 0"

DATE STARTED: March 7, 1991
DATE COMPLETED: March 8, 1991
DATE LOGGED: 0, 0

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

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

CONTRACTOR: J. T. THOMAS DRILLING
CASING: PULLED, 27.43 M
CORE STORAGE: J. T. THOMAS YARD

PURPOSE: TO TEST A WEAK IP ANOMALY IN THE FAR WEST ZONE

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-

HOLE NUMBER: FW-94

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 27.43	«CASING»					
27.43 TO 29.50	«DEBRIS FLOW»	Massive, angular to rounded clasts of clay altered slst, mdst, unaltered mdst, slst, and fragments containing lath shaped calcite frags and probable carbonaceous material (shell pieces?) and wood fragments; matrix is a dark grey mdst? Unsorted, unbedded, also probable tuff fragments		-calcareous		
29.50 TO 30.15	«SST»	Colour: light grey Grain Size: c.gr. Medium bedded, poorly to moderately sorted clasts of qtz, fld, lesser slst, mdst and shell? frags		Very strong clay alteration calcareous		
30.15 TO 37.10	«MDST AND COAL»	Colour: black Thin and medium beds Rubbly core and minor gouge throughout the unit; coal is primarily fusane and durane with seams of clarane up to 20 cm long	60	Clay altered to 31.0 m	Minor <1% laminations of bedded pyrite	
37.10 TO 39.00	«FOSS. MDST»	Colour: medium to light grey Fossiliferous mdst, massive bedding locally micritic shell fragments and whole shells throughout from 10% to 30% of unit		Weak to moderate clay alteration		
39.00 TO 42.60	«SST»	Colour: greenish grey Grain Size: c.gr. Medium and thick bedded; poorly to moderately sorted clasts of slst, mdst, qtz feld, shells and carbonaceous fragments 40.25-40.9 -conglomerate with clasts of slst and whole			39.62-40.25 -dissem. and lam. of bedded py, 10-15%	

HOLE NUMBER: FW-94

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 2

HOLE NUMBER: FW-94

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		shells				
42.60 TO 45.72	«DEBRIS FLO W»	As described at 27.43-29.50 42.74-42.80 -clay altered interbed either and ash bed or clast	80			
45.72 TO 47.34	«CONGLOM»	Colour: light Grain Size: granule Massive, bedding subrounded poorly sorted clasts as in sst @ 39 m; fines upwards		Moderate clay alteration of matrix variably calcareous	<1%	
47.34 TO 49.86	«SST»	Colour: light grey Grain Size: c. and m.gr. As above cgl but finer grained 49.56-49.86 -two thin carbonaceous slst interbeds	70	Moderate clay alteration of matrix -variably calcareous	Very fine grained pyrite, 5% -very fine grained pyrite <5%	
49.86 TO 56.00	«SST»	Colour: very light grey Grain Size: f.gr. Massive with minor thin cgl. bases; about 70% fld? clasts, 10-20% qtz and slst and carbonaceous clasts in the remainder?; vague bedding throughout Unit grades into an underlying one as a colour change and is probably its bleached equivalent		49.56-51 -bleached possibly clay alteration 53.48-54.7 -calcite veinlets @ 10 deg to c.a. 54.7-55.86 -calcite veining and breccia infilling veinlets @ 10 deg to c.a.	-<1% py 52-53.48 -minor py veinlets @25 deg to c.a. -py along calcite veinlets and as blebs adjacent to veinlets of py, py 5-10%	

HOLE NUMBER: FW-94

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 3

HOLE NUMBER: FW-94

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
56.00 TO 101.00	«SST TO SLS T»	Colour: dark grey Grain Size: f.gr. Massive, silty sst shell (bivalve and gastropod) fossils and carbonaceous (wood) fragments, bioturbated throughout		Minor calcite veinlets	Dissem. py <1-2%	
101.00 TO 108.50	«SST»	Colour: dark and medium grey Grain Size: m. and c.gr. Massive bedding, mottled texture due to bioturbation and possibly slumping 30-40% coarse grained clasts of shells? Carbonaceous throughout also shell fossils throughout (bivalves and gastropods); unit becomes increasingly lighter downhole due to bleaching 105.5-107.5 -fine to medium grained massive, moderate to strong leaching; homogenous texture 107.5-108.5 -medium to coarse grained mottled texture moderately bleached	65	101.5-102.9 -weak calcite veinlets 105.9-106.5 -moderately to strongly bleached, probable clay alteration 107.5-108.5 -moderately bleached	-very fine grained, py dissem. <1-2% -py veinlets 10 deg to 30 deg to c.a. 5% with calcite veins 106.5-107.5 -very fine grained pyrite, <1-3%	
108.50 TO 115.50	«SST»	Colour: very light greenish grey Grain Size: m. and c.gr. Massive bedding, homogenous texture due to bleaching		Strongly bleached (clay alt'n), weak calcite veinlets; non calcareous	109.5-115.5 -very fine grained pyrite <1-3%	
115.50 TO 129.00	«SST»	Colour: medium to light grey Grain Size: m. and c.gr. Massive with thin cgl. bases (<10%), fining upwards 119.5-124 -strongly bioturbated, carbonaceous wisps throughout		Variably calcareous, weakly bleached	Very fine gr. pyrite, <1-3%, check sample	

HOLE NUMBER: FW-94

DRILL HOLE RECORD

LOGGED BY: J. MCDONALD

PAGE: 4

HOLE NUMBER: FW-94

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
129.00 TO 169.82	«SST»	<p>Colour; dark grey Grain Size: f.gr. to silty Massive bedding 60-70 deg.; mottled texture due to bioturbation; also bivalve and gastropod fossils</p> <p>140-141.0 -fault breccia with calcite veining in the matrix</p> <p>150 to -medium patchy bleaching</p> <p>162-164 -fault breccia infilled by calcite</p>		<p>Weak calcareous</p> <p>-siliceous hairline veinlets bleached</p>	<p>Very fine grained pyrite, <1-3%</p> <p>-py <1-2%</p> <p>165-166 -as above with trace ZnS in qtz veinlet</p>	<p>148-151 -large calcite nodules with rims of py replacing large shells</p>
	E.O.H.					

HOLE NUMBER: FW-94

DRILL HOLE RECORD

LOGGED BY: J. McDONALD

PAGE: 5

HOLE NUMBER: FW-94

ASSAY SHEET

DATE: 13-May-1991

Sample	From (m)	To (m)	Length (m)	ASSAYS							GEOCHEMICAL							COMMENTS			
				Cu %	Pb %	Zn %	Ag oz/t	Au oz/t	MAg g/t	MAu g/t	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Sb ppm	Bi ppm		As ppm	Mn% %	Mn ppm
29292	39.62	40.25	0.63									23	16	151	0.1	10	1	1	31	621	
29293	46.00	47.00	1.00									56	17	101	0.1	5	1	1	25	1197	
29294	47.00	47.90	0.90									18	11	86	0.5	5	1	2	12	1331	
29295	47.90	48.56	0.66									18	10	86	0.1	5	1	1	6	1004	
29296	48.56	49.56	1.00									18	16	60	0.3	5	1	1	17	1235	
29297	49.56	51.00	1.44									21	15	102	0.6	10	1	1	15	877	
29298	51.00	52.00	1.00									19	15	131	0.1	5	1	1	22	806	
29299	52.00	53.48	1.48									20	12	143	3.5	10	1	1	24	553	
29300	53.48	54.70	1.22									18	11	99	0.2	5	2	1	65	536	
29301	54.70	55.86	1.16									13	11	59	0.8	5	2	1	30	593	
29302	101.50	102.90	1.40									40	17	152	0.6	5	1	1	43	911	
29303	102.90	103.90	1.00									46	13	129	0.4	5	1	1	21	1048	
29304	103.90	104.90	1.00									37	17	134	0.6	5	1	1	25	1184	
29305	104.90	105.50	0.60									44	18	125	0.5	5	1	1	22	1177	
29306	105.50	106.50	1.00									23	15	168	0.4	5	1	1	37	1169	
29307	106.50	107.50	1.00									18	21	151	0.5	5	1	1	14	1159	
29308	107.50	108.50	1.00									20	15	109	0.1	5	1	1	13	1410	
29309	108.50	109.50	1.00									14	11	121	0.4	5	1	1	1	1185	
29310	109.50	110.50	1.00									15	12	133	0.3	5	1	1	12	1154	
29311	110.50	111.50	1.00									14	11	103	0.3	5	1	1	16	1053	
29312	111.50	112.50	1.00									15	11	78	0.4	5	1	1	5	942	
29313	112.50	113.50	1.00									15	13	56	0.6	5	1	1	13	949	
29314	113.50	114.50	1.00									17	13	86	0.6	5	1	1	21	825	
29315	114.50	115.50	1.00									18	19	133	0.6	5	1	1	20	806	
29316	118.00	119.50	1.50									16	20	47	0.6	5	1	1	15	1273	
29317	126.50	128.00	1.50									26	18	105	0.3	5	1	1	40	1011	
29318	131.00	132.00	1.00									22	17	97	0.7	5	1	2	21	957	
29319	162.00	163.00	1.00									40	17	110	0.9	5	1	3	15	723	
29320	163.00	163.80	0.80									29	23	81	0.8	5	1	3	18	746	
29321	163.80	165.00	1.20									27	20	93	0.9	5	1	5	47	1049	
29322	165.00	166.00	1.00									30	18	137	1.1	5	1	6	6	1100	

HOLE NUMBER: FW-94

ASSAY SHEET

PAGE: 6

HOLE NUMBER: FW-95

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS:

METRIC UNITS: X

PROJECT NAME: FIREWEED
PROJECT NUMBER: 665
CLAIM NUMBER: GER2
LOCATION: NTS 93M/1W

PLOTTING COORDS GRID: FIELD
NORTH: 1310.00N
EAST: 1700.00E
ELEV: 848.00

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

COLLAR DIP: -47° 0' 0"
LENGTH OF THE HOLE: 164.59m
START DEPTH: 0.00m
FINAL DEPTH: 164.59m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 180° 0' 0"

DATE STARTED: March 8, 1991
DATE COMPLETED: March 9, 1991
DATE LOGGED: 0, 0

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

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

CONTRACTOR: J. T. THOMAS
CASING: PULLED, 18.29 M
CORE STORAGE: THOMAS YARD, SMITHERS

PURPOSE: TO TEST WELL DEFINED IP ANOMALY IN JAN ZONE

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
0.00	-	0° 0'	ACID	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
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HOLE NUMBER: FW-95

DRILL HOLE RECORD

LOGGED BY: J. McDONALD

PAGE: 1

HOLE NUMBER: FW-95

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 18.29	«CASING»					
18.29 TO 27.00	«SST»	Colour: medium greenish grey Grain Size: m.gr. Massive; fine to medium grained clasts of qtz?, fld?, shells, slst and mdst? with 15-40% coarse clasts; also minor carbonaceous (wood) fragments; bioturbated		Strongly calcareous	Very fine grained pyrite generally, 1-2% or less	
27.00 TO 55.25	«SST»	Colour: medium greenish grey Grain Size: f.gr. Massive, strongly bioturbated, carbonaceous wisps (<5%) throughout; occasional shell fossil and shell fragments throughout 46.68-46.8 52.4-52.55 -very strongly bleached clay alt'n	70	Strongly calcareous 46-53 -mottled due to preferential bleaching of rock to medium greenish grey - calcareous		
55.25 TO 64.00	«SST»	Colour: medium greenish grey Massive sst as above with an increase in coarse sized clasts to 15-20% and in shell fossils; coarse clast content increase downwards into a granule conglomerate		Minor calcite veinlets		
64.00 TO 84.20	«CGL»	Colour: medium greenish grey Massive, granule sized clasts of shells, slst, mdst, qtz and fld within a fine grained sst matrix; clasts increase to 90% of rock at 67.25 67.25 -unit becomes 90% very coarse sand to granule clasts 69.8-79 -strong clay? altered matrix 69.8-74.5 -matrix is washed out the rock is crumbly and vuggy	68	Strongly calcareous		

HOLE NUMBER: FW-95

DRILL HOLE RECORD

LOGGED BY: J. McDONALD

PAGE: 2

HOLE NUMBER: FW-95

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
84.20 TO 115.05	«SST»	<p>Colour: medium greenish grey Grain Size: c.gr. Massive, unit as above with smaller clast size</p> <p>About 86.8 -unit becomes medium to coarse grained About 89 -unit becomes medium to fine grained</p> <p>97.2 -unit becomes bioturbated</p> <p>99.58 -large shell fragments</p> <p>112 -coarse clasts of shell 5-10%</p>	72	Unit is moderately bleached	-very fine grained py 1-2%	
115.05 TO 129.90	«SST AND FO SS SST»	<p>Colour: medium greenish grey Grain Size: m.gr. to granular Thick intervals of medium grained st and coarse grained sst to granule cgl; +/-bivalves or gastro-pods</p> <p>poorly developed bedding and bioturbation, carbonaceous matter locally throughout</p> <p>121-125.2 -medium grained 125.2-129.9 -medium to coarse grained</p>	65	Bleached, weakly to non-calcareous		
129.90 TO 164.59	«SST»	<p>Colour: medium greenish grey Grain Size: v.c.gr. to granular Massive, carbonaceous wisps throughout</p>		Strongly calcareous		

HOLE NUMBER: FW-95

DRILL HOLE RECORD

LOGGED BY: J. McDONALD

PAGE: 3

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: FW-95

DATE: 13-May-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.	<p>134.1-134.4 -sheared black mdst and large shell fragments and calcite veins; shears @ approx. 40 deg to c.a.</p> <p>Unit is variably vuggy and non-calcareous where it is vuggy; vuggy sections to 149 m</p> <p>156-158 -moderately fractured with carbonaceous matter transported into the fractures and minor calcite veining</p>				

HOLE NUMBER: FW-95

ASSAY SHEET

DATE: 13-May-1991

Sample	From (m)	To (m)	Length (m)	ASSAYS				GEOCHEMICAL											COMMENTS				
				Cu %	Pb %	Zn %	Ag oz/t	Au oz/t	MAg g/t	MAu g/t	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Sb ppm	Bi ppm	As ppm		Mn% %	Mn ppm		
29323	22.50	23.50	1.00									24	48	84	1.5	5	25	2	6			885	
29324	27.50	28.50	1.00									22	19	93	0.9	5	1	3	1			1004	
29325	51.00	52.00	1.00									18	27	140	0.8	5	1	2	1			704	
29326	52.00	52.55	0.55									21	38	144	0.8	5	1	2	1			752	
29327	87.00	88.00	1.00									12	11	138	0.8	10	1	2	1			1169	
29328	103.63	104.78	1.15									17	21	112	0.7	5	1	2	1			723	

HOLE NUMBER: FW-95

ASSAY SHEET

PAGE: 5

Appendix II

Diamond Drilling Invoices

J. T. THOMAS

DIAMOND DRILLING LTD.

Box 394
 Smithers, B.C.
 V0J 2N0
 Phone: (604) 847-4361

Branch Office
 Timmins, Ont.

TO: Minnova Inc.
 3rd Floor - 311 Water Street
 Vancouver, B.C.
 V6B 1B8

Invoice No.: 91-1
 Invoice Date: March 19, 1991
 Property: Fireweed

This is our invoice for diamond drilling and other services to the completion of the project.

DRILL: A-12

DIAMOND DRILLING: 2975.4 Metres (see attached Pages One - Three)	\$	127,453.45
MAN & MACHINE HOURS: (see attached Pages Four - Five)		5,391.50
MATERIALS: (see attached Page Six)		11,148.33
GRADER: to clear access road (see attached Invoice)		219.00

SUB TOTAL:	\$	144,212.28
GST: 7%		10,094.86
TOTAL DUE:	\$	154,307.14

The above calculations are agreed to by:

 Company Representative

[Signature]
 J.T. Thomas Diamond Drilling (1980) Ltd.

MINNOVA INC.

GST Registration # R102737806

VENDOR NAME	INVOICE NUMBER OR DATE	CURRENCY	1 - CDM	2 - U.S.		
J.T. THOMAS	91-1		1			
ACCOUNT CODE			AMOUNT	CR		
GENERAL LEDGER	DETAIL	EXPLORATION PROJECTS		v		

Gar + OK'd

J. T. THOMAS

DIAMOND DRILLING LTD.

Box 394
 Smithers, B.C.
 V0J 2N0
 Phone: (604) 847-4361
 Minnova - Drill A-12

February 7 - March 12, 1991

Branch Office
 Box 944
 Timmins, Ont. P4N 7H5
 Phone: (705) 267-6633
 Page Two

DIAMOND DRILLING:

Hole No.	Date	Overburden		Coring		Total Meterage	Rate	Amount
		From	To	From	To			
91-85	February 21	60	68.6			8.6	\$ 58.40	\$ 502.24
				68.6	150.0	81.4	39.90	3,247.86
				150.0	213.4	63.4	43.90	2,783.26
91-86	February 23	0	15			15.0	39.90	598.50
		15	30			15.0	43.90	658.50
		30	36.6			6.6	48.30	318.78
				36.6	150.0	113.4	39.90	4,524.66
91-87	February 25			150.0	159.8	9.8	43.90	430.22
		0	15			15.0	39.90	598.50
		15	30			15.0	43.90	658.50
		30	45			15.0	48.30	724.50
91-88	February 26	45	54.9			9.9	53.10	525.69
				54.9	150.0	95.1	39.90	3,794.49
				150.0	155.5	5.5	43.90	241.45
		0	15			15.0	39.90	598.50
91-89	February 28	15	27.4			12.4	43.90	544.36
				27.4	150.0	122.6	39.90	4,891.74
				150.0	178.4	28.4	43.90	1,246.76
		0	15			15.0	39.90	598.50
91-90	March 2	15	30			15.0	43.90	658.50
		30	45			15.0	48.30	724.50
		45	60			15.0	53.10	796.50
		60	64			4.0	58.40	233.60
				64.0	150.0	86.0	39.90	3,431.40
				150.0	225.0	75.0	43.90	3,292.50
						15.0	39.90	598.50
						15.0	43.90	658.50
91-91	March 4	30	45			15.0	48.30	724.50
		45	60			15.0	53.10	796.50
		60	75			15.0	58.40	876.00
		75	85.4			10.4	64.20	667.68
91-92	March 5			85.4	150.0	64.6	39.90	2,577.54
				150.0	188.1	38.1	43.90	1,672.59
		0	15			15.0	39.90	598.50
		15	24.4			9.4	43.90	412.66
91-93	March 6			24.4	125.0	100.6	39.90	4,013.94
		0	6.1			6.1	39.90	243.39
				6.1	150.0	143.9	39.90	5,741.61
91-93	March 6			150.0	164.6	14.6	43.90	640.94
		0	12.8			12.8	39.90	510.72
				12.8	147.6	134.8	39.90	5,378.52

J. T. THOMAS

DIAMOND DRILLING LTD.

Box 394
 Smithers, B.C.
 V0J 2N0
 Phone: (604) 847-4361
 Minnova - Drill A-12

February 7 - March 12, 1991

Branch Office
 Box 944
 Timmins, Ont. P4N 7H5
 Phone: (705) 267-6633
 Page Three

DIAMOND DRILLING:

Hole No.	Date	Overburden		Coring		Total Meterage	Rate	Amount
		From	To	From	To			
91-94	March 7	0	15.0			15.0	\$ 39.90	\$ 598.50
		15	27.4			12.4	43.90	544.36
				27.4	150.0	122.6	39.90	4,891.74
				150.0	169.8	19.8	43.90	869.22
91-95	March 8	0	15.0			15.0	39.90	598.50
		15	18.3			3.3	43.90	144.87
				18.3	150.0	131.7	39.90	5,254.83
				150.0	161.6	11.6	43.90	509.24
91-96	March 10	0	15.0			15.0	39.90	598.50
		15	21.3			6.3	43.90	276.57
				21.3	150.0	128.7	39.90	5,135.13
				150.0	190.9	40.9	43.90	1,795.51
91-99	March 11	0	15.0			15.0	39.90	598.50
		15	30.0			15.0	43.90	658.50
		30	33.5			3.5	48.30	169.05
				33.5	149.4	115.9	39.90	4,624.41
TOTAL:						<u>2,975.4 m</u>		<u>\$ 127,453.45</u>

J. T. THOMAS

DIAMOND DRILLING LTD.

Box 394
 Smithers, B.C.
 V0J 2N0
 Phone: (604) 847-4361

Branch Office
 Timmins, Ont.

TO: Minnova Inc.
 3rd Floor - 311 Water Street
 Vancouver, B.C.
 V6B 1B8

Invoice No.: 91-2
 Invoice Date: March 19, 1991
 Property: Fireweed

This is our invoice for road construction on the Fireweed property to the completion of the project.

CAT: D6D (see attached Page One) \$ 16,065.00

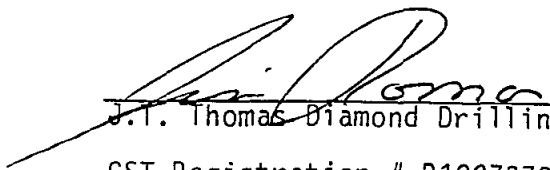
GST: 7% 1,124.55

TOTAL: \$ 17,189.55

The above calculations are agreed to by:

 Company Representative

MINNOVA INC.


 J.T. Thomas Diamond Drilling (1980) Ltd.

GST Registration # R102737806

VENDOR NAME		INVOICE NUMBER OR DATE		CURRENCY	F I L
J. T. THOMAS		91-2		1. - CDN 2. - U.S.	
ACCOUNT CODE			AMOUNT	CR	
GENERAL LEDGER	DETAIL	EXPLORATION PROJECTS		X	

J. T. THOMAS
DIAMOND DRILLING LTD.

Box 394
Smithers, B.C.
VOJ 2N0
Phone: (604) 847-4361
Minnova - Cat

February 7 - March 12, 1991

Branch Office
Timmins, Ont.
Page One

CAT HOURS:

<u>Date</u>	Cat
February 7	8
February 8	8
February 9	7½
February 10	7½
February 11	8
February 12	8
February 14	8
February 15	8
February 16	1
February 16	8
February 17	5
February 18	8
February 19	7
February 20	8
February 21	8
February 22	8½
February 23	6
February 24	8
February 25	8
February 26	8
February 27	1
February 27	8
February 28	7
March 1	8
March 2	8
March 3	8
March 4	6 - FW-91
March 5	6
March 6	8
March 7	1
March 7	6 - FW-94
March 8	5 - FW-15
March 9	8
March 12	2

229½

Total Cat Hours : 229½ Hours @ \$ 70.00/Hour = \$ 16,065.00



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,879

MINNOVA Inc.		MAP No. 3
FIREWEED PROPERTY 1991 DRILL HOLE LOCATIONS		
DATE : NOVEMBER 1991	FILE : GARYWEED.DWG	
DRAWN BY : GSW/sg	SCALE : 1:5000	
REVISED :	0 100 200m	
<i>Jay Della</i>		