

826507

SUMMARY OF 1988 FIELD WORK

HEATHER PROPERTY

VICTORIA MINING DIVISION

NTS 92C/15, 16

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Vancouver, B.C.

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Summary of 1988 Field Work

Heather Property

1. Introduction

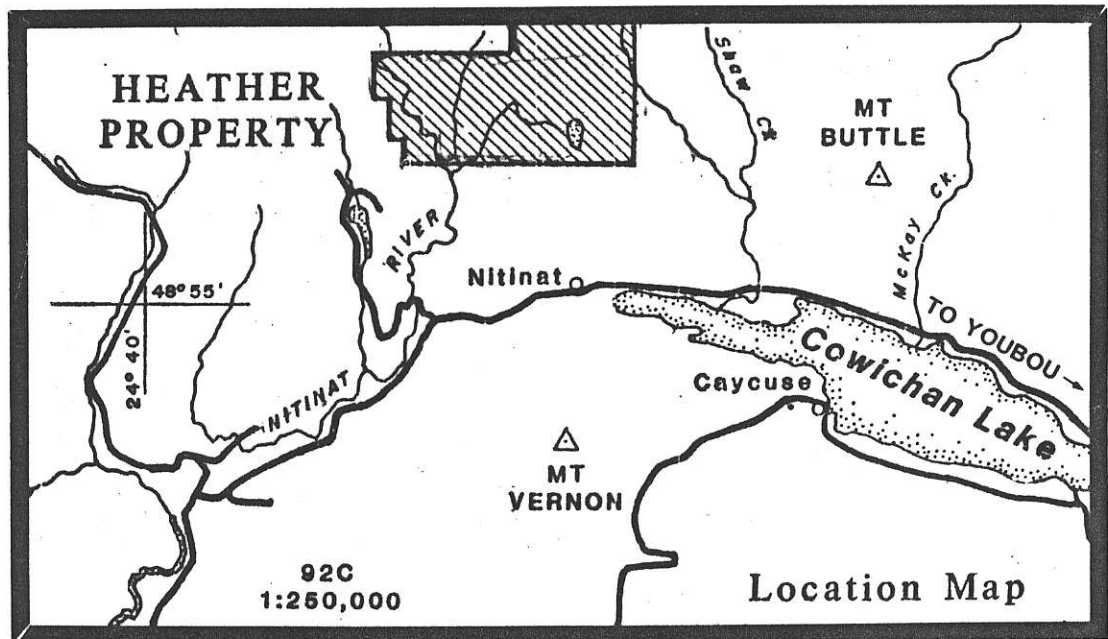
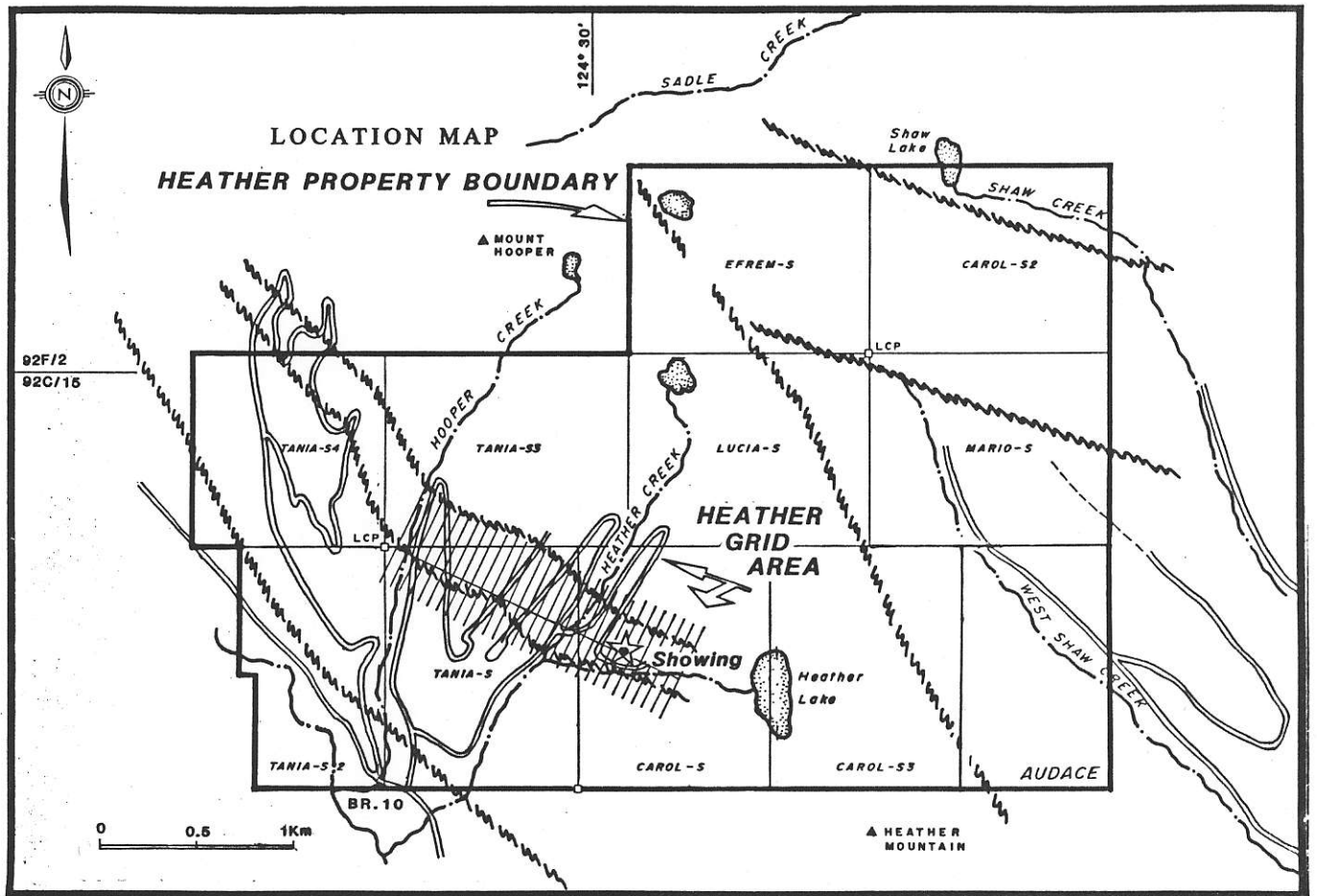
The Heather property is underlain primarily by volcanic rocks of the Paleozoic Sicker Group. It was optioned from Canamin Resources in May 1986 to evaluate its gold and base metal potential. Minnova is exploring this property under a joint venture agreement with International Cherokee Developments Ltd.

Prior to 1988, detailed geological, lithogeochemical, soil geochemical and geophysical (VLF, Mag, IP) surveys were carried out on a 33 km grid covering the southern part of the claim group (Figure 1). Three gold showings are present on the property - the Main Showing (106.1 g/T over 1.0 m), the North Showing (5.0 g/T Au - grab) and the McDougall veins (9.15 g/T Au - 65. m x 0.25 m panel). Ten drill holes totalling 1135.7 meters have tested both the Main Showing at shallow depths and IP anomalies. No significant zones of mineralization have been intersected.

In 1988, 7 holes totalling 541.7 meters tested the McDougall Veins (6 holes - 444.5 m) and the North Showing (1 hole - 97.2 m). Reconnaissance geological traverses were done on the Tania S-2, Tania S-4 and Carol S-3 claims. This report summarizes the results of the 1988 program.

a. Location, Access and Physiography

The Heather property is located on Vancouver Island approximately 40 km southeast of Nanaimo and 7 km north of the west end of Cowichan Lake (Figure 1). Access to the property has been hampered by the removal of a bridge over Redbed Creek which is located 3 km southeast of the property. The property can still be reached via the Mt. Hooper logging road which is only passable from



mid-May to mid-November. Clear-cut logging by Crown Forest in the early 1970's has resulted in excellent outcrop exposures especially along the old roads. Current logging operations are restricted to the Shaw Creek and West Shaw Creek areas.

Topographic relief varies between 200 and 1400 meters and locally the terrain is quite steep.

b. Property Status

The Heather property consists of 11 claims (206 units) which cover an area of approximately 5150 hectares (Figure 2). Details of the property claim status are given below:

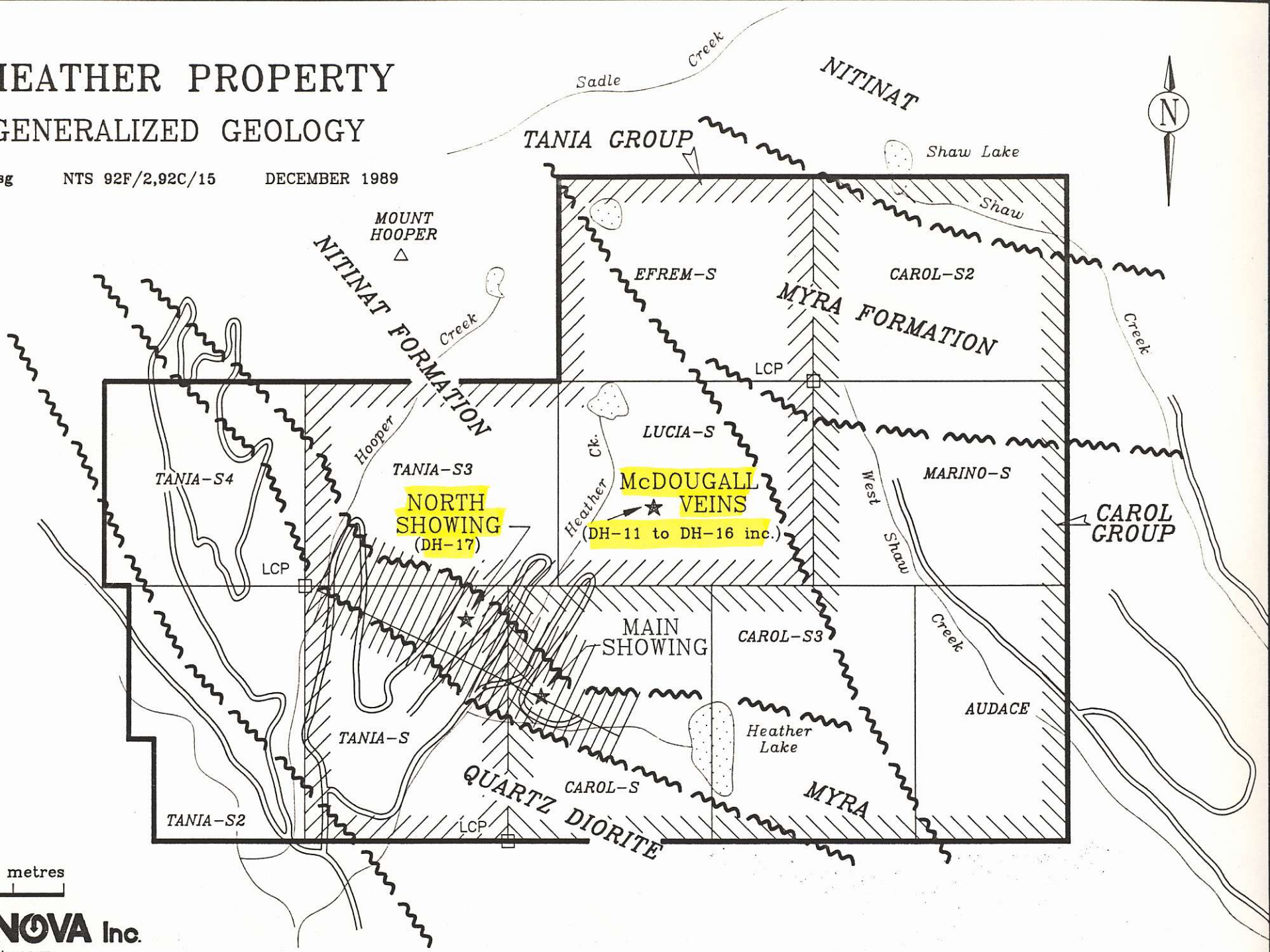
<u>Carol Group</u>			
<u>Claim Name</u>	<u>No. of Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
Carol S	20	644	August 3, 1992
Marino S	20	647	August 3, 1992
Carol S-2	20	648	August 3, 1992
Carol S-3	20	686	October 5, 1991
Audace	15	1567	September 19, 1992
<u>Tania Group</u>			
Tania S	20	645	August 3, 1992
Lucia S	20	646	August 3, 1992
Efrem S	20	649	August 3, 1992
Tania S#3	20	684	October 5, 1992
<u>Ungrouped Claims</u>			
Tania S#2	15	683	October 5, 1991
Tanis S#4	16	685	October 5, 1991

c) Previous Work

Canamin Resources Limited staked the property in 1982 after E. Specogna, a local prospector, discovered several polymetallic, sulphide-rich boulders in the Heather Creek area. The property was optioned to Falconbridge Limited in 1982 and they

HEATHER PROPERTY GENERALIZED GEOLOGY

GW/sg NTS 92F/2,92C/15 DECEMBER 1989



1000 metres

MINNOVA Inc.

FILE: D:\DWG\LOCHEA

discovered the McDougall quartz vein which returned assays of up to 0.35 oz/T Au. In 1983, Falconbridge and Chevron Canada Resources Limited formed a joint venture partnership with Chevron as the operator. Over the next 2 years they carried out reconnaissance-style mapping and soil geochemical surveys over the property using the many logging roads as control. They also contracted helicopter-mounted INPUT E.M. and magnetic surveys over the property and ground follow-up of anomalies with an EM-37 system. The best mineralization encountered was a sulphide-rich section of what is now known as the Main showing. It yielded assays of 0.25 oz/ton Au and 0.18% Cu. Chevron tested this showing with 2 diamond drill holes totalling 338 metres. The best intersection from this program was 3.0 g/T Au over 1.5 metres and they subsequently dropped the option in early 1985. Minnova acquired the Heather property in May 1986 and has been actively exploring the ground for base and precious metals with International Cherokee Developments Ltd. as a joint venture partner. This work has been summarized in reports by Gray (1987) and Wells (1988).

2. Results of the 1988 Minnova Exploration Program

a. Drilling

Seven NQ diamond drill holes totalling 541.7 meters tested the McDougall veins and the North showing. Detailed drill logs are included in Appendix I. The holes are plotted in plan on Figures 3 and 4.

Quartz veins and pyritic zones were split and assayed for Au and Cu at Min-En Laboratories in Vancouver. The drill core is stored at 6722 Lakes Road in Duncan, B.C.

i. McDougall Veins

The McDougall veins consists of 3 small, en-echelon quartz veins with dimensions of 12 m x 0.3 m, 4.5 m x 0.3 m and 2.0 x 0.2 m. The best gold values occur in the larger vein where a 6.5 m x 0.25 m panel sample yielded assays of 9.15 g/T Au. Higher gold contents appear to be intimately associated with chalcopyrite-rich (2-3% cp) pods which occur locally within the veins.

Six holes totalling 444.5 meters tested the McDougall vein system over a strike length of 60 meters and at depths ranging between 20 and 60 meters. All of the holes intersected narrow, white, quartz veins except for hole H-14 which intersected a series of quartz veins over a core length of 24.8 meters. The quartz vein intersections are plotted on a vertical longitudinal (Figure 5). No significant gold values are associated with these veins.

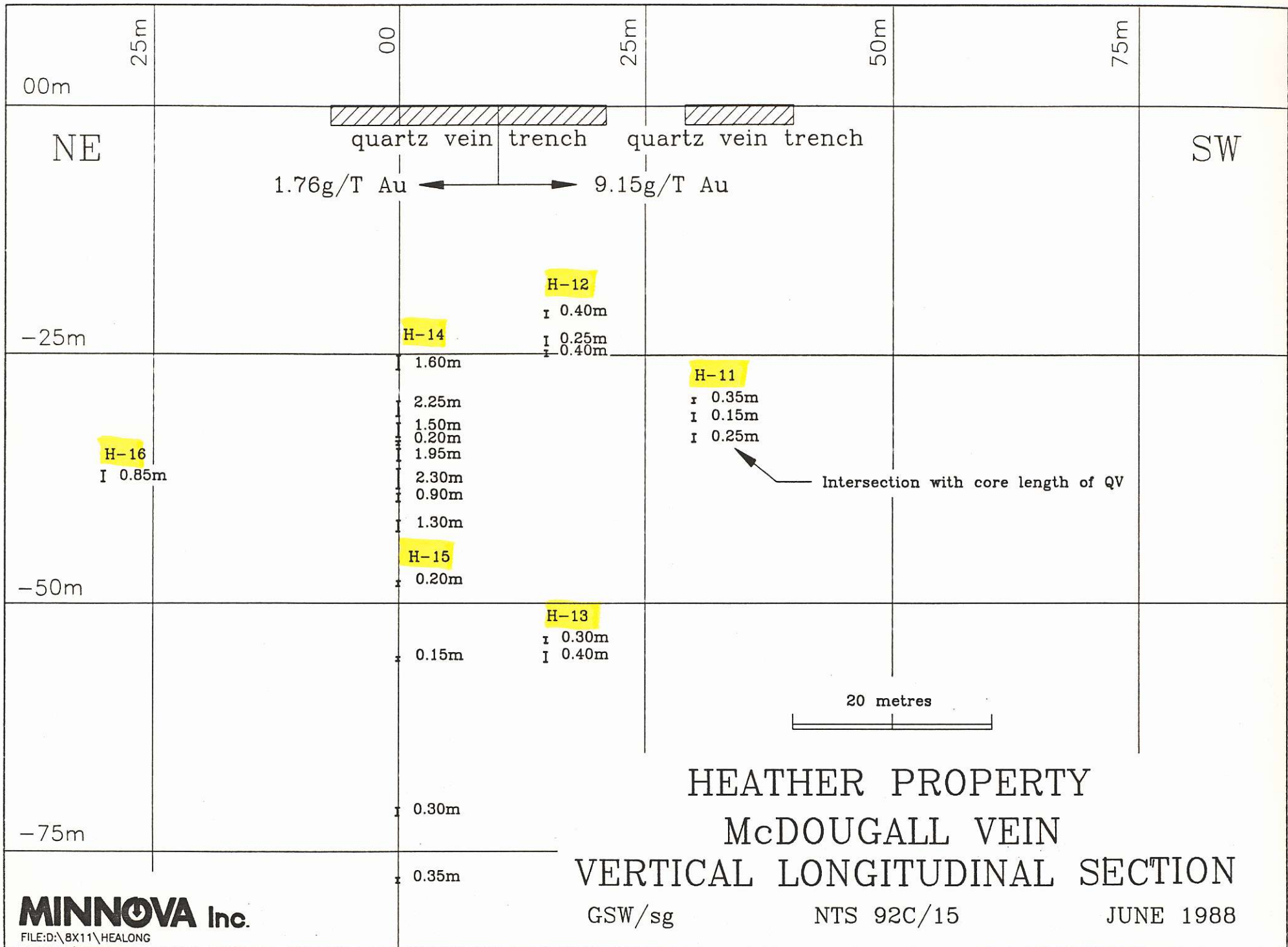
ii North Showing

The North showing is located at 14+25W, 0+50N on the opposite side of the valley from the Main showing. A grab sample of pyritic andesitic tuff assayed 5.0 g/T Au. A surface trench across this zone yielded anomalous gold values (248 ppb) over 6.0 meters.

Diamond drill hole H-17 tested the down-dip extent of this gold enriched zone. A 33.3 meter wide zone of pyritic andesitic tuff was intersected but gold values within this zone are low.

b. Reconnaissance Geology

Several reconnaissance geological traverses were done on the Tania S-2, Tania S-4 and Carol S-3 claims to supplement the



existing data base. No new mineralized zones were located. Twenty-eight ICP lithogeochemical samples were taken.

These analyses are included in Appendix II and plotted on Figures 2 and 3.

3. Conclusions and Recommendations

Six diamond drill holes (H-11 to H-16) tested the McDougall vein system over a strike length of 60 meters and at depths below the surface ranging between 20 and 60 meters. The veins appear to have a near vertical dip and are narrow at depth and along strike. Except for the surface sampling, no significant gold assays are associated with these veins.

A seventh drill hole tested the extent of anomalous gold values found at the North showing. No significant gold values are associated with a pyritic andesitic tuff.

Since 1986, Minnova has been actively and thoroughly exploring the Heather property. All of the 3 major gold showings (Main, North and McDougall Veins) have been drill tested with very little encouragement. In addition, detailed and reconnaissance geological work on the property has not discovered any other targets. Consequently, no further work is recommended on the Heather property.

Gary Wells

4. References

- Gray, M. J. (1987): Summary Report of 1986 Fieldwork on the Heather Option, NTS 92C/15,16 Minnova internal report.
- Muller, J. E. (1980): The Paleozoic Sicker Group of Vancouver Island, B.C., GSC Paper 79-30.
- Wells, G. S. (1988): Summary Report of 1987 Field Work, Heather Property, NTS 92C/15,16, Minnova internal report.

APPENDIX I

DIAMOND DRILL LOGS

HOLE NUMBER: H-11

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.40	OVERBURDEN «OB»					Casing: No core recovered.
2.40 TO 54.60	MAFIC FLOW BRECCIA «M FLOW BX»	<p>Colour - medium green. Grain Size - fine grained. Up to 45cm, rounded Pyroxene phyric mafic tuff fragments in a fine grained mafic tuff groundmass. Interfragmental matrix sometimes shows a wispy nature with redish brown and light green discolouration.</p> <p>3.45 Fine green and red laminations within fine matrix. Possible bedding. 3.45 (bedding)</p> <p>22.35 - 22.9 «Qtz Vn» White quartz vein parallel to core axis. <1-cm epidote selvage on quartz vein.</p> <p>41.1 2-5cm quartz vein.</p> <p>41.3 - 41.65 «Qtz Vn» 41.3 (contact)</p> <p>42.05 - 42.2 «Qtz Vn» 42.05 (contact)</p> <p>42.4 - 42.45 «Qtz Vn»</p> <p>45.25 - 45.5 «Qtz Vn» Barren white quartz vein. Iron carbonate alteration of host rock adjacent to vein. 45.25 (contact)</p>	60 35 45 15	<p>«W Ep, Sil»</p> <p>Weak epidote alteration of fine grained groundmass.</p> <p>2.4 - 8.2 Moderate hematite staining of groundmass.</p> <p>Weak fine quartz +/- carbonate stockwork below 42.15m.</p>		<p>First 8m very broken core.</p> <p>41.3 - 45.5 Down-dip extension of McDougall veins.</p> <p>54.6 Drill bit broke off and left downhole. Hole abandoned.</p>

HOLE NUMBER: H-11

DRILL HOLE RECORD

LOGGED BY: P. T BAXTER

PAGE: 2

HOLE NUMBER: H-11

ASSAY SHEET

DATE: 10-February-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
11051	22.35	22.90	0.55	350		5		
11052	41.30	41.65	0.35	25		10		
11053	41.65	42.05	0.40	111		10		
11054	42.05	42.45	0.40	29		5		
11055	45.25	45.53	0.28	7		5		
11056	45.53	45.81	0.28	26		250		
11057	45.81	46.09	0.28	2400		35		
11058	46.09	46.37	0.28	120		5		
11059	46.37	46.65	0.28	121		5		
11060	46.65	46.93	0.28	63		5		
11061	46.93	47.21	0.28	10		5		
11062	47.21	47.49	0.28	113		5		

HOLE NUMBER: H-11

ASSAY SHEET

PAGE: 1

HOLE NUMBER: H-12

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.40	Overburden					Casing: No core recovered
2.40 TO 62.80	Mafic Fragmental Flow Breccia	<p>Colour: medium green Grain Size: fine grained Large rounded amygdaloidal fragments with <1% mm pyroxene crystals in a fine grained mafic ground mass with <1% mm pyroxenes. Amygdules filled with white mineral (calcite, ziolites?) Fragment boundaries difficult to see.</p> <p>10.3-10.55 Fine light green wispy laminations, possible bedding. (bedding) 10.3 40</p> <p>10.55-18.5 10 cm and greater fragments with 2-3% 2-3 mm equant fresh pyroxene crystals and very rare green olivine? crysals in a finer grained mafic matrix with 1-2% mm pyroxene crystals. Fragments generally rounded some angular fragments (contact) 18.5 40 (bedding?)</p> <p>‡24.6-25.0‡Qtz Vn‡ White barren quartz vein, minor carbonate vein, minor carbonate along brecciated upper contact/ Lower contact in rubble. (contact) 24.6 30</p> <p>‡26.86-26.94‡Qtz Vn‡ very irregular quartz vein with 10-15% fine sulfides.</p> <p>‡28.15-28.4‡Qtz Vn‡ Barren white quartz vein with inclusions of brown iron carbonate altered host rock. (contact) 28.4 35</p> <p>‡29.2-29.6‡Qtz Vn‡</p>	<p>«w. chl»</p> <p>27.8-29.2 Iron carbonate alteration giving core a brownish discoloration</p>	<p>‡26.86-26.94‡7-10% py, 3% cpy‡ 7-10% fine pyrite and 3% fine cpy disseminated throughout</p>	<p>24.6-29.6 down dip extension of McDougall vein system</p>	

HOLE NUMBER: H-12

DRILL HOLE RECORD

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HOLE NUMBER: H-12

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>White brecciated barren quartz vein. 10-15% iron carbonate towards base of vein</p> <p>(contact) 29.2 (contact) 29.6</p>	<p>20 20</p>	<p>29.6-30.4 weak quartz carbonate stockwork veinlets.</p> <p>30.5-31.2 Moderate to strong iron carbonate alteration.</p> <p>31.2-32.2 quartz/carbonate veinlets</p> <p>32.3-33.0 Iron carbonate alteration with 3% brecciated carbonate/quartz veinlets.</p> <p>34.75-35.35 Iron carbonate alteration giving brown coloration. minor hematite staining of ground mass. sharp lower contact to zone @ 45 deg</p> <p>37.2-46.1 Patchy hematite staining of ground-mass</p>	<p>31.7m <1% disseminated mm pyrite cubes</p>	
		<p>37.2-46.1 Pyroxene phyrlic fragments. 3-7 mm equant fresh pyroxenes crystals within rounded light to medium green fragments, rare amygdaloidal fragments in a mm pyroxene phyrlic groundmass.</p> <p>50.0-51.4 Pyroxene phyrlic. Up to 15% pyroxene crystals.</p> <p>55.0-59.2 Pyroxene phyrlic and amygdaloidal fragments. Pyroxene crystals milky white discoloration, argillic alteration?</p> <p>57.0-58.1 Milky white quartz vein intermixed with 5-10% chlorite altered host rock. Brecciated and broken lower contact (contact) 57.0</p>	<p>20</p>	<p>57.0-58.1 trace - <1% diss py vubes. Most mineralization is within chloritic inclusions and along inclusion edges</p>		<p>62.8 m E.O.H.</p>

HOLE NUMBER: H-12

DRILL HOLE RECORD

LOGGED BY: PTB

PAGE: 3

HOLE NUMBER: H-12

ASSAY SHEET

DATE: 1-January-1980

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
BCD11056	24.60	25.00	0.40	26		250		
BCD11057	26.40	27.40	1.00	2400		35		
BCD11058	28.15	28.40	0.25	120		5		
BCD11059	28.40	29.20	0.80	121		5		
BCD11060	29.20	29.60	0.40	63		5		
BCD11061	32.30	33.00	0.70	10		5		
BCD11062	34.75	35.35	0.60	113		5	ICP	
BCD11063	57.00	58.10	1.10	55		10		

HOLE NUMBER: H-12

ASSAY SHEET

PAGE: 4

HOLE NUMBER: H-13

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 1.20	OVERBURDEN					Casing: No core recovered
1.20 TO 78.30	MAFIC FRAGMENTAL FLOW BRECCIA	<p>Colour: medium green Grain Size: fine grained Large rounded pyroxene phyric fragments with 3-5% 2-5 mm equant fresh pyroxenes and rare 1-3 mm white amygdules in a finer grained sometimes pyroxene phyric mafic groundmass. Unit varies from fragment supported to groundmass supported. Patchy wispy laminated appearance with moderate to strong epidote alteration giving very noticeable light green coloration. Laminations may represent bedding but bending around fragments may give misleading core angles. Finer grained patches with finer grained mm pyroxene phyric fragments.</p> <p>1.2-16m 1-2% fine grained amygdaloidal fragments. Amygdules filled with white mineral (calcite? zeolites?)</p> <p>21.4 (laminations) 35 (bedding?) 24.2 (laminations) 40 35.5 (laminations) 45</p> <p>57.74-57.7 «Qtz Vn» Milky white and patchy reddish brown quartz vein and 10% white carbonate veining.</p>		<p>«w chl, M-S ep»</p> <p>weakly chloritic throughout patchy moderate to strong epidote alteration of groundmass as wispy laminations</p> <p>1.2-8.3 Hematite staining of groundmass</p> <p>37.3-48.9 «Mod Hem» Moderate hematite staining of ground mass</p> <p>45.5-45.9 strong hematite staining</p> <p>56.7-58.7 light bleaching of core, light greyish discoloration.</p>		<p>57.4-57.7 Trace <1 mm pyrite cubes</p>

HOLE NUMBER: H-13

DRILL HOLE RECORD

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HOLE NUMBER: H-13

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Sharp upper and lower contacts Minor inclusions of chloritic host rock, True width of vein 7 cm. (contact) 57.4 (contact) 57.7	15 15			
		57.7-58.3 quartz +/- carbonate veinlets				57.4-58.7 Down-dip extension of McDougall vein
		{58.3-58.7} Qtz Vn» 58.3-58.4 brecciated appearance with iron carbonate/Qtz fragments and inclusions of chloritic host rock. 58.4-58.5 Solid quartz vein with minor chloritic stringers. 58.5-58.7 Quartz veinlets +/- carbonate criss-crossing throughout host rock.		58.5-58.7 moderately chloritic host rock	58.3-58.7 trace disseminated cpy.	
		58.7-65.3 2-3% thin carbonate +/- quartz veinlets generally at 10-20 deg and 35-45 deg to core axis. Minor criss-crossing veinlets.				
		65.7-74.1 Very pyroxene porphyritic fragments. Pyroxene crystals up to 7 mm. Base of interval with light green wispy laminations (laminations) 73.9 m (bedding?)	70	{65.7-74.1} MEP» moderately epidotized causing light limy green coloration, more pronounced within fragments and within wispy laminations at base of interval.		
		{69.26-69.32} Qtz Vn» Grey white quartz vein with hematitic stringers Small cpy blebs and trace malachite staining. 2-3% carbonate. True width 2.5 cm (contact) 69.26m 75.84m 3 cm carbonate vein with 5% red hematite.	45			
		76.-76.72 Greyish white carbonate vein with 2-3% hematite stringers.				
		END OF HOLE				

HOLE NUMBER: H-13

DRILL HOLE RECORD

LOGGED BY: PTB

PAGE: 3

HOLE NUMBER: H-13

ASSAY SHEET

DATE: 10-February-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
BCD11064	57.40	58.70	1.30	104		5		

HOLE NUMBER: H-13

ASSAY SHEET

PAGE: 1

HOLE NUMBER: H-14

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.10	OVERBURDEN					Casing: No core recovered
2.10 TO 80.50	MAFIC FRAGMENTAL FLOW BRECCIA	<p>Colour: medium green Grain Size: fine grained Fine grained mafic fragments with <1% mm pyroxene crystals and rare white amygdules in a fine grained mafic matrix. Fragment boundaries difficult to see except where matrix is stained by hematite. Rare fragments with 1-3% white amygdules and minor patches with pyroxene phyric fragments with 2-5% 2-4 mm equant pyroxene crystals. Wispy interfragmental groundmass. Patchy hematite staining of groundmass down to 6.0 m</p> <p>7.35-14.3 moderate to strong hematitic staining of groundmass give red coloration of core. Fragment boundaries very distinct. Very minor hematite staining of fragments.</p> <p>14.3-16.5 white massive quartz vein. 3-5% white carbonate</p>		<p>14.3-16.5 $\{M-S Fe Carb\}$ Moderate to strong iron carbonate alteration</p> <p>18.6-19.9 $\{M-S Fe Carb\}$ Moderate to very strong iron carbonate alteration. Some alteration causing brecciation of host rock from 19.3-19.5. Hematite with ground mass at base of interval</p> <p>20.8-23.65 rare quartz/carbonate veinlets and weak-moderate iron carbonate alteration</p> <p>34.7-63.5 weak bleaching of core, light green coloration. Alteaion a result of veining within same zone. Tan clay? alteration of pyroxene crystals.</p>		<p>35.8-37.4 $\{<1\% cpy, tr py\}$ <1% diss cpy + tr. diss py.</p>

HOLE NUMBER: H-14

DRILL HOLE RECORD

LOGGED BY: PTB

PAGE: 2

HOLE NUMBER: H-14

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		and brown iron carbonate. 5-10% chlorite stringers and chlorite altered host rock.				
		35.8m (contact) 37.4m (contact)	45 35			
		{42.1-44.35} «25% Qtz Vns» 25% white quartz veins (lets) Irregular outlines, 1-2% carbonate within quartz veins. Host rock moderately chloritic.			{42.1-44.35} «<1% cpy + py» Overall <1% cpy + py. 42.35-42.55 1% combined cpy + py. 44.15-44.30 1% py and <1% cpy.	
		{45.2-46.7} «Qtz Vn» White quartz vein with green < 1mm chlorite stock work. Upper contact 15 cm brecciated quartz vein and host rock. Fine py along edges of quartz fragments. 46.1-46.7 2.5% brown iron carbonate veinlets. Quartz vein appears to be more milkier. Interval looks like a second pulse of veining.			{44.35-44.80} «1-2% py» 1-2% fine disseminated py cubes. {45.2-45.35} «1% py» 1% fine dark py rimming quartz fragments. {45.6-46.1} «1% py» 1% py disseminated and with chlorite stockwork cutting quartz. {46.1-46.7} «tr. py»	
		46.7 (contact)	30			
		46.7-47.6 5-7% white quartz veinlets and 5-7% tan white carbonate veinlets				
		{47.6-47.8} «Qtz Vn» White massive quartz vein with 5% tan white carbonate blotches. Sharp upper and lower contacts			{47.6-47.8} «<1% py» <1% disseminated py cubes mainly within carbonate blotches.	
		47.6m (contact) 47.8m (contact)	30 40			
		{48.3-50.25} «Qtz Vn» White massive quartz vein with medium to dark green chlorite stringers and stockwork. 49.1-50.25 10% chlorite and chlorite altered host rock. 50.0-50.25 2-3% brown iron carbonate. Lower contact irregular veining.			{48.3-50.25} «tr py, trcpy»	
				50.6-51.0 30% calcite veining 50.6-51.45 weak iron carbonate alteration		

HOLE NUMBER: H-14

DRILL HOLE RECORD

LOGGED BY: PTB

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HOLE NUMBER: H-14

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>‡51.45-53.75‡«Qtz Vn» Massive white quartz vein. Rare chlorite stringers rubbly upper contact, sharp very shallow lower contact 53.1 quartz vein host rock contact at 20 deg to CA 53.75 m (contact)</p>	10		<p>‡51.45-51.75‡«1-2% cpy» 1-2% disseminated and 2-3 cm blebs of cpy with malachite and rare azurite staining. ‡51.45-53.75‡«<1% py» <1% py disseminated and as very fine dark wisps. 53.75-54.8 <1% disseminate pyrite <1% disseminate py.</p>	
		<p>‡54.8-55.7‡«Qtz Vn» white massive quartz vein 5-7% tan white carbonate patches 54.8 m (contact) 55.7 m (contact)<</p>	20 10		<p>‡54.8-55.7‡«tr py»</p>	
		<p>55.2-55.7 10% iron carbonate within quartz vein.</p>		<p>‡55.7-57.3‡«S Fe Carb» strong brown iron carbonate alteration</p>		
		<p>‡58.8-60.1‡«Qtz Vn» white quartz mixed with up to 30% brown iron carbonate and 5% calcite. 25% weak iron carbonate host rock. 58.8 m (contact) 60.1 m (contact)</p>	30 20	<p>60.1-60.5 moderate brown iron carbonate staining.</p>		
		<p>60.5-66.2 10% Quartz/carbonate veinlets</p>				
		<p>61.75-62.8 Angular breccia with light tan gray sericitic fragments in a very dark grey chloritic mafic groundmass</p>				80.5 E. O. H.

HOLE NUMBER: H-14

DRILL HOLE RECORD

LOGGED BY: PTB

PAGE: 4

HOLE NUMBER: H-14

ASSAY SHEET

DATE: 1-January-1980

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
BCD11065	35.80	37.40	1.60	48		5		
BCD11066	42.10	43.10	1.00	107		145		
BCD11067	43.10	44.35	1.25	355		95		
BCD11076	44.35	45.20	0.85	87		10		
BCD11068	45.20	46.70	1.50	21		40		
BCD11069	46.70	47.80	1.10	56		5		
BCD11077	47.80	48.30	0.50	132		5		
BCD11070	48.30	49.30	1.00	33		5		
BCD11071	49.30	50.25	0.95	27		5		
BCD11078	50.25	51.45	1.20	78		5		
BCD11072	51.45	52.55	1.10	810		15		
BCD11073	52.55	53.75	1.20	120		55		
BCD11079	53.75	54.80	1.05	215		5		
BCD11074	54.80	55.70	0.90	33		270		
BCD11075	58.80	60.10	1.30	11		55		
BCD11080	60.10	61.60	1.50	55		5		
BCD11081	61.60	63.00	1.40	18		5		

HOLE NUMBER: H-14

ASSAY SHEET

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HOLE NUMBER: H-15

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.10	«OB»					Casing: No core recovered
2.10 TO 99.40	MAFIC FRAGMENTAL FLOW BRECCIA	<p>Colour: medium green Grain Size: fine grained Large rounded fine grained pyroxene phyric mafic fragments and <1% amygdaloidal fragments in a fine grained mafic ground mass Patchy light green wispy laminated groundmass giving possible bedding angles. Moderate hematite staining of groundmass down to 11.05 m.</p> <p>16.8-18.8 patchy hematite staining of groundmass</p> <p>18.8-20.4 very strong hematite staining of groundmass</p> <p>23.8-27.5 patchy hematite staining of groundmass</p> <p>35.8-36.2 40% calcite veining</p> <p>31.1 (bedding?) 70 49.7 (bedding?) 65</p> <p>{54.8-55.0}«Qtz Carb ep Vn» white quartz vein with minor carbonate and a light green epidote selvage.</p> <p>57.0-57.2 25% carbonate hematite veining</p> <p>57.1 (veining) 20</p> <p>{62.35-62.5}«Carb Vn» Carbonate vein with hematite stringers True width 2 cm.</p> <p>62.35 (contact) 20</p> <p>{63.65-63.8}«Qtz ep Vn» Irregular quartz veining with epidote selvages.</p> <p>{75.45-75.65}«Qtz Carb Vn»</p>			62.35-62.5 tr. py	

HOLE NUMBER: H-15

DRILL HOLE RECORD

LOGGED BY: PTB

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HOLE NUMBER: H-15

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		White quartz carbonate veining 75.45 (contact)				
		76.5-76.6 Cal Vn Irregular calcite vein				
		80.9-81.2 Qtz Vn White quartz vein with 1-2% brown iron carbonate patches, and 1-2% white calcite.	45			
		87.5 m 2 cm white quartz vein	40			
		89.0-89.35 Qtz Vn 89.0-88.05 white quartz vein 89.05-89.35 20% white quartz patches + brecciated veinlets	60			
		90.0 3 cm quartz vein	80			
			35	91.5-91.6 brown iron carbonate alteration inter-mixed with 15% quartz		
		97.05-97.1 Quartz Vein Barren white quartz vein	55			
						99.4 EOH

HOLE NUMBER: H-15

DRILL HOLE RECORD

LOGGED BY: PTB

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HOLE NUMBER: H-15

ASSAY SHEET

DATE: 1-January-1980

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
	0.00	0.00	0.00					

HOLE NUMBER: H-15

ASSAY SHEET

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HOLE NUMBER: H-16

ASSAY SHEET

DATE: 1-January-1980

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
11082	50.50	51.90	1.40	98		20		
11083	51.90	52.75	0.85	12		30		
11084	52.75	53.50	0.75	97		10		

HOLE NUMBER: H-16

ASSAY SHEET

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HOLE NUMBER: H-17

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 1.50	OVERBURDEN «OB»					Casing
1.50 TO 97.20	ANDESITE CRYSTAL TUFF AND ASH «And T,Ash»	<p>Colour - green to greyish green. Grain Size - fine grained. Interbedded ashy and crystal-rich layers. - ashy layers look fairly massive. - crystal-rich layers - mm-sized feldspar crystals aligned parallel to the foliation. - well-developed foliation mainly due to qtz-carb veining which is parallel to foliation.</p>				
		4.5	60	<p>{1.5 - 14.4} «1-2% qtz-carb v's» - quartz-carb veins aligned parallel to foliation.</p> <p>{14.4 - 18.65} «5% qtz-carb v's» - veins impart a lighter grey colour on andesite crystal tuffs.</p>		
		18.7m 36.0m	55 50	<p>{18.65 - 95.35} «2-3% qtz-carb v's» - 2-3% qtz-carb veins with locally 0.1-0.2m wide bull white quartz veins. 59.85 - 60.4 (20 deg. to CA) 75.5 - 75.7</p>	<p>{29.0 - 62.05} «1% py» - 1% very fine grained pyrite as disseminations, blebs and stringers; locally enriched.</p>	
		49.0m	70		<p>{42.45 - 42.9} «5% py» - 5% pyrite in grey siliceous andesitic ash.</p>	42.45 - 42.9 - looks very similar to Main Zone mineralized zone.
		62.05 - 95.35 - core bleached a light grey colour due to fine grained pyrite & weak silicification.			<p>{62.05 - 95.35} «2-3% py» - pyrite occurs primarily as very fine grained disseminations. - generally not present in qtz veins.</p>	
		71.5m	60			
		88.8m	60			
		95.35 - 97.2 - green andesite ash - foliation defined by quartz veins.		{95.35 - 97.2} «5% qtz v's»		
		96.0m	60			

HOLE NUMBER: H-17

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 2

HOLE NUMBER: H-17

MINNOVA INC.
DRILL HOLE RECORD

DATE: 1-January-1980

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

HOLE NUMBER: H-17

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

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HOLE NUMBER: H-17

ASSAY SHEET

DATE: 1-January-1980

Sample	From (m)	To (m)	Length (m)	ASSAYS				COMMENTS
				Cu ppm	Zn ppm	Au ppb	Ag ppm	
11085	29.00	30.50	1.50			15		
11086	30.50	32.00	1.50			5		
11087	32.00	33.50	1.50			5		
11088	33.50	35.00	1.50			10		
11089	35.00	36.50	1.50			5		
11090	36.50	38.00	1.50			25		
11091	38.00	39.50	1.50			10		
11092	39.50	41.00	1.50			10		
11093	41.00	42.45	1.45			5		
11094	42.45	42.90	0.45			10		
11095	59.85	60.40	0.55			5		
11119	60.40	62.05	1.65			5		
11096	62.05	63.50	1.45			5		
11097	63.50	65.00	1.50			5		
11098	65.00	66.50	1.50			5		
11099	66.50	68.00	1.50			5		
11100	68.00	69.50	1.50			10		
11101	69.50	71.00	1.50			5		
11102	71.00	72.00	1.00			5		
11103	72.00	73.00	1.00			10		
11104	73.00	74.50	1.50			15		
11105	74.50	76.00	1.50			5		
11106	76.00	77.50	1.50			20		
11107	77.50	79.00	1.50			5		
11108	79.00	80.50	1.50			5		
11109	80.50	82.00	1.50			5		
11110	82.00	83.50	1.50			5		
11111	83.50	85.00	1.50			5		
11112	85.00	86.50	1.50			10		
11113	86.50	88.00	1.50			10		
11114	88.00	89.50	1.50			5		
11115	89.50	91.00	1.50			5		
11116	91.00	92.50	1.50			5		
11117	92.50	94.00	1.50			20		
11118	94.00	95.35	1.35			10		

HOLE NUMBER: H-17

ASSAY SHEET

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APPENDIX II

LITHOGEOCHEMICAL ANALYSES

(VALUES IN PPM)	AG	AS	BA	CU	PB	SB	ZN	AU-PPB
H88-01	3.3	4	17	163	30	1	147	20
H88-02	.7	24	41	49	19	1	138	5
H88-03	2.2	7	54	45	23	1	56	5
H88-04	1.6	11	7	101	10	1	35	10
H88-05	1.1	5	8	9	14	1	52	5
H88-06	.6	3	8	122	18	1	46	5
H88-07	1.0	14	54	9	24	1	83	5
H88-08	1.3	9	16	166	16	1	25	5
H88-09	1.1	23	6	112	20	1	48	5
H88-10	1.5	15	8	56	15	1	29	5
H88-11	1.7	10	79	15	14	1	79	5
H88-12	1.5	11	16	16	12	1	42	5
H88-13	.8	15	103	17	17	1	50	10
H88-14	1.9	12	37	13	22	1	27	5
H88-15	.8	10	123	13	20	1	23	5
H88-16	1.3	8	14	217	14	1	10	5
H88-17	1.7	11	56	19	18	1	17	5
H88-18	1.7	9	12	3805	24	1	16	85
H88-19	.8	15	6	43	18	1	27	10
H88-20	.3	8	4	275	17	1	28	5
H88-21	.6	24	11	51	17	1	60	5
H88-22	2.3	12	9	22	16	1	70	5
H88-23	3.1	5	5	338	14	1	48	5
H88-24	.4	13	54	9	10	2	107	5
H88-25	1.3	24	18	67	21	4	45	5
H88-26	1.1	7	10	128	11	1	40	5
H88-27	1.8	12	8	70	10	1	40	5
H88-28	1.6	14	63	61	16	1	60	5

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 Ans'd

(VALUES IN %)	AL2O3	BA	CAO	FE2O3	K2O	MGO	MNO2	NA2O	P2O5	SI02	SR	TIO2
H88-01	13.73	.015	6.39	12.17	.66	7.06	.21	2.50	.20	47.43	.03	1.75
H88-02	17.48	.007	4.90	13.28	.15	5.07	.20	3.54	.22	47.13	.03	1.16
H88-03	19.22	.026	3.67	9.79	1.59	5.63	.16	3.95	.25	46.67	.02	1.69
H88-04	14.21	.007	8.22	8.99	.13	8.96	.15	2.71	.14	49.61	.02	.57
H88-05	14.90	.005	7.33	9.88	.02	7.39	.20	1.19	.18	48.43	.03	.80
H88-06	17.08	.005	10.93	10.24	.08	7.60	.20	1.70	.29	42.45	.04	.73
H88-07	18.84	.054	3.59	7.66	1.93	1.99	.23	3.55	.30	56.57	.04	.44
H88-08	14.62	.017	3.08	5.02	.28	2.20	.09	5.59	.18	62.59	.02	.64
H88-09	15.22	.007	6.30	9.00	.05	7.76	.19	2.82	.18	49.60	.02	.67
H88-10	14.67	.005	10.39	9.71	.02	7.30	.19	1.68	.15	48.93	.03	.57
H88-11	19.15	.054	5.06	9.46	2.12	3.24	.22	2.96	.24	51.15	.04	.79
H88-12	16.41	.010	8.42	7.87	.21	3.70	.16	2.44	.34	53.35	.06	.73
H88-13	18.19	.046	1.93	7.56	2.19	2.92	.16	2.84	.25	58.48	.03	.62
H88-14	15.52	.080	3.48	3.63	3.12	.98	.08	3.68	.20	64.52	.04	.46
H88-15	18.04	.073	.16	3.36	2.93	.72	.06	3.83	.10	67.69	.04	.32
H88-16	17.13	.008	14.36	6.29	.33	8.26	.13	1.18	.14	46.35	.03	.31
H88-17	14.70	.061	2.49	2.54	2.03	.83	.06	4.37	.11	68.93	.03	.33
H88-18	18.34	.005	8.15	16.08	.27	6.70	.09	.56	.09	33.38	.04	.06
H88-19	8.17	.005	9.44	12.15	.11	17.58	.18	.24	.14	43.18	.01	.34
H88-20	15.72	.050	13.53	15.97	.04	7.67	.18	.11	.09	39.27	.05	1.26
H88-21	18.74	.005	10.94	13.62	.08	6.48	.23	1.11	.71	38.58	.06	1.24
H88-22	13.06	.007	8.63	12.48	.28	5.78	.20	4.02	.17	46.06	.03	1.62
H88-23	13.20	.005	6.53	11.78	.11	6.43	.17	4.76	.15	47.65	.01	1.65
H88-24	21.13	.051	2.61	10.87	2.54	2.92	.10	1.79	.26	51.31	.03	1.01
H88-25	16.00	.005	4.15	10.02	.07	9.69	.19	3.10	.21	48.01	.03	.72
H88-26	15.52	.005	7.80	9.05	.05	7.33	.17	3.39	.20	49.05	.02	.72
H88-27	18.48	.066	2.62	10.91	3.63	3.63	.07	1.56	.17	50.79	.04	.85
H88-28	15.91	.007	9.69	8.63	.21	5.34	.18	1.88	.18	52.36	.03	.85

(VALUES IN %)	ZR	S	TOT(%)
H88-01	.011	.06	92.21
H88-02	.007	.03	93.21
H88-03	.014	.05	92.72
H88-04	.005	.06	93.77
H88-05	.005	.08	90.44
H88-06	.005	.17	91.51
H88-07	.007	.04	95.24
H88-08	.009	.67	95.01
H88-09	.005	.09	91.93
H88-10	.005	.03	93.68
H88-11	.008	.02	94.50
H88-12	.009	.04	93.75
H88-13	.009	.06	95.27
H88-14	.014	.03	95.85
H88-15	.012	.02	97.38
H88-16	.005	.08	94.61
H88-17	.012	.06	96.57
H88-18	.005	9.50	93.25
H88-19	.005	.12	91.65
H88-20	.005	.61	94.56
H88-21	.005	.14	91.94
H88-22	.009	.03	92.39
H88-23	.010	.04	92.49
H88-24	.009	.04	94.66
H88-25	.005	.04	92.22
H88-26	.005	.30	93.60
H88-27	.006	.03	92.86
H88-28	.005	.02	95.32