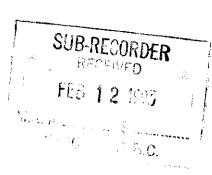
LOG NO:	MAR_0 1 1993 RD.	
ACTION.		
		SU
FILE NO:		
		FI



Diamond Drilling Assessment Report Horn Property

Fort Steele Mining Division NTS 82F/9 Lat. 49° 36' Long. 116° 04'

Owner: Kokanee Explorations Ltd. Operator: Minnova Inc.

# GEOLOGICAL BRANCH ASSESSMENT REPORT

22,

Vancouver, B.C. February, 1993

Colin Burge Minnova Inc.

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### INTRODUCTION

The Nee claim group comprises the eastern portion of the Horn property located about 25 km north of Cranbrook, B.C.

The Horn property is underlain by Proterozoic-age Aldridge formation sediments and sills which host the giant Sullivan Pb-Zn massive sulphide deposit 15 km to the north.

The Sullivan deposit occurs at the contact between the Lower and Middle Aldridge formations and this contact represents the principal target in the belt. The drill hole reported herein explores stratigraphy interpreted by regional extrapolation to be in the vicinity of the key contact however direct correlation is not possible due to a higher metamorphic grade at the Nee group. H-92-03 forms part of a larger program consisting of five holes testing targets generated by a fully integrated exploration program conducted over the 1992 field season.

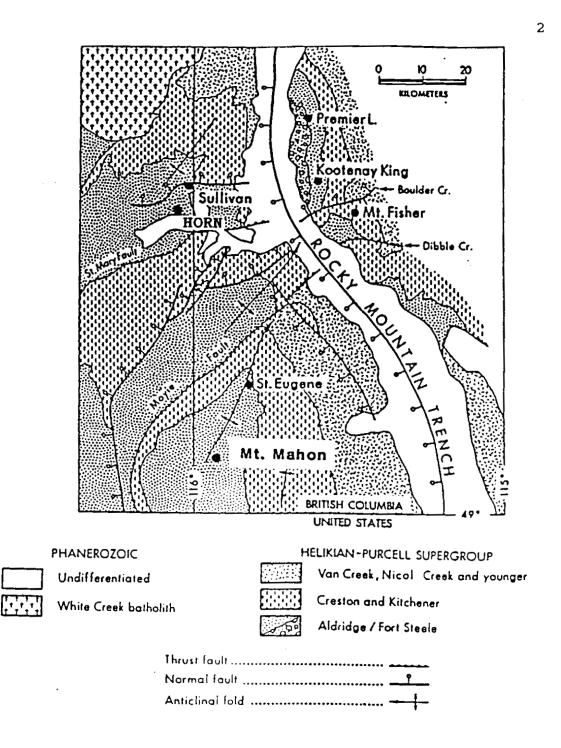
### Location and Access

The Horn property covers the north facing slopes on the south side of St. Mary Lake and stretches east to cover an area locally known as "the Pudding Burn" just west of the Pitt Creek drainage. The Nee group is located on the eastern side of the property and at the higher elevations. The claim group is about 15 km southwest of Kimberley, B.C. Access to the Nee group is provided by a network of rough, 4WD logging roads which leave the Perry Creek mainline at Sawmill Creek. The Perry Creek road can be reached via the Wycliffe turn-off a few kilometres south of Marysville.

#### <u>Physiography</u>

The Horn property is situated in the Purcell Mountains at elevations ranging from 1000 meters in the St. Mary valley to 2150 meters to the peaks of mountains south of St. Mary Lake.

The forest cover consists of immature stands of fir and spruce as well as alder. The Pudding Burn, where the Nee group is located



from Hoy 1989

Washington State Information Circular 86

FIGURE 1

HORN LOCATION MAP

on the eastern portion of the property, is a large area of blown down fir trees which have been subsequently burned, making access difficult.

The climate is cool and dry without snow in the upper reaches between June and October.

#### Property and Ownership

The Horn property consists of 204 individual claims for a total of 276 units. Minnova Inc. has an option to earn an interest in the claims from the owner Kokanee Explorations Ltd.

RECORD #	CLAIM NAME	RECORD DATE	EXPIRY DATE	UNITS
212446	HORN 02	21-May-91	21-May-94	1
212448	HORN 04	22-May-91	22-May-94	1
212449	HORN 05	22-May-91	22 <b>-</b> May-94	1
212450	HORN 06	22-May-91	22-May-94	1
300182	HORN 29	06-Jun-91	06-Jun-94	1
300185	HORN 31	06-Jun-91	06-Jun-94	1
300196	HORN 32	06-Jun-91	06 <b>-</b> Jun-94	1
300206	HORN 34	06 <b>-</b> Jun-91	06-Jun-94	1
300208	HORN 35	06-Jun-91	06-Jun-94	1
300277	HORN 36	06-Jun-91	06-Jun-94	1
302046	HORN 46	14-Jul-91	14-Jul-94	1
302047	HORN 47	14-Jul-91	14-Jul-94	1
302048	HORN 48	19-Jul-91	19 <b>-</b> Jul-94	1
302049	HORN 49	14-Jul-91	14-Jul-94	1
302050	HORN 50	14-Jul-91	14-Jul-94	1
302051	HORN 51	14-Jul-91	14-Jul-94	1
302052	HORN 52	14-Jul-91	14 <b>-</b> Jul-94	1

## NEE GROUP

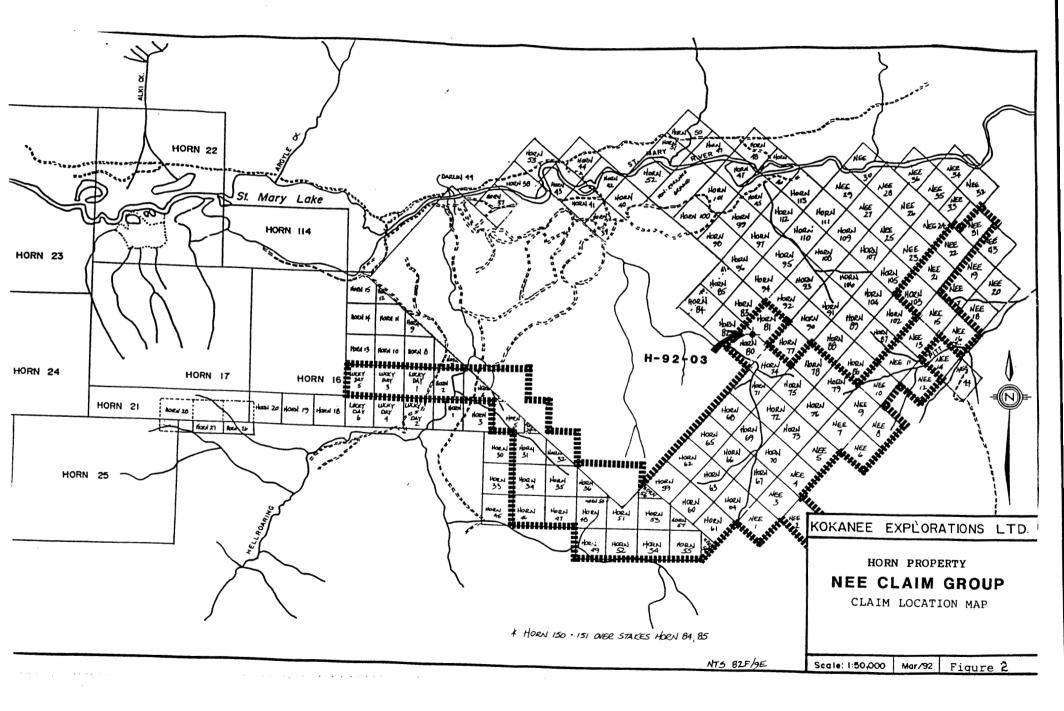
RECORD #	CLAIM NAME	RECORD DATE		
302053	HORN 53	14-Jul-91	EXPIRY DATE	
302054	HORN 54	14-Jul-91	14-Jul-94	1
302055	HORN 55	14-Jul-91		1
302056	HORN 56	15-Jul-91	14-Jul-94 15-Jul-94	
302057	HORN 57	15-Jul-91	15-Jul-94	
302058	HORN 58	15-Jul-91		
302058			15-Jul-94	1
	HORN 59	15-Jul-91	15-Jul-94	1
302060	HORN 60	15-Jul-91	15-Jul-94	
302061	HORN 61	15-Jul-91	15 <b>-</b> Jul-94	1
302062	HORN 62	15-Jul-91	15-Jul-94	1
302063	HORN 63	15-Jul-91	15-Jul-94	1
302064	HORN 64	15-Jul-91	15 <b>-</b> Jul-94	1
302065	HORN 65	15-Jul-91	15-Jul-94	1
302066	HORN 66	15-Jul-91	15-Jul-94	1
302067	HORN 67	15 <b>-</b> Jul-91	15 <b>-</b> Jul-94	1
302068	HORN 68	15-Jul-91	15-Jul-94	1
302069	HORN 69	15-Jul-91	15-Jul-94	1
302070	HORN 70	15-Jul-91	15-Jul-94	1
302071	HORN 71	15-Jul-91	15-Jul-94	1
302072	HORN 72	15-Jul-91	15-Jul-94	1
302073	HORN 73	15-Jul-91	15-Jul-94	1
302074	HORN 74	16-Jul-91	16-Jul-94	1
302075	HORN 75	16-Jul-91	16-Jul-94	1
302076	HORN 76	16-Jul-91	16-Jul-94	1
302078	HORN 78	16-Jul-91	16 <b>-</b> Jul-94	1
302079	HORN 79	16-Jul-91	16 <del>-</del> Jul-94	1
302080	HORN 80	16-Jul-91	16-Jul-95	1
302081	HORN 81	16-Jul-91	16-Jul-95	1
305611	HORN 103	21-0ct-91	21-0ct-95	1

				1
RECORD #	CLAIM NAME	RECORD DATE	EXPIRY DATE	UNITS
306739	LUCKY DAY 1	13-Dec-91	13-Dec-94	1
306741	LUCKY DAY 3	13-Dec-91	13-Dec-94	1
306743	LUCKY DAY 5	13-Dec-91	13-Dec-94	1
306421	NEE 01	16-Nov-91	16-Nov-94	1
306422	NEE 02	16-Nov-91	16-Nov-94	1
306423	NEE 03	16-Nov-91	16-Nov-94	1
306424	NEE 04	16-Nov-91	16-Nov-94	1
306425	NEE 05	16-Nov-91	16-Nov-94	1
306426	NEE 06	17-Nov-91	17-Nov-94	1
306427	NEE 07	17-Nov-91	17-Nov-94	1
306428	NEE 08	17-Nov-91	17-Nov-94	1
306429	NEE 09	17-Nov-91	17-Nov-94	1
306430	NEE 10	17-Nov-91	17-Nov-94	1
306431	NEE 11	18-Nov-91	18-Nov-94	1
306432	NEE 12	18-Nov-91	18-Nov-94	1
306433	NEE 13	18-Nov-91	18-Nov-95	1
306435	NEE 15	18-Nov-91	18-Nov-94	1
306436	NEE 16	18-Nov-91	18-Nov-94	1
306441	NEE 21	19-Nov-91	19-Nov-95	1
306442	NEE 22	19-Nov-91	19-Nov-94	1
307299	NEE 31	01-Feb-92	01-Feb-94	1

### <u>History</u>

The eastern portion of the Horn property (Nee Group) has not had any previous work filed for assessment purposes. Assessment reports #13,108 and #7401 detail geological and geochemical surveys conducted adjacent to the Nee group.

The western part of the Horn property has seen several episodes of exploration focusing on the Clair Fragmental a sulphide



bearing fragmental occurrence on the south side of St. Mary Lake. The Clair Fragmental stratigraphy was explored by Cominco in 1979 and 1981 with two drill holes (A.R. # 10,311 and 7676).

### 1992 WORK PROGRAM

A total of five holes on the Nee group in the Pudding Burn area and one near the Clair Fragmental were completed in 1992. This report is concerned with H-92-3 which was drilled to test a VLF-EM conductor at the base of a gabbro sill. The drill hole cored 343.2 meters of NQ size rock and seven whole rock and three geochem analyses were performed. The core is currently being stored at Kokanee Exploration Ltd.'s Vine field facility near Moyie Lake, B.C.

#### <u>GEOLOGY</u>

### Regional Geology

The Proterozoic-age Aldridge Formation covers a large part of southeastern B.C. and the southwest corner of Alberta. The Aldridge consists of upper greenschist facies sediments and semiconformable gabbroic sills known as the Moyie Intrusions. The Aldridge package forms three main structural blocks divided by the northeast trending Cranbrook and Moyie Faults. Each block forms a broad, open, northeast plunging anticline and it is near the anticlinal axis of the northern most structural block that the Sullivan deposit occurs. The Sullivan deposit is a 160 million ton > 10% Pb-Zn, 70 gpt Ag conformable, massive sulphide sheet underlain by a tourmaline bearing stockwork system and overlain by a blanket of albitization.

The Horn property is within the same structural block as the Sullivan and covers stratigraphy interpreted to correlate with the Sullivan, located 15 km north, by regional extrapolation.

#### Property Geology

The Horn property is underlain by Lower and Middle Aldridge formation sediments and Moyie dikes and sills. In the Pudding Burn area the package forms the south facing north limb of a syncline which lies north of, and is truncated by the St. Mary Fault.

The clastic assemblage is made up of thin beds of quartz and biotite rich greywackes and quartzites interpreted to represent a turbidite succession. These units usually contain muscovite in various quantities and are clearly at a higher metamorphic grade than the rest of the Aldridge formation. The intrusive rocks range from diorite to gabbro in composition and are medium to coarse grained. Pegmatite sills up to a few meters thick are also common in the Pudding Burn area.

The target stratigraphy dips below a large gabbro sill which forms a prominent cliff on the north side of Pudding Burn Creek. Please refer to Assessment Report #16971 for a discussion of geology on the western part of the Horn property.

#### DIAMOND DRILLING

H-92-03 was collared on a rough 4WD spur road off the main V.O.R. access road on the north side of the Pudding Burn Creek. The hole is about 2 km west of the Pitt Creek crossing and at an elevation of 1777 meters. The hole was drilled steeply to the north and was designed to test a VLF-EM anomaly and complete a stratigraphic section in the Pudding Burn area.

#### RESULTS

H-92-03 penetrated a thick gabbro sill to a depth of 196 meters. The gabbro is typical of Moyie sills in the area and contains occasional quartz-carbonate-chlorite veins. Underlying the sill is a 100 meter thick package of alternating thin beds of quartzite and quartz wackes and the lower 40 meters consist

predominantly of massive to poorly bedded quartzite. The sediments consist of quartz, biotite and pale green sericite. Bedding to core axis angles are in the  $65^{\circ}$  to  $70^{\circ}$  range suggesting dips in the area are shallow (10-15°) toward the south.

Trace amounts of disseminated pyrrhotite commonly occur throughout the sediment package and only rarely exceeds 5% concentrations over narrow widths. A zone at 300 meters consisting of 20% interconnected pyrrhotite over .4 meters was observed and found to be conductive.

No base metal enrichment of significance was intersected in the hole and no tourmaline alteration of any consequence was noted.

#### Lithogeochemistry

Seven lithogeochemical and three geochemical samples were taken from the core. All were analyzed at Min-En Labs of North Vancouver. Litho samples were analyzed for  $SiO_2$ ,  $TiO_2$ , CaO, MgO,  $Na_2O$ ,  $K_2O$ ,  $MnO_2$ ,  $Fe_2O_3$ , (total iron),  $Al_2O_3$ , Sr, Zn, and Ba by ICP analysis of a crushed and digested bead formed by fusion with lithium borate. Ag, Cu, Pb, Zn, B, Sb and As were analyzed by standard ICP techniques using an aqua-regia digestion. F and B-Tot were analyzed by fusion methods with their respective specific ion electrode and ICP finish. Geochem. samples were analyzed for Cu, Pb, Zn, Ag, Au by standard ICP techniques.

Lithogeochemical samples were taken routinely approx. every 30 m down the hole (in sediments only). The lithogeochemistry does not show any marked deviation from fresh Aldridge sediment. The sediments are calcium poor and are high in potassium and silica.

#### CONCLUSIONS AND RECOMMENDATIONS

H-92-03 tested approximately 150 meters of clastic stratigraphy below the large gabbro sill dominating the north side of the Pudding Burn Creek. The hole tested a VLF-EM conductor which remains unexplained. A minor concentration of pyrrhotite

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occurs at a depth of 300 meters, however no base metals or tourmaline accumulations of any consequence were noted.

The sediments consist of a monotonous sequence of thin bedded to massive quartz-wacke and quartzite beds typical of the Lower Aldridge formation. No evidence suggesting a transition to Middle Aldridge stratigraphy was observed.

No further work is recommended in the immediate vicinity of H-92-03 at the present time. Appendix I

Itemized Cost Statement

# HORN PROPERTY

# Itemized Cost Statement

# Drilling

Frontier Drilling Ltd., Langley 343.2 m @ 70.48/m	24,188.74
Paul Baxter 10 days @ \$250/day	2,500.00
	\$26,688.74
Geochemistry	
Whole Rock Analyses 7 @ \$33.50	234.50
Geochems (trace only) 3 @ \$17.25	51.75
	\$286.25
Report Preparation	
C. Burge 2 days @ \$350/day	700.00
Drafting, Typing, Computer time	150.00
	\$850.00

Total <u>\$27,824.99</u>

Appendix II

Statement of Qualifications

### Statement of Qualifications

- I, Colin Michael Burge hereby certify that:
- I have worked as an exploration geologist since graduation from the University of Waterloo, Waterloo, Ontario with a BSc. in Earth Sciences (1981).
- 2. I am currently employed as a Senior Project Geologist for Minnova Inc., 3rd Floor - 311 Water St., Vancouver, B.C. and have been with this company for six years.
- 3. I personally carried out or supervised the work reported herein.

Feb. 11, 1993

Appendix III

Drill Log: H-92-03

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HOLE NUMBER: H-92-3		MINNOVA INC. Drill Hole Record	IMPERIAL UNITS:	METRIC UNITS: X
PROJECT NAME: HORN PROJECT NUMBER: 675 Claim Number: Location: Pudding Burn	PLOTTING COORDS GRID: IDEAL NORTH: 895. EAST: 115. ELEV: 1777.	OOE EAST:		COLLAR DIP: -60° 0° 0° OF THE HOLE: 343.20m START DEPTH: 0.00m FINAL DEPTH: 343.20m
	COLLAR GRID AZIMUTH: 360° 0'	0" COLLAR ASTRONOMIC AZIMUTH:	60• 0' 0"	
DATE STARTED: September 1, 1992 DATE COMPLETED: September 10, 1992 DATE LOGGED: September 10, 1992	COLLAR SURVEY: NO MULTISHOT SURVEY: NO RQD LOG: NO	PULSE EM SURVEY: NO Plugged: Yes Hole Size: No	CONTRACTOR: FRONTIER CASING: 3.0 M CORE STORAGE: VINE COR	

PURPOSE: TEST VLF ANOMALY AT BASE OF DIORITE

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Conments
32.30	-	-61* 0'	ACID	OK		-	-	-	-	-	
91.40	-	י0 -59	ACID	OK		- 1	•	-	-	-	
138.70	-	י0 -59•	ACID	OK			-	-	-	-	
167.60	-	-61° 0'	ACID		Broken Tube		-	•	-	-	
239.60	-	-60° 0'	ACID	OK		-	-	-	-	-	
271.30	-	-59 01	ACID	OK			-	-	-	•	
306.60	-	י0 •55	ACID	OK		-	-	-	-	-	
341.40	-	-60° 0'	ACID	OK		-	-	•	-	-	
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HOLE NUME	BER: H-92-3			MINNOVA INC. DRILL HOLE RECORD		DATE: 21-October-1992
FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	Casing					
3.00 TD 196.00	GABBRO «GAB»	Colour: speckled white green Grain Size: m-c gr. Massive, equigranular hornblende-fsp +/- qtz intergrowths 75-80% hornblende 20-25% fsp qtz 30.2-36.0 -15-20% biotite 37.4-38.1 -strongly oxidized zone, minor sandy core, fault or water course [92.0-93.1] «fit» -rubbly core, 10 cm fault gouge at 93.1 a [94.2-97.6] «fit» -rubbly core recovery, increase in carbonate veining, weakly oxidized fracture surfaces 104.0-106.3 -finer grained phase of gabbro, possible contact a 104.2 [112.2-115.7] «fit» -very rubbly core recovery 155.7-156.4 -rubbly core, 6 inch open void noted at 155.7 [157.3-159.1] «fit» -rubbly core, poor core recovery, 60% 194.5-196.0	20	Occasional carbonate-qtz-chlorite veining		Non-magnetic
196.00 TO 298.30	THINLY BEDDED SEDS «QTZITE/WAC KES	-finer grained chill margin Colour: med grey Grain Size: f.gr. Alternating thin beds Sericitic fine grained sediments with varying biotite content defining individual beds	-	Sericitic but probably a function of original composition and metamorphism	Traces of diss. po and py, locally to 2-3%	Lower Aldridge
		209.9-210.1 -pegmatite			210.4 -euhedral arsenopyrite grains 218.6	

HOLE	NUMBER:	#-92-3
------	---------	--------

DRILL	HOLE	RECORD

ROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		224.0 -foliation defined by biotite flakes a	65		-3 mm wide po bed 218.6-218.8 -2-3% diss po within 1 cm beds 224.9-231.75 -occasional 2-10 cm zones of 5-7% diss po and py	
		242.3-245.6 -gabbro sill, lower contact possibly a	80	226.8-228.5 -occasional, 1-10 cm f.gr., creamy white, siliceous beds - possible albite enrichment or quartzite beds		
		248.9-286.8 -coarser and more qtz rich clastic sequence. 10-25 cm biotitic quartzite beds common mixed with thinner bedded quartz-biotite-sericite and sericite-biotite sediments				
		251.6 -veinlet truncated uphole at a bedding contact 275.5 -cross-bedding truncations indicate tops uphole 276.8			251.6 -1-2 mm wide qtz veinlet with diss grains of py and sp 253.6: qtz-po-py-sp veinlet 254.05: 15 cm, 10-12% diss. po, 2-3% diss py	
		-quartzite beds becoming less common			276.3 -7 cm, 7-10% diss. po, 2-3% py 280.5	
		282.35-282.8 - 5-9 mm wide qtz-biotite laminations/varves with dark bases and light grey white tops			10% diss py, 2% diss po	
		Below 286.8 -poorly bedded almost massive sericite-biotite and qtz-sericite-biotite sediments				
		Bedding measurements: 201.2 215.7 234.6 252.3 276.6	75 78 87 80 81			

HOLE NUMBER: H-92-3

MINNOVA INC. DRILL HOLE RECORD

DATE: 21-October-1992

.E NUM	BER: H-92-3			MINNOVA INC. Drill Hole Record		DATE: 21-October-1992
ROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA		MINERALIZATION	REMARKS
8.30 TO 3.20	QUARTZITE «QTZITE»	Colour: speckled, brown creamy grey Grain Size: f.gr. to c.gr.				
		298.3-304.5 -massive to poorly bedded,f.gr.biotitic quartzites -bedding 298.6 m @	67			
		301.8 -mineralization and bedding, wk distorted, bedding at 25-30 deg to c.a., soft sed deformation?			301.8  «20% po/40 cm» -3% py, 20% po as a finely inter- connected network and disseminations	Good Conductor
				303.0 -15 cm, moderately chloritic host to mineralization	1303.01 ≪20% po/40 cm≫ -5% py, 20% po	Nod-Good Conductor
		Below 304.5 -unit becoming coarser grained and massive with 10-30% biotite in a qtz groundmass		307.0-307.5 -greenschist in a f.gr., creamy white matrix - possible albite?	307.2-307.4 -2 cm layer of 25% po. Trace sp and gn within very fine gtz veinlets	
		311.2-317.7 - 1-2 m of grey green, med-coarse grained qtz- sericite intergrowths - quartzite or possible altered diorites				312.4-312.7 -possible fault zone, rubbly core recovery
		317.7-322.5 -gabbro sill/dyke?, massive green grey, med coarse grained, 5-10 cm darker green upper and lower margins with sharp contacts with quartzite -10-20% green sericite or sericitized mafics in a siliceous groundmass, 5% fine white grains - possible leucoxene?				
		322.5-343.2 -massive quartzite metamorphic overprint obscuring quartz grain boundaries. 10-20% mica mainly biotite with minor to locally 5-10% sericite and biotite-sericite intergrowths. 2-3%, <1mm white grains to 3-5 mm, very thin laths		-progressing downhole sericite becomes darker green, more chloritic looking	322.5-335.0 -1-2% po, <1% py as diss grains and <1 cm clots. Trace sp at 334.6m	
		334-343.2 -15-25% intergrowths of biotite and chlorite in a quartz groundmass. Chlorite more abundant		330-334 -gradual change from green sericite to green chlorite, chlorite becoming the dominant mafic component		

KOLE NUME	BER: H-92-3			MINNOVA INC. DRILL HOLE RECORD		DATE: 21-October-1992
FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.	than biotite (70/30)				

HOLE NUMB	ER: H-92	-3										ASSA	Y SHEE	ſ
Sample	From (m)	To (m)	Length (m)	Cu X	F	ASSA Pb %	AYS Zn X	Ag gpt	Au gpt	Cu ppm	GEOC Pb ppm	HEMICAL Zn ppm	Ag ppm	Au ppb
43403 43404 43405	301.80 302.30 303.00	303.00	0.50 0.70 0.40							350 20 420	5 7 2	66 74 72	0.0 0.0 0.0	0.0 0.0 0.0

HOLE NUM	BER: H-92	2-3									GEO	CHEM. S	HEET											DATE:	21-Octob	xer-1992	
Sample	From (m)	То (m)	Length (m)	AL203 X	Ba X	CaO X	Fe203 X	K20 %	MgO X	Mn02 X	Na02 X	P205 X	\$i02 <b>%</b>	T 102 X	s X	TOT X	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	LOI X	B ppm	F
40021 40022 40023 40024 40025	200.00 230.40 260.30 288.30 307.00	233.50 263.30 291.40	3.00 3.10 3.00 3.10 0.50	17.11 13.56 15.74 15.98 16.71	0.085 0.065 0.075 0.08 0.04	1.06 3.59 2.61 1.4 4.18	5.51 4.62 4.21 5.52 6.89	4.54 3.31 3.67 4.13 2.08	1.9 2.39 1.89 2.29 2.21	0.05 0.08 0.07 0.05 0.09	1.59 1.68 1.69 1.66 3.63	0.09 0.13 0.07 0.08 0.2	63.1 66.55 66.19 63.86 59.92	0.59 0.46 0.54 0.54 0.5	0.69 0.37 0.22 0.78 0.61	98.93 98.93 99.35 99.04	0.2 0.7 0.4 0.4 0.1	1 1 1 1 1	312 255 217 341 165	44 27 16 228 34	1 17 20 51	1 1 1 1 1	57 65 69 157 100	1 6 5 3 4	3.30 2.50 2.60 3.40 2.60	162 51 440 125 54	840 830 830 860 570
40026 40027			3.00 3.00	14.77 14.06	0.045 0.025	4.03 7.1	6.71 10.75	2.35 1.79	2.79 2.78	0.1 0.19	2.51 2.14	0.08 0.15	63.35 57.12	0.71 1 <b>.36</b>	0.09 0.14	99.25 99.06	0.1 0.1	1 1	658 409	11 13	10 13	1 1	119 102	10 3	1.80 1.60	44 44	720 630

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Appendix IV

Geochemical Analytical Procedures

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LABORATORIES

ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT WORK: \_\_\_\_\_ PROCEDURE FOR TRACE ELEMENT ICP \*\*\*\*\*\*\*\*\*\*\*\*

> Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, U, V, Zn, Ga, Sn, W, Cr

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

0.50 gram of the sample is digested for 2 hours with an aqua regia mixture. After cooling samples are diluted to standard volume.

The solutions are analyzed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon 70 Type II Inductively Coupled Plasma Spectrometers.

FICE AND LABORATORIES: ST FIFTEENTH STREET, NORTH VANCOUVER, B.C. NADA V7M 112

PHONE: (604) 980-5814 (604) 988-4524 TELEX: VIA USA 7601067 FAX: (604) 980-9621

Division of Assayers Corp. Ltd.



ANALYTICAL PROCEDURE FOR ASSESSMENT WORK WHOLE ROCK ANALYSIS

Samples are processed by Min-En Laboratories at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened to -80 mesh for analysis. Rock samples are crushed by a jaw crusher and pulverized to 90% -120 mesh.

A 0.200 gram subsample is fused using lithium metaborate, dissolved and diluted to standard volume.

The solutions are analyzed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon Type II Inductively Coupled Plasma Spectrometers.

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ICE AND LABORATORIES: WT FIFTEENTH STREET, NORTH VANCOUVER, B.C. NALA V7M 1T2 PHONE: (604) 980-5814 (604) 988-4524 TELEX: VIA USA 7601067 FAX: (604) 980-9621

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LABORATORIES

# ANALYTICAL PROCEDURE FOR ASSESSMENT WORK

Boron Geochem \_\_\_\_\_

Samples are processed by Min-En Laboratories at 705 West 15th Street, North Vancouver, employing the following procedures:

After drying the samples at 95 degrees celsius, soil and stream sediment samples are screened to -80 mesh for analysis. Rock samples are crushed by a jaw crusher and then pulverized to 90% -120 mesh.

A 0.500 gram sub-sample is fused using KOH, leached overnight and then dissolved using HCL. The solution is diluted to volume and mixed.

The solutions are analyzed by computer operated Jarell Ash 9000 ICAP or Jobin Yvon Type II Inductively Coupled Plasma Spectrometers. The results are compared to certified natural standards.

FICE AND LABORATORIES: 5 ST FIFTEENTH STREET, NORTH VANCOUVER, B.C. N. JA V7M 112

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PHONE: (604) 980-5814 (604) 988-4524 TELEX: VIA USA 7601067 ۲. FAX: (604) 980-9621



# ENVIRONMENTS LABORATORIES

## ANALYTICAL PROCEDURE FOR ASSESSMENT WORK

Fluorine Geochem

Samples are processed by Min-En Laboratories at 705 West 15th Street, North Vancouver, employing the following procedures:

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After drying the samples at 95 degrees celsius, soil and stream sediment samples are screened to -80 mesh for analysis. Rock imples are crushed by a jaw crusher and then pulverized to 90% -120 mesh.

A 0.200 gram sub-sample is fused using NaOH, leached overnight with water and then dissolved using H2SO4. A buffer is added and the sample is adjusted to pH 7.0 using NaOH.

The solutions are analyzed using specific ion electrodes and compared to known certified natural standards.

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FICE AND LABORATORIES: 5 ST FIFTEENTH STREET, NORTH VANCOUVER, B.C.

PHONE: (604) 980-5814 (604) 988-4524 TELEX: VIA USA 7601067 FAX: (604) 980-9621

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Division of Assayers Corp. Ltd.



ANALYTICAL PRECEDURE REPORT FOR ASSESSMENT WORK: PROCEDURE FOR WET GOLD GEOCHEMICAL ANALYSIS

Samples are processed by Min-En Laboratories, at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95 C, soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized on a ring mill pulverizer.

5.00 grams of sample is weighed into porcelain crucibles and cindered @ 800 C for 3 hours. Samples are then transferred to beakers and digested using aqua regia, diluted to volume and mixed.

Further oxidation and treatment of 75% of the above solution is then extracted for gold by Methyl Iso-butyl Ketone.

The MIBK solutions are analyzed on an atomic absorption spectrometer using a suitable standard set.

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Appendix V

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Geochemical Results

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	ER / COLIN E	KURGE			-	4 DR (60	4)988-45					• CORE		(ACT:F2
SAMPLE NUMBER	AL203 X	88 X	CAO %	FE203	K20	MGO X	MN02 X	NA20 X	P205 X	\$102 X	T102 X	د01 لا	s X	דסד(ג) ג
40021 40022 40023 40024 40025	17.11 13.56 15.74 15.98 16.71	.085 .065 .075 .080 .040	1.06 3.59 2.61 1.40 4.18	5.51 4.62 4.21 5.52 6.89	4.54 3.31 3.67 4.13 2.08	1.90 2.39 1.89 2.29 2.21	.05 .08 .07 .05 .09	1.59 1.68 1.69 1.66 3.63	.07 .08	63.10 66.55 66.19 63.86 59.92	.59 .46 .54 .54 .50	3.30 2.50 2.60 3.40 2.60	.37 .22 .78 .61	98.93 98.93 99.35 99.00 99.04
40026 40027	14_77 14_06	.045 .025	4.03 7.10	6.71 10.75	2.35 1.79	2.79 2.78	.10 .19	2.51 2.14		63.35 57,12	.71 1.36	1.80 1.60		99.25 99.06
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				-									· <u></u>	

#### COMP: MINNOVA INC. PROJ: 675-H3 ATTN: PAUL BAXTER / COLIN BURGE

# MIN-EN LABS --- ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

(604)980-5814 OR (604)988-4524

FILE NO: 2V-0991-RJ DATE: 92/09/2 \* CORE \* (ACT:F31

TR. FACE DANIER / C				au-3014 C	(004770				- LURE -	(ALI:
SAMPLE NUMBER	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPM	ZN PPM	AU-FIRE PPB		
40021 40022 40023	.2 .7 .4	1 1 1	312 255 217	44 27 16	1 1 17	1 1 1	57 65 69	1 6 5		
40024 40025	.4 .4 .1	1 1	341 165	228 34	20 51	1 1	157 100	3		
40026 40027	.1 .1	1 1	658 409	11 13	10 13	1	119 102	10 3		
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	LABOR	ATORIES				705 W NORTH TELEP FAX (6 <b>SMIT</b> 3176 T SMITH TELEP	COVEN OFFICE: FEST 15TH STREET H VANCOUVER, B.C. CANADA V7M 1T2 PHONE (604) 980-5814 OR (604) 988-4 504) 980-9621 THERS LAB.: FATLOW ROAD IERS, B.C. CANADA V0J 2N0 PHONE (604) 847-3004 04) 847-3005
Geoch	emical Ana	lysis Certifica	<u>ute</u>			N.	2V-0991-RG1
Company:	MINNOVA	INC.			1992	N.	Date: SEP-28-92
	675-H3			- (1)	Copy 1.	MINNOVA	INC., VANCOUVER, B.C.
Project:	0/5/115						
Aun: We hereb	PAUL BAXT	ER / COLIN BUE	mical Analy	ysis of 7 C	ORE sam	ples	
Aun: We hereb submitted	PAUL BAXT	ollowing Geoche y PAUL BAXTI	mical Analy ER.	ysis of 7 C	ORE sam		·
Aun: We hereb submitted Sample	PAUL BAXT	ollowing Geoche y PAUL BAXTH B	mical Analy ER. F	ysis of 7 C	ORE sam	ples $H - O$	23
Aun: We hereb submitted Sample Number	PAUL BAXT	ollowing Geoche y PAUL BAXTI	mical Analy ER.	ysis of 7 C	ORE samj		23
Attn: We hereb submitted Sample Number 40021	PAUL BAXT	ollowing Geoche y PAUL BAXTH B	mical Analy ER. F	ysis of 7 C	ORE sam		23
Attn: We hereb submitted Sample Number 40021 40022	PAUL BAXT	ollowing Geoche y PAUL BAXTI B PFM	mical Analy ER. F PPM	ysis of 7 C	ORE sam		'3
Attn: We hereb submitted Sample Number 40021 40022 40023	PAUL BAXT	ollowing Geoche y PAUL BAXTH B PPM 162	mical Analy ER. F PPM 840 830 830	ysis of 7 C	ORE sam		23
Attn: We hereb submitted Sample Number 40021 40022 40023 40024	PAUL BAXT	ollowing Geoche y PAUL BAXTH B PPM 162 51	mical Analy ER. F PPM 840 830 830 830 860	ysis of 7 C	ORE sam		23
Attn: We hereb submitted Sample Number 40021 40022 40023	PAUL BAXT	ollowing Geoche y PAUL BAXTH B PPM 162 51 440	mical Analy ER. F PPM 840 830 830	ysis of 7 C	ORE samj		23
Attn: We hereb submitted Sample Number 40021 40022 40023 40024	PAUL BAXT	bllowing Geoche y PAUL BAXTH B PPM 162 51 440 125	mical Analy ER. F PPM 840 830 830 830 860	ysis of 7 C	ORE samj		23

Certified by\_\_\_

MIN-EN LABORATORIES

