

82m/4
 Samatosum
 822909

HOLE NUMBER: RG-241
 MINNOVA INC.
 DRILL HOLE RECORD
 IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SAMFALL	PLOTTING COORDS GRID:	ALTERNATE COORDS GRID: Sam	COLLAR DIP: -69° 0' 0"
PROJECT NUMBER: 340	NORTH: 868.40N	NORTH: 8+80N	LENGTH OF THE HOLE: 212.40m
CLAIM NUMBER: REA#1	EAST: 1032.40W	EAST: 102+ 0W	START DEPTH: 0.00m
LOCATION: Samatosua	ELEV: 1259.30	ELEV: 0.00	FINAL DEPTH: 212.40m

COLLAR GRID AZIMUTH: 180° 0' 0" COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 8, 1988	COLLAR SURVEY: YES	PULSE EM SURVEY: NO	CONTRACTOR: Frontier
DATE COMPLETED: September 10, 1988	MULTISHOT SURVEY: NO	PLUGGED: NO	CASING: LIH
DATE LOGGED: 0, 0	ROD LOG: NO	HOLE SIZE: NO	CORE STORAGE: Barriere

PURPOSE: Collar co-ords approx. casing not found.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
3.00	-	-69° 0'	ACID	OK		-	-	-	-	-	
45.70	-	-68° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-68° 0'	ACID	OK		-	-	-	-	-	
137.20	-	-67° 0'	ACID	OK		-	-	-	-	-	
182.80	-	-66° 0'	ACID	OK		-	-	-	-	-	
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MIMNOVA INC.
DRILL HOLE RECORD

DATE: 6-December-1988

HOLE NUMBER: R6-241

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA:	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	<CASING>	DEPTH OF HEAVY - MOD OXID'M TO 3.5m LAST OXID'M ON FRACT SURF'S AT 12.3				
3.00 TO 14.00	MAFIC TUFF <MT>	COLOUR- GREY TO BROWNISH GREY GRAIN SIZE- f-ng. MODERATE - WELL FOLIATED; ABUNDANT QUARTZ INJECTION AND LOCAL SILICIFICATION. MORE TUFFACEOUS, UNDEFORMED TEXTURE AT 12.4 TO 14.0m.	70	LOCAL SURFACE OXIDATION TO 12.3M. SILICIFIC'M AND LITE - MOD. SERICITIZ'M	<TR - MINOR PY> LOCALLY 3-SZ	
14.00 TO 50.10	SERICITIC TO ARG. CHERT BI. <SER ARG CHT BI>	COLOUR- BUFF TO GREY AND BLACK GRAIN SIZE- m-cg ZONE OF ORIGINALLY ARGILLITE CHERT BI (ARG MATRIX) WHICH HAS ALTERED (NOW SERICITIC TUFF AND CHERT.) LOCALLY GRAPHITIC ON ARGILL SURFACES. BEDDING PROB SOFT SED AND SUB PARALLEL CORE AXIS.	70	SERICITIC ZONES AT 15.9- 19.9 21.7- 27.2 23.2- 23.8 26.0- 27.0 27.6- 27.8 28.0- 28.5 32.1- 43.3 44.1- 46.2 47.2- 50.1 LOCAL QUARTZ VEINING	<TRACE - MINOR PYRITE;> LOCALLY 3-SZ f.g. DISS.	FAULT GOUGE AT 14.0 - 14.3.
50.10 TO 58.60	<SER CHERT BI>	COLOUR- LITE GREY-GREENISH GRAIN SIZE- f.m.g. WELL FOLIATED SERICITIC MATRIX IN CHERT BRECCIA.	80	MOD- WELL- DEV- GREEN MICA. SERICITIC. LOCAL QUARTZ VEINING	52.9- 55.0. 25% CORE LOSS. 1-3% LOCALLY 5-8% SPH, CPY, GA. AND TET.- DISS IN Q.V.'S IN GREY MASS CHT BI. 56.9- 58.6 1-3% LOCALLY 8-10% f.g. DISS PY.	FRACT'D CORE 53.7- 54.2 FRACT'D CORE 55.2- 56.9 (LAST 10 cm IS FAULT GOUGE). AT 58.6 5cm FAULT GOUGE.
58.60 TO 62.50	QUARTZITE TO OR SIL'D CHERT BI <QITE>	COLOUR- GREY- WHITE GRAIN SIZE- MASSIVE f.g. A QUARTZ VEINED CHERT? VEINS HAVE HAZY CONTACTS OR A SILICA FLOODED OR REMOBILIZED CHERT		Q.V.'S	<1-3% LOCALLY 3.5% SPH, TET, CPY, GA>	5.0cm, FAULT GOUGE AT 58.6m.
62.50 TO 68.50	MASSIVE TO BARITE <BARITE>	COLOUR- WHITE, LITE GREY GRAIN SIZE- f.m.g. MASSIVE, HINT OF BEDDING LAMINAE. SOMETIMES MOTTLED TEXT. ANGLE TO C.A. 60-65%		OCCASIONAL GREEN MICA.	<TR- MINOR PY> TR-MINOR LOCALLY 3-SZ PY, TET? (65.9- 66.2)	
68.50 TO 71.10	SERICITIC TO TUFF? AND QUARTZ VEIN <SER' C N.T. AND BV>	COLOUR-BUFF-YELLOWISH GRAIN SIZE- f.g. PROBABLY SERICITIC ALT'M OF SEDS BELOW (STRUCTURE SIMILAR) W. ABUND. QUARTZ VEINING. ANGLE TO C.A. 85-90		WELL DEV. SERICITE QUARTZ VEINING UP TO 50% OF CORE.	<3-5% PY> AS DISS. BANDS IN SER. COMPONENTS.	

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LOGGED BY: B.Friesen

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO C.A.	ALTERATION	MINERALIZATION	REMARKS
71.10 TO 131.00	ARGILLITES AND WAKES. <ARG AND WAKE>	COLOUR- BLACK TO GREY GRAIN SIZE- GENERALLY f.g. LOCALLY m.c.g. WAKES. TYPICAL F.G. LAM. ARGILLITE WITH INTERLS WAKES, AND TUFFACEOUS ARGILLITES. LOCAL SOFT SED DEFORM. 72.0- 72.5 CHERTY. ANGLE TO C.A. 75-80 95.1- 98.8 LARGE WAKE UNIT WITH FOLD NOSE OF ARGILLITE AT 98.0- 98.15 114.2- 114.6 6V'D AND BX'D ARG. 117.3- 117.5 Q.V. WITH CHLORITIC MARGIN AT 117.3 117.7- 125.2 WAKES MG'D WITH GREY CHERT INTERVAL AT 121.0- 121.7. (CONTAINS 3-5% DISS PY). GREY CHERT ALSO AT 127.1- 129.0 WITH QUARTZ VEINING (BARREN)		ARGILLACEOUS COMPONENT OFTEN SOOTY GRAPHITIC POSS. LOCAL SIL'N.	<TR-MINOR PYRITE> AS BANDS AND INTER LAMINAE SHEARS OCCASIONAL STRETCHED PY NODULE (0.5cm x 3cm.)	CONTAINS NUMEROUS CROSS BEDDING STRUCTURES.
131.00 TO 149.70	PYRITIC TO MUDDY TUFF <PY MUT>	COLOUR- BROWNISH GREY GRAIN SIZE- f.m.g. TYPICAL MUT. WITH ABUND IRREGULAR INCLUSIONS OF OF QUARTZ FIELD VEINLETS, AND CHERT FRAGS. CLEAVAGE APPEARS TO BE STARTING TO TRANSPOSE INTER BEDDED CHERTS. 147.5- 147.6 GREY CHERT BANDED, FRAG'L. 147.7- 147.8 VUGGY (1cm) WITH DRUSY QUARTZ FILLING. 148.4- 149.7 SIL'D ARG AND WAKE; GRAPHITIC ANGLE TO C.A. 65-75 (CLEAVAGE) 80-90 (CHERT INTERBEDS) TO SUB PARALLEL CORE AXIS		MOD F.G. SER., ABUNDANTE QV'S AT 131.0- 132.0	<30-40% V.F.G.PY> MINOR DISS PY.	133.0- 133.4 FAULT GOUGE. HIGHLY FRACT'D
149.70 TO 169.70	MIXED PYMUT TO AND GREY CHERT OR SILICA <PYMUT AND CHT>	COLOUR- BROWN-GREY GRAIN SIZE- F.M. MUCH MORE CHERTY (SILICA) COMPONENT THAN ABOVE. CHT FRAGS IN PYMUT MATRIX. 153.0- 153.6 MAINLY CHT AND Q.V. (BARREN). ANGLE TO C.A. 45% BUT BECOMMING TRANPOSEDBY CLEAVAGE AT 60 DEG. 154.3- 157.2 PRED LITE GREY LAM CHERTWITH SEV Q.V'S TO 5cm.		SERICITIC QUARTZ / FELD VEINS AT 163.8- 163.9 AND 168.2-168.4 WITH Q.V'S	<20% PY> 3-5% PY LOCALLY B-10%	AT 155.0 3 cm.SHEAR 25 DEG TO AT AXIS.

MINNOVA INC.
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DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		SIL'D ARGILLITE AT 163.9- 164.2 AND 168.8- 169.7	45			
169.70 TO 176.20	<QUARTZ VEIN>	COLOUR- WHITE GRAIN SIZE- MASS MASSIVE WHITE QUARTZ VEIN;= 10% LEUCOXENE (?) CONTAINS 25% F.G. PYMUT AND CHERT. ANGLE TO C.A. 70% (MUT)		10% LEUCOXENE? LOCAL GREEN MICA.	<1-2% PY TR CPY>	
176.20 TO 177.40	<PYMUT AND CHT>	COLOUR- BROWN-GREY GRAIN SIZE- F.G. V.WELL LAMINATED IN UPPER 0.5m. ANGLE TO C.A. 75-80 DEG.		ABUNDANT GREEN MICA AT 177.2-177.4		
177.40 TO 179.50	ARGILLAC- EQUUS CHERT BRECCIA <ARG CHT BI>	COLOUR- GREY- BLACK GRAIN SIZE- F.M. CHERT FRAGS WITH ARGILLITE MATRIX. FRAGS FLATTENED AND ELONGATED ANGLE TO C.A. 75-80 DEG.		INCREASING SERICITE TOWARDS BOTTOM OF INTERVAL.	<3-5% F.G. PY> AS DISS AND BANDS.	
179.50 TO 196.60	SERICITIC TO ARG CHT AND BI <SERC ARG CHT BI>	COLOUR- BUFF-GREY GRAIN SIZE- F.M. FRAGMENTAL TEXT SAME AS ABOVE. THIS UNIT IS PROBABLY THE SERICITIZED EQUIVALENT OF THE ARGILL. CHT BI ABOVE.	70	V. SERICITIC QV AT 179.7- 180.1 TR GREEN MICA.	TR-MINOR LOCALLY 3-5% F.G. DISS PY. <TR-MINOR PY>	<190.7-192.9 FAULT> ZONE. SOME GOUGE AND FRAGS OF SERT AND CHT.
196.60 TO 212.40	MAFIC TUFF TO <MT>	COLOUR-LITE-DARK-GREY-GREA GRAIN SIZE- F.M. FABRIC SOMEWHAT INDISTINCT BY BLEACHING AND SERICITIZATION E.O.H.	70	MORE SERICITIZATION UPPER HALF OF INTERSECT. MINOR Q.V.'S	<MINOR - 3% DISSPY> TR GALENA Q.V. AT 205.1	APPARENT COARSE FRAG. TEXTURE CAUSED BY IRREGULAR GRINDING AND CUTTING OF DIAMOND BIT.

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ASSAY SHEET

DATE: 6-December-1988

Sample	From (m)	To (m)	Length (m)	ASSAYS															COMMENTS							
				Cu I	Zn I	Pb I	Ag g/T	Au g/T	Sb I	As I	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm		Ba I	Sb ppm	Ag ppm	Au ppm			
11776	52.90	55.00	2.10	.770	2.12	.96	26.0	0.34																		
11777	55.00	56.90	1.90	.022	.03	.01	0.2	0.16																		
11778	56.90	58.60	1.70	.066	.10	.24	9.9	0.22																		
11779	58.60	60.10	1.50	.106	.36	.16	11.8	0.02																		
11780	60.10	61.60	1.50	.035	.08	.04	1.0	0.01																		
11781	61.60	62.50	0.90	.185	.15	.26	24.3	0.35																		
18139	62.50	64.00	1.50								625	252	260								29.2	65				RESAMPLE FOR 11782
18140	64.00	65.50	1.50								152	178	85								13.6	25.0				RESAMPLE FOR 11783
18141	65.50	67.00	1.50								1195	924	945								94.0	170				RESAMPLE FOR 11785
18142	67.00	68.50	1.50								163	139	284								13.1	90				RESAMPLE FOR 11786
18143	68.50	70.00	1.50	0.019	0.01	0.02	4.3	0.18																		RESAMPLE FOR 11787
11788	131.00	133.00	2.00								68	183	165								2.4	20				
11789	133.00	135.00	2.00								47	39	43								0.4	5				
11790	135.00	137.00	2.00								49	98	39								1.2	5				
11791	137.00	139.00	2.00								37	46	34								1.0	5				
11792	139.00	141.00	2.00								39	79	39								1.3	5				
11793	141.00	143.00	2.00								36	87	36								1.1	5				
11794	143.00	145.00	2.00								37	44	42								0.9	5				
11795	145.00	147.00	2.00								34	52	43								1.0	5				
11796	147.00	148.40	1.40								46	79	49								0.8	5				
11797	151.00	152.50	1.50								42	68	47								0.9	5				
11798	154.30	156.40	2.10	0.008	0.01	0.01	0.8	0.10																		
11799	162.00	164.00	2.00								26	97	37								0.8	5				
11800	169.70	171.20	1.50	0.006	0.01	0.01	0.4	0.15																		
11801	171.20	172.70	1.50	0.006	.02	.02	0.4	0.02																		
11802	172.70	174.20	1.50	0.005	.01	.01	0.2	0.10																		
11803	174.20	176.20	2.00	0.008	.01	.01	0.2	0.19							750	172					4.0					
11804	177.20	177.40	0.20								180	120	76								0.8	20				

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ASSAY SHEET

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HOLE NUMBER: R6242 MINNOVA INC.
DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: I

PROJECT NAME: SAMFALL PLOTTING COORDS GRID: SAM ALTERNATE COORDS GRID: SAM COLLAR DIP: -90° 0' 0"
 PROJECT NUMBER: 333 NORTH: 868.40M NORTH: 8+80 LENGTH OF THE HOLE: 226.50m
 CLAIM NUMBER: EAST: 1032.40E EAST: 102+ 0 START DEPTH: 0.00m
 LOCATION: SAMATOSUM ELEV: 1259.30 ELEV: 0.00 FINAL DEPTH: 226.50m

COLLAR GRID AZIMUTH: 180° 0' 0" COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 10, 1988 COLLAR SURVEY: NO PULSE EM SURVEY: NO CONTRACTOR: FRONTIER
 DATE COMPLETED: September 12, 1988 MULTISHOT SURVEY: NO PLUGGED: NO CASING: LIH
 DATE LOGGED: 0, 0 RQD LOG: NO HOLE SIZE: NO CORE STORAGE: BARRIERE

PURPOSE: COLLAR CO-ORDS APPROX CASING NOT FOUND.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
3.00	-	-89° 0'	ACID	OK		-	-	-	-	-	
45.70	-	-88° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-86° 0'	ACID	OK		-	-	-	-	-	
137.20	-	-85° 0'	ACID	OK		-	-	-	-	-	
182.90	-	-85° 0'	ACID	OK		-	-	-	-	-	
226.50	-	-83° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	<CASING>	SURFACE OXIDATION TO 12.0m				
3.00 TO 12.40	MAFIC TUFF <MT>	COLOUR- GREENISH GRAIN SIZE- F.M.G. FOLIATED, STRAINED AND Q.V.'D MAFIC TUFF ABUND QUARTZ LAMINIA PARALLEL FOLIATION	50	CHLORITIC; BECOMES SERICITIC FROM 11.0m WITH TR. GREEN MICA	<TR - MINOR DISS PY> FROM 11.0 (SERICITIC ZONE) Q.V'S TO 3cm THICK. WITH MINOR DISS PY, GA.	
12.40 TO 19.70	MIXED MAFIC TO PYROCLASTIC AND CHERT <MPYRD AND CHT>	COLOUR- LIGHT GREENISH-GREY GRAIN SIZE- F.M.G. FRAGMENTAL; FRAGS OF TUFF AND CHERT TO 3-4cm ORIENTED TO FOL'N PLANE. MINOR QUARTZ BX ALSO LOCALLY ARGILLACEOUS SECTIONS (MINDR). ANGLE TO C.A. 60-65 DEG.		SERICITIC TO 16.5m.	<MINOR - 3% F.G. DISS PY> AT 12.4 5cm Q.V. WITH TR GA.	
19.70 TO 55.70	SERICITIC TO ARGILLAC- EOUS CHERT AND BRECCIA <SER ARG. CHT BX> CORRELATES WITH SER TUFF IN RG- 241	COLOUR- BLACK, GREY-GREEN GRAIN SIZE- F.M. BRECCIATED CHERT, QUARTZ LENSES, AND LAYERS WITH ARGILLACEOUS MATRIX. PROBABLY BX IS TECTONIC (VS DELORIS FLOW?) BY CLEAVAGE FOLD HINGE 42.0- 43.0 ORIGINAL BEDDING PROB SUB PARALLEL CORE AXIS. ANGLE TO C.A. - IRREGULAR CLEAVAGE APPROX. 60 DEG. 55.4- 55.7; F.G., FOLIATED AND SHEARED. ANGLE TO C.A. 65-70 DEG.		QUITE SERICITIC FROM 19.7- 29.2m. 38.3- 39.7m. 42.0- 43.7m. 44.4- 55.0m.	<TR-MINOR PY> (DISSEM) 20% PY	
55.70 TO 79.20	SILICA TO FLOODED CHERT. <CHT>	COLOUR- WHITE-GREY GRAIN SIZE- F.G. MASS. MODERATELY LAMINATED CHERT WHICH APPEARS SILICA FLOODED. LOCALLY SERICITIC. LOCALLY SOFT SED DEFORM.		SERICITIC ZONES AT 60.4- 62.0 (WELL DEV) AND 70.0- 79.2	65.6- 66.5; 10% DISS AND VEINLETS OF PYRITE ASSOC WITH QUARTZ FLOODING. <10% PY>	
79.20 TO 87.00	ARGILLAC- TO EOUS CHERT BRECCIA <ARG CHT BX>	COLOUR- GREY-BLACK, GREENISH GRAIN SIZE- F.M.G. BX'D LAMINAE OF CHERT AND SILICA IN ARGILLACEOUS MATRIX. MUCH OF INTERSECTION IS HEAVILY PYRITIZED AND SERICITIC. ANGLE OF C.A. 60 DEG. (CLEAVAGE)		GREEN MICA WELL DEV. IN PYRITE ZONE FROM 79.2- 80.9.	79.2- 80.9; 15-20% PY 85.2- 86.2; 25% PY <20% PY>	F.G. DISS. 84.0- 84.2: FAULT GOUGE.
87.00 TO 143.50	ARGILLITES TO AND WAKES <ARG AND WAKE>	COLOUR- BLACK, GREY. GRAIN SIZE- F.M. BLACK ARGILLITES INTERBEDDED WITH GREY WAKES. 6cm V FINELY LAMINATED TYPICAL OF OTHER OCCURENCES. LOCAL SOFT SED DEFORM'N LOCALLY SERICITIC.		87.0- 89.1; SERICITIC AND PYRITE - TRANSITION ZONE FROM ABOVE UNIT WITH REMNANTS OF UNALT'D ARG. (RES MUDDY TUFF) 90.2- 92.3; VERY SERICITIC WITH INTERBEDS OF CHERT (SILICA) AND	<10- 15% V.F.G. PY>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA:	ALTERATION	MINERALIZATION	REMARKS
		<91.3- 92.0 BARITE> ANGLE OF C.A. 60-65 DEG. (AVG). 120.0- 121.0; GREY CHERT. 124.7- 125.6; SOFT SED DEFORM'N WITH BRECCIATION AND SOME Q.V'S. 132.8- 133.7; BEDDING SUBPARALLEL CORE AXIS. AT 141.5: FOLD HINGE.		CLOTS OF PYRITE SURROUNDING THE BARITE ZONE.	<15Z PY>	
143.50 TO 149.60	TRANSITION ZONE BETWEEN ARG WAKES ABOVE AND MUDDY TUFF BELOW. SER. SEDS AND Q.V'S. <TRANS ZONE>	COLOUR- BUFF-GREY GRAIN SIZE- F.MED. PREDOMERATELY SERICITIC EQUIVALANT OF ARG/WAKE UNITS ABOVE WITH SEVERAL Q.V'S TO 0.5m. ANGLE TO C.A. 20-30 DEG.		SERICITE WELL DEV.	MINOR TO 3Z DISS M.G. PYRITE AT Q.V. CONTRACTS. <MINOR- 3Z PY>	
149.60 TO 159.60	MUDDY TUFF <MUT>	COLOUR- BROWNISH GRAIN SIZE- GENERALLY F.M.G. MUDDY TUFF; LOCALLY WELL DEV. SER. 153.3- 154.6; SILICA FLOODED AND Q.V'D CHERT BX WITH 3-SZ DISS SPH, GA, YET. LOWER CONTACT SHEARED AND INTERBEDDED WITH ARG. ANGLE TO C.A. 45-50 DEG.		LOCAL WELL DEV. SERICITE	<10Z F.G. PY> IN MUT.	149.6- 150.0; SHEARING.
159.60 TO 162.20	SILICIFIED TO ARGILLITE <SIL'D ARG>	COLOUR- BLACK GRAIN SIZE- F.G. HIGHLY SIL'D ARG V. INTENSELY INVADED BY QUARTZ VEINLETS.	60	Q.V'S, SIL.	MINOR- 1Z LOCALLY 3-SZ DISS PY. <MINOR- 1Z PY>	
162.20 TO 179.80	PYRITE TO MUDDY TUFF <PYMUT>	COLOUR-BROWNISH GREY GRAIN SIZE-F.G. TYPICAL PY MUT FROM 170.8- INCREASING ARGILLITE COMPONENT. ANGLE OF C.A. 65-70 DEG.			<20-30Z PY>	SHEAR ZONE AT 162.2- 163.5 AND 178.0- 178.3
179.80 TO 185.40	SER CHERT TO <SER'C CHT>	COLOUR- GREY GRAIN SIZE- M.G. PRED FLATTENED, ALIGNED CHERT FRAGS WITH A SERICITIC MATRIX. PYRITE ARGILLITE AT 182.3- 183.2 (20Z PY BANDS)	60		<3-SZ F.G.- DISS PY>	UPPER CONTACT SHEARED (179.5- 179.8)

MINNOVA INC.
DRILL HOLE RECORD

DATE: 6-December-1988

HOLE NUMBER: R6242

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
185.40 TO 194.00	PYRITIC ARGILLITE <PY ARG>	COLOUR- BLACK GRAIN SIZE- F.G. ARGILLITE WITH 10-15% PY. OFTEN BX'D AND STRETCHED 192.6- 194.0 SER CHERT. ANGLE TO C.A. 60-65 DEG.		QUARTZ VEIN AT 186.5- 187.0 ALSO SEVERAL 5cm. QUARTZ VEINS BETWEEN 191.0 AND 192.0. 192.0-192.6; MOTTLED TEXTURE CAUSED BY ABUND C.G. DOLOMITE?	<10-15 PY>	
194.00 TO 217.90	SERICITIC CHERT. <SER'IC CHT>	COLOUR- GREY-BUFF GRAIN SIZE- F.M. GREY CHERT FRAGS WITH BUFF COLORED SERICITE MATRIX. STRONGLY SERICITIC FROM 194.0- 197.0. MODERATELY INTRUDED BY QUARTZ. (FLOODED) 209.4- 213.6; MIXED LAMINATED CHERT AND ARGILLITE WITH INTERBANDS OF PYRITE. ARGILLITIC PORTIONS GRAPHITIC. ANGLE TO C.A. 45-60 DEG.	60	STRONG MOD SERICITE LOCAL GREEN MICA (MINOR) Q.V. AT 213.3- 213.6	<3-5% DISS PY>	
217.90 TO 226.50	SERICITIC MAFIC PYRO-CLASTIC? <MPYRO SER'IC>	COLOUR- BUFF-BROWN GRAIN SIZE-M.G. GRADATIONAL FROM ABOVE BUT STRONGLY SERICITIC/ MASS F.G PY INTERBUNDS TO 3cm. THICK. SILICA FLOODED. FRAGS OF CHERT REMAIN BUT SEVERAL OBVIOUS SERICITIC FRAGS SIM TO MPYRO PRESENT. ANGLE TO C.A. AVG.60 DEG. E.O.H.		STRONG SERICITE SILCIA FLOODED. MINOR GREEN MICA THROUGHOUT.	<25% PY> F.G. MASS INTERBANDS TR GA. ASSOC. WITH SILICA FLOODING.	

HOLE NUMBER: R6242

DRILL HOLE RECORD

LOGGED BY: B FRIESEN

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HOLE NUMBER: RG242

ASSAY SHEET

DATE: 6-December-1988

Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS							
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm		
11805	79.20	80.90	1.70									184	138	176								4.2	30		
11806	80.90	83.30	2.40									102	176	95								2.6	40		
11807	83.30	85.20	1.90									53	143	110								1.6	25		
11808	85.20	86.20	1.00									78	74	113								1.9	35		
11809	152.30	153.30	1.00	.010	.02	.01	6.3	.16																	
11810	153.30	154.60	1.30	.740	1.38	.88	780.0	1.26																	
11811	154.60	155.60	1.00	.018	.04	.08	15.4	.17																	
18812	158.60	159.60	1.00									55	116	38								1.3	5		
18813	159.60	162.20	2.60									31	142	22								0.9	5		
18814	165.00	166.00	1.00									82	80	46								0.8	5		
18815	171.00	172.00	1.00									41	67	39								1.0	5		
18816	182.30	183.20	0.90									142	870	200								1.4	5		
18817	188.50	189.50	1.00									1740	6650	3700								18.0	5		
18818	200.30	201.30	1.00									43	370	132								1.0	5		
18819	215.50	216.00	0.50	0.004	0.09	0.24	4.2	0.01																	
18820	216.00	216.30	0.30	0.006	0.02	0.04	2.1	0.08																	
18821	216.30	216.80	0.50	0.003	0.03	0.02	1.8	0.01																	
18822	217.90	219.90	2.00									178	3600	1260								2.7	10		
18823	219.90	221.90	2.00									62	1520	465								0.6	50		
18824	221.90	223.90	2.00									350	3900	4820								4.2	20		

HOLE NUMBER: RG242

ASSAY SHEET

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HOLE NUMBER: R6243

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SAMFALL
PROJECT NUMBER:
CLAIM NUMBER:
LOCATION: SAMATOSUM

PLOTTING COORDS GRID: SAM
NORTH: 978.70N
EAST: 10384.30W
ELEV: 1214.70

ALTERNATE COORDS GRID: 180
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -49° 0' 0"
LENGTH OF THE HOLE: 273.40m
START DEPTH: 0.00m
FINAL DEPTH: 273.40m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 18, 1988
DATE COMPLETED: September 21, 1988
DATE LOGGED: 0, 0

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

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

CONTRACTOR: FRONTIER DRILLING
CASING:
CORE STORAGE: BARRIERE

PURPOSE: COLLAR APPROX ONLY. CSG NOT FOUND.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
4.30	-	-51° 0'	ACID	OK		-	-	-	-	-	
47.90	-	-51° 0'	ACID	OK		-	-	-	-	-	
93.60	-	-53° 0'	ACID	OK		-	-	-	-	-	
139.30	-	-54° 0'	ACID	OK		-	-	-	-	-	
230.70	-	-53° 0'	ACID	OK		-	-	-	-	-	
273.40	-	-52° 0'	ACID	OK		-	-	-	-	-	
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HOLE NUMBER: R6243

DRILL HOLE RECORD

LOGGED BY: S.LEAR

HOLE NUMBER: RG243

MINNOVA INC.
DRILL HOLE RECORD

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA:	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.30	CASING	OVERBURDEN				
4.30 TO 40.50	MAFIC TUFF <MT>	COLOUR- MED GREEN GRAIN SIZE- FINE FINE GR. MAFIC TUFF WITH LAPILLI FRAGS TOWARDS BASE OF UNIT. 19.5- 20.2 DISTINCTIVE "STRIPED" TUFF. 2-4mm. LONG WHITE SILICA BANDS WITH INTERLAYERED SERICITE BANDING.	60	WEAK TO MOD. SERICITE AS THIN LAMINATIONS. 15.8- 24.5 10I- 20I SILICA FLOODING. 20.9- 22.7 SI BRIGHT GREEN MICA.	<2-SI PY> 2-SI DISS PY {15.8- 24.5} <TR,SPH,GR,TET> SI PY, 2I SPH. GR, TET. CONCENTRATED IN QUARTZ RICH SECTIONS HIGHER I SECTIONS: 18.5- 18.6; 2I SPH, 2I GN, TR CPY, TET. 24.4- 24.5 SI SPH, 2I TET, 190 GN.	11.5- 12.8 MINOR FAULT. BROKEN CORE. {26.4- 26.9} <FLT> BROKEN QUARTZ AMD CORE. 50I RECOVERY.
40.50 TO 50.20	ARGILLITE TO <ARG>	COLOUR- BLACK GRAIN SIZE- FINE ARGILLITE WITH SILSTONE INTERBEDS. STRONG FOLIATION AT 70 DEG DISRUPTS ORIGINAL BEDDING.	70	<QUARTZ VEIN> STRONG (20I) QUARTZ VEINING THROUGHOUT.	<SI PY> SI PY. AS DISS OF BANDS PARALLEL TO FOLIATION	
50.20 TO 71.70	MAFIC TO PYRDS <MPYRD>	COLOUR- MED GREEN GRAIN SIZE- MED. 4 GREEN, SERICITE ALTERED LAPILLI. 5mm - 4mm. WIDE UP TO 20I . HIGHEST CONCENTRATION NEAR LOWER CONTACT.		OCC. QUARTZ VEINS SOMETIMES VUGGY.	<2I PY>	
71.70 TO 89.50	DEBRIS TO FLOW <DEB F>	COLOUR- BLACK, GREY GRAIN SIZE- FINE FRAGS AND DISRUPTED BEDS OF GREY CHERT IN BLACK ARGILLITIC MATRIX. MATRIX OFTEN GOUGED WITH GRAPHITIC FRACTURES.		71.1- 76.9 STRONG SERICITE ALTERATION.	<TR PY>	
89.50 TO 132.70	WACKE AND TO ARGILLITE <WAK AND ARG>	COLOUR- GREY, BLACK GRAIN SIZE- FINE FINE GR. WACKE INTERBEDDED WITH BLACK ARGILLITE. BEDS VARY FROM 1cm. TO 50cm. LONG.	80		<TR PY> AS THIN LAMINAE.	93.3- 93.6 MINOR FAULT. BROKEN CORE. 103.1- 103.3 FAULT, BROKEN CORE. {129.1- 132.7} <FLT> GOUGED CORE.

HOLE NUMBER: RG243

DRILL HOLE RECORD

LOGGED BY: S.LEAR

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MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: RG243

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA	ALTERATION	MINERALIZATION	REMARKS
132.70 TO 141.45	*MUDDY TUFF AND ARG. <MUT> <ARG>	COLOUR- BROWN, BLACK GRAIN SIZE- FINE FINE GR. PYRITIC BANDS (MUDDY TUFF) WITH THIN FOLDED ARGILLITE LAYERS.		OCC. QUARTZ VEINS	<50% PY> F.G.R., DISS PY.	{135.7- 139.2} <FLT> GOUNGED CORE WITH SOLID SECTIONS.
141.45 TO 147.10	SERICITE ALT ARG <SER ARG>	COLOUR- LIGHT GREEN GRAIN SIZE- FINE PERASIVELY ALTERED ARGILLITE WITH A FEW REMNANT, UNALTERED BANDS, V. STRONG FOLIATION? BEDDING	70		<2% PY>	144.1- 145.00 FAULT ZONE. BROKEN CORE. 145.6- 146.3 FAULT - GOUNGED.
147.10 TO 166.10	WACKE AND ARGILLITE <WAK AND ARG>	COLOUR- GREY, BLACK GRAIN SIZE- FINE F.G. WACKE AND BLACK ARGILLITE OFTEN GRAPHITIC IN STRONGLY FRACTURED ZONES. STRONG FOLIATION FINE WHITE QUARTZ CHIPS IN PLACES - APPROACHING "MUDDY TUFF" 157.0- 162.4 F.G. WACKE WITH 10% FINE PY LAMINAE. 162.4- 168.9 MASSIVE BLACK ARGILLITE. OCC. VERY CONTORTED PY/QTZ VEINLETS.	70		OVERALL- <PY 5%> 147.1: 30cm OF 70% F.G.R. PYRITE.	152.5- 153.2 FAULT ZONE. BROKEN, GRAPHITIC CORE.
166.10 TO 170.20	*MUDDY TUFF <MUT>	COLOUR- BRASSY-BROWN GRAIN SIZE- FINE 10% QUARTZ FRAGS IN F.G. HIGHLY PYRITIC MATRIX.			<60% PY> V.F.GR.	
170.20 TO 175.80	ARG AND WACKE <ARG AND WAK>	COLOUR- BLACK, GREY GRAIN SIZE- FINE 170.2- 171.6 MASSIVE, BLACK ARGILLITE. OCC. FINE PY/QTZ STRINGERS. 171.6- 175.8 F.G. GREY, WACKE.			<TR PY>	{175.2- 175.8} <FLT> FAULT ZONE - BROKEN CORE.
175.80 TO 207.10	QTZ VEIN AND PYRITIC QUARTZITE <QV AND PY> <QTZ>	COLOUR- WHITE, GREY GRAIN SIZE- FINE WHITE QUARTZ VEINING WITH WALL ROCK INCLUSIONS. INTERLAYERED WITH GREY, PYRITIC QUARTZITE (MUDDY TUFF). QUARTZ POSSIBLY OCCUPYING A LARGE FAULT ZONE. 178.6- 186.8 PYRITIC QUARTZITE. A FEW QUARTZ VEINS 190.4- 190.6 INCLUSIONS OF BROWN HARD ALT WALLROCK? IN QUARTZ		176.0- 178.6 80% QUARTZ VEINING 186.8- 207.1 80% QUARTZ VEINING 200.6- 202.3 10-30% GREEN MICA IN SILICA FLOODED QUARTZITE SECTIONS.	191.3 TR CPY IN QUARTZITE. 192.3 TR GN IN QUARTZITE.	

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DRILL HOLE RECORD

LOGGED BY: S.LEAR

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HOLE NUMBER: R6243

MINNOVA INC.
DRILL HOLE RECORD

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
		VEINS.				
207.10 TO	MAFIC TUFF <NT>	COLOUR- MED GREEN GRAIN SIZE- FINE		5% QUARTZ VEINING. 219.7- 224.5	<TR - 2% PY> V. TR GN IN QUARTZ VEIN SELVAGES.	218- 218.5 FAULT. BROKEN CORE.
273.40		FINE GR. MAFIC TUFF. SERICITE ALT. COMMON. E.O.H.		STRONG SERICITE ALT. GREY, SILICA, PATCHES. 224.5- 231.2 30% GREY SILICA FLOODED AREAS. TR GN ON QUARTZ VEIN SELVAGES.	270.0- 272.4 QUARTZ VEIN	230- 230.7 FAULT. GOUNGED CORE. 253- 256.8 FAULT ZONE. BROKEN CORE.

HOLE NUMBER: R6243

DRILL HOLE RECORD

LOGGED BY: S.LEAR

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HOLE NUMBER: RG243

ASSAY SHEET

DATE: 6-December-1988

Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS									
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm				
18713	14.30	15.80	1.50										35	108	107									1.6	50		
18714	15.80	17.80	2.00										83	639	210									1.8	10		
18715	17.80	19.30	1.50										129	3520	1680									2.8	5		
18716	19.30	20.80	1.50										42	189	55									1.3	5		
18717	20.80	22.30	1.50										282	3900	1890									2.9	75		
18718	22.30	23.20	0.90	0.021	1.09	0.18	5.8	0.21																			
18719	23.20	24.70	1.50										128	1740	1640									3.7	190		
18720	24.70	26.20	1.50										118	362	343									1.9	50		
18722	132.70	134.20	1.50										60	340	67									2.1	5		
18723	134.20	135.70	1.50										43	257	77									0.8	10		
18724	135.70	137.20	1.50										36	120	63									0.8	10		
18725	137.20	139.20	2.00										38	138	34									0.4	5		
18676	139.20	141.40	2.20										43	263	68									0.4	5		
18677	166.10	168.10	2.00										45	103	37									0.4	10		
18678	168.10	170.20	2.10										51	80	57									0.8	5		
18679	175.80	177.20	1.50										64	26	10									0.4	10		
18680	177.30	179.40	2.10										52	74	12									0.4	10		
18681	186.50	188.50	2.00										30	4	10									0.4	30		
18682	188.50	190.50	2.00										71	30	42									0.6	10		
18683	190.50	192.50	2.00										485	9	450									1.6	70		
18684	192.50	194.50	2.00										36	18	44									0.1	1100		
18685	194.50	196.50	2.00										10	3	2									0.1	90		
18686	196.50	198.50	2.00										54	2	60									0.4	10		
18687	198.50	200.50	2.00										80	10	19									0.2	80		
18688	200.50	201.50	1.00										117	80	43									1.2	60		
18689	201.50	203.50	2.00										32	9	3									0.1	70		
18690	203.50	206.00	2.50										11	4	2									0.1	70		
18692	226.70	227.50	0.60										130	1760	1180									1.2	20		

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ASSAY SHEET

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HOLE NUMBER: R6243

GEOCHEM. SHEET

DATE: 6-December-1988

Sample	From (a)	To (a)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18712	7.30	10.30	3.00	38.51	11.15	8.64	10.93	0.07	1.07	10.11	0.86	1.07	0.29	0.005	2	130			35	50	0.5	129	0.23	0.01	3.90	86.60	167	3
18721	30.00	33.00	3.00	31.91	10.41	9.37	11.68	0.04	0.74	11.02	1.56	0.95	1.16	0.006	40	113			10	86	0.7	81	0.19	0.02	7.85	87.27	278	1
18691	213.00	216.00	3.00	43.36	13.77	5.40	8.28	1.50	0.60	10.98	0.55	2.50	0.958	0.006	8.0	114			5	63	0.7	209	0.52	0.01	1.74	89.27	91	2
18693	267.00	270.00	3.00	46.65	13.42	4.85	9.66	0.17	0.55	10.78	0.44	1.25	0.031	0.005	9	78			5	38	0.7	19	0.19	0.01	0.73	88.72	54	6

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GEOCHEM. SHEET

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MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: RG244

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 30.10	CASING					
30.10 TO 68.40	SERICITE TUFF AND CHERT	COLOUR- LIGHT GREEN AND GREY GRAIN SIZE- FINE FINE, LIGHT GREEN SERICITIC LAMINATIONS F.G. LIGHT GREY CHERTY FRAGS/LAYERS. 10% SECTIONS OF BLACK ARGILLITE WITH GREY CHERT FRAGS/LAYERS. LAYERING PARALLEL TO SERICITE TUFF. POSSIBLY "SERICITE TUFF" IS ALTERED EQUIVALENT OF UNDERLYING ARGILLITE BRECCIA.	BO	MINOR QUARTZ VEINING ESPECIALLY IN BROKEN SECTIONS.	<TR- 5% PY> TR - 5% F.G. DISS PYRITE.	30.1- 30.3 FAULT ZONE. GOUGE WITH FINE PYRITE MUD. 47.3- 47.9 MINOR FAULT. BROKEN CORE WITH BROKEN QUARTZ VEINS. 48.9- 49.6 CORE BROKEN TO CLAY.
68.40 TO 79.40	ARGILLITE TO BRECCIA <ARG BI>	COLOUR- BLACK, GREY GRAIN SIZE- MATRIX FRAGS APHANITIC 1-5cm. GREY CHERT FRAGS AND DISRUPTED BEDS IN APHANITIC, ARGILLITE MATRIX.		OC. QUARTZ VEINS.	<10.1 PY> PYRITE AS THIN BANDS AND DISS. F.G. (1-4mm.) BLEBS.	
79.40 TO 143.10	ARGILLITE AND SILTSTONE <ARG AND SLST>	COLOUR- BLACK, GREY GRAIN SIZE- FINE THINLY LAMINATED SEDIMENTS. OCC. BROKEN SILTSTONE BEDS FORM THIN FRAGS IN ARGILLITE MATRIX. LAMINATIONS 85.2- 86.2 70% GREY CHERT FRAGS IN ARGILLITE MATRIX.	BO	84.05- 85.2 QUARTZ VEIN WITH 5% THIN PY SEAMS. 86.2- 86.6 STRONG SERICITE ALT. 87.6- 99.8 8 SECTIONS OF 20-60cm. LONG BARREN QUARTZ VEINS. 105- 107 20% WHITE QUARTZ VEINS. 110- 110.3 SILICA FLOODED ARGILLITE. 113.2- 115.2; <Q.V'S> 30% WHITE QUARTZ VEINS 10-40cm. LONG. 116.4- 117 WHITE QUARTZ VEIN WITH GRAPHITIC INCLUSIONS. 129.8- 130.0 WHITE QUARTZ VEIN WITH ARGILLITE	<TR PY> 87.6- 99.8 2% PY IN QUARTZ VEINS IF SELVAGES.	86.2- 86.5 MINOR FAULT ZONE WITH PY, QTZ FRAGS AND GOUGE. 87.6- 99.8 <FLT AND QV> FAULT ZONE. BROKEN CORE WITH 20% WHITE QUARTZ VEINS. 109.5- 110 FAULT ZONE. GRAPHITIC, SHATTERED CORE. 117- 117.7 GRAPHITIC FAULT ZONE. 134.6- 135.5 BROKEN, GRAPHITIC CORE.

HOLE NUMBER: RG244

DRILL HOLE RECORD

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MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: R6244

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CAI	ALTERATION	MINERALIZATION	REMARKS
				INCLUSIONS. 133.95- 134.05 QUARTZ VEIN.		
143.10 TO 171.60	WACKE SILTSTONE ARGILLITE <WAK AND SLST< <AND ARG>	COLOUR- MED. GREY TO BLACK GRAIN SIZE- FINE MED. BEDDED SEDIMENT AS ABOVE, BUT DOMINANTLY MED GR. WACKE - SILTSTONE. ARGILLITE INTERBEDS COMPRISE 30% OF UNIT. BEDDING WELL DEFINED WACKE COMPOSED OF MED GR. GREY AND WHITE FRAGMENTS 168.8- 171.6 GRAPHITIC ARGILLITE: 40% OFTEN BROKEN.	80	OCC. GREY QUARTZ VEIN, OVER LOWER 1.5cm.		
171.60 TO 199.20	DEBRIS FLOW <DEB F>	COLOUR- GREY, BLACK GRAIN SIZE- Mx-FINE CLASTS - COARSE. SEDIMENTARY DEBRIS FLOW POORLY SORTED CLASTS (1mm.- 5cm) OF GREY CHERT, SILTSTONE OF F.G. PY IN ARGILLITE MATRIX. PREFERRED ORIENTATION AND FOL. 181.8- 189.1 STRONG SILICA COMPONENT MATRIX OFTEN GREY, HIGHLY SILICIFIED WITH FRACTURED CHERT FRAGS.	70	189.1- 189.8 STRONG SERICITE ALT. 190.1- 190.8 BARREN WHITE QUARTZ VEIN WITH SERICITE PARTINGS. 194.8- 199.2 SER ALT LAYERS OF STRONG SERICITE ALTERATION (20%) IN DEFORMED ARGILLITE - CHERT SEDIMENTS.	<SZ PY> PYRITE AS CLASTS AND F.G. STRINGERS.	192.2- 193.3 MINOR FAULT, BROKEN CORE
199.20 TO 205.10	CHERT <CHT>	COLOUR- GREY GRAIN SIZE- APHANITIC MASSIVE CHERT. OCC. V. FINE (LESS THAN 0.5mm.) WHITE SPOTS. E.O.H.		MOD QUARTZ VEINING / FLOODING.	<SZ PY> PY AS M.GR. IRREGULAR STRINGERS.	

HOLE NUMBER: R6244

DRILL HOLE RECORD

LOGGED BY: S.LEAR

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 31.40	CASING					
31.40 TO 52.00	CHL ALT AND ARGILLITE <CHL AND ARG>	COLOUR- MED GREEN, BLACK GRAIN SIZE-FINE SERICITE / CHLORITE ALTERED SEDIMENT SECTIONS COMPRISE 30% OF UNIT. FOLIATED AT 60 DEG. INTERLAYERED WITH BLACK ARGILLITE. GREY SILTSTONE AND CHERT BEDS. 10% QUARTZ VEINING.	60	STRONG CHL ALT. 32.8- 33.3 WHITE QUARTZ VEIN WITH 10% LAMINITE.		{32.4- 40.4} <FLT> GROUND TUFF AND CHERT. 44.5- 45.0 FAULT. GROUND AND BROKEN CORE.
52.00 TO 67.20	CHLORITE TO ALT ARG <CHL ARG>	COLOUR- MED GREEN GRAIN SIZE- FINE CHLORITE ALT. AS ABOVE BUT NO ARGILLITE BEDS.		OCC. QUARTZ VEINS IN BROKEN SECTIONS.		{58.2- 59.7} <FLT> VERY BROKEN CORE.
67.20 TO 69.70	ARGILLITE TO <ARG>	COLOUR- BLACK GRAIN SIZE-FINE BEDDED ARGILLITE WITH GREY SILTSTONE MINOR MAFIC TUFF LAYERS AND FRAGS.				
69.70 TO 88.80	CHLORITE TO ALT ARG <CHL ARG>	COLOUR- MED. GREEN GRAIN SIZE- FINE CHLORITE ALT, AS ABOVE.		BELOW 78m. SERICITE ALTERATION INCREASES. 76.0- 76.2 BROKEN QUARTZ VEIN. 83.2- 85.6 STRONG QUARTZ VEINING 4 VEINS, 15 TO 60cm. LONG. OFTEN BROKEN.		74.4- 74.65 BROKEN ZONE WITH QUARTZ VEIN.
88.80 TO 92.90	CHERT TO <CHT>	COLOUR- GREY AND LIGHT GREEN GRAIN SIZE- APHANITIC UPPER 1.5m., GREY CHERT, LOWER PORTION LIGHT GREEN. FINE FRACTIONS AT 90 DEG. TO C.A. FILLED WITH SERICITE.				
92.90 TO 106.00	SERICITE TO ALTERED ARGILLITE <SER ARG>	COLOUR- BLACK, LIGHT OLIVE GREEN. GRAIN SIZE- FINE SERICITE ALTERED ARGILLITE? MORE FOLIATED THAN MAFIC TUFFS AND FINELY LAMINATED WITH ARGILLITE IN PLACES. SOME LAYERS OF UNALTERED ARGILLITE.		97.9- 99.5 WHITE QUARTZ VEIN WITH 3% LIGHT BROWN FE-CARB? SEAMS.		
106.00 TO 163.70	ARGILLITE TO ARG BX <ARG AND ARG BX>	COLOUR- BLACK GRAIN SIZE- FINE ARGILLITE WITH CONTORTED CHERT LAYERS AND FRAGS. VERY BROKEN THROUGHOUT.		QUARTZ VEINS AND FLOODING COMMON 10-20% RANGE FROM mm. VEINLETS TO 30 cm VEINS AND FLOODS. 140.4- 159.1	<PY- UP TO 20%> (COARSE CUBIC) IN BROKEN SECTIONS.	{116.6- 119.6} <FLT> GOUGED CORE. 125.6- 128.9 <FLT> GOUGED CORE AND QUARTZ VEINS.

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: R6245

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CAI	ALTERATION	MINERALIZATION	REMARKS
		STRONG SERICITE ALTERATION OVER LOWER 20m. E.D.H.		ZONES OF STRONG SERICITE ALTERATION (70%)		134- 137.3 <FLT> FAULT. BROKEN CORE SILICA. ZONES.
				150.1- 150.5 QUARTZ FLOODING. FAULT GOUGE AT BOTH ENDS OF ZONE.		143.1- 144.4 <FLT> BROKEN AND GOUGED CORE.
				157.7- 158 QUARTZ FLOODING.		
				160.1- 163.7; SILICA STRONG QUARTZ VEINING AND FLOODING		
				40-50%		

HOLE NUMBER: R6245

DRILL HOLE RECORD

LOGGED BY: S.LEAR

PAGE: 3

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18705	52.00	55.00	3.00	66.52	15.43	0.39	2.16	0.73	2.29	7.08	0.60	0.68	0.043	0.005	85	106			5	23	1.3	34	0.12	0.01	0.01		27	2
18706	76.20	79.20	3.00	63.97	17.22	0.41	2.23	0.68	2.89	7.45	0.39	0.75	0.056	0.005	4	84			5	39	1.2	21	0.15	0.01	0.02		29	1

MINNOVA INC.
 DRILL HOLE RECORD

HOLE NUMBER: RG246

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SAMFALL	PLOTTING COORDS GRID: SAM	ALTERNATE COORDS GRID:	COLLAR DIP: -45° 0' 0"
PROJECT NUMBER: 340	NORTH: 1410.00N	NORTH: 0+ 0	LENGTH OF THE HOLE: 201.50m
CLAIM NUMBER: HN-9	EAST: 12200.00W	EAST: 0+ 0	START DEPTH: 0.00m
LOCATION: SAMATOSUM	ELEV:	ELEV: 0.00	FINAL DEPTH: 201.50m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 17, 1988
 DATE COMPLETED: September 20, 1988
 DATE LOGGED: 0, 0

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

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

CONTRACTOR: FRONTIER DRILLING
 CASING:
 CORE STORAGE: BARRIERE

PURPOSE: STRATIGRAPHIC SECTION

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
42.60	-	-47° 0'	ACID	OK		-	-	-	-	-	
91.44	-	-45° 0'	ACID	OK		-	-	-	-	-	
137.20	-	-46° 0'	ACID	OK		-	-	-	-	-	
201.50	-	-43° 0'	ACID	OK		-	-	-	-	-	
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MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: R6246

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 42.00	<CASING>	OVERBURDEN				
42.00 TO 63.10	ARGILLITE AND SER ALT <ARG>	COLOUR- GREY, GREEN GRAIN SIZE- FINE. BEDDED ARGILLITE AND SILTSTONE, SERICITE ALTERED SECTIONS ARE MOSTLY LIKELY ALT. SEDIMENTS AS THEY HAVE CONTORTED BEDDING SIMILAR TO SEDIMENT SECTION. BEDDING RANGES FROM 0 DEG. TO 60 DEG. OFTEN CONTORTED.		42.0- 43.5; <SER> SER/CHL ALT. 48.5- 63.1; <SER> SER/CHL ALT. 54.0- 55.1 BROKEN WITH QUARTZ VEIN.	54.0- 55.1 V. TR CPY IN Q.V.	{53.6- 55.7} <FLT> FAULT. GOUGE AND BROKEN QUARTZ VEIN. {61.3- 63.1} <FLT> FAULT. BROKEN CORE.
63.10 TO 171.70	ARGILLITE TO AND CHLORITE ALT. <ARG AND CHL>	COLOUR- BLACK, GREEN GRAIN SIZE- FINE INTERLAYERED SECTIONS OF ARGILLITE AND MED GREEN STRONGLY CHLORITIC ARGILLITES. EQUIVALENT TO MAFIC TUFF IN R6 245, BUT MAY BE CHL ALT. ARGILLITE. CHLORITIC SECTIONS COMPRISE 30% OF UNIT. RANGE FROM 20cm TO 4.5m LONG. VERY BROKEN THROUGHOUT. 132.6- 136.0 40% CONTORTED LIGHT RED CHERT BANDS. 141.2- 155.9 10% LIGHT RED CHERT BANDS 142.2- 155.9 ARGILLITE SECTION 142.4-146.9 5% 0.5mm. LONG FLATTENED WHITE FRAGS? 155.9- 171.9 ST. CHT ALT ZONE. ONLY 5% ARGILLITE SECTIONS.		ST. CHL ALT. GRAPHITE ON FRACTURES. 70.7- 73.4 MOD QUARTZ VEINING. 10% VEINS; 1mm -25cm. 83.4- 83.8 QUARTZ VEINS 85.9- 86.3 QUARTZ VEINS, 10-25cm. 99.2- 99.4 WHITE QUARTZ VEIN. 102.3- 102.6 QUARTZ VEIN WITH SER/CHL INCLUSIONS. 127.1- 127.4 QUARTZ VEIN. 149.5- 155.9 5-10% QUARTZ VEINS 1-4cm. 160.2- 160.9 WHITE QUARTZ VEIN WITH GREEN SERICITE INCLUSIONS. 170.2- 170.5 QUARTZ VEIN.		65.2- 65.5 ARG AND CHL GOUGE FAULT ZONE. 67.4- 69.1 FAULT. GOUGE {136.2- 137.7} <FLT> CHL. GOUGE. 138.7- 140.9 20% RECOVERY QUARTZ VEIN 157.1- 157.6 FAULT ZONE. BROKEN CORE {165.1- 168.7} <FLT> BROKEN AND GOUGED CORE QUARTZ VEIN.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
171.70 TO	SERICITE ALT SEDS.	COLOUR- MED. OLIVE GREEN GRAIN SIZE- FINE.		186.5- 188.5 2% PY AS F.G. BLEBS OF EUHEDRAL		171.9- 173.5 V. BROKEN CORE
201.50	<SER SEDS>	SR. SERICITE ALTERED SECTION. LOGGED AT ALT. SEDIMENTS BASED ON PREDOMINANCE OF SEDS IN SECTION. 186.0- PROMINATE FOLIATION/BEDDING? 194.6- 198.4 GREEN - GREY CHERT. OCC WHITE 0.5 - 1mm LONG RECTANGULAR 7.5? FRAGS? SERICITE ON BEDDING PLANES. E.D.H.		CRYSTALS UP TO 2cm.		{175.9- 181.4} <FLT> BROKEN CORE AND GOUGE. 183.3- 185.5 FAULT ZONE. MINOR ARGILLITE CHIP.

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18707	122.00	125.00	3.00	69.07	14.60	0.25	1.95	1.24	1.27	6.57	0.59	0.57	0.026		340	101			5	73	1.4	29	0.08	0.01			13	3
18709	158.00	161.00	3.00	67.73	15.73	0.24	2.05	1.38	1.27	6.53	0.97	0.66	0.023		88	106			5	41	1.0	27	0.10	0.01			22	4
18710	174.00	177.00	3.00	65.51	16.08	0.24	1.72	1.14	2.47	7.11	1.72	0.72	0.045		28	85			10	61	0.6	45	0.07	0.01			42	4
18711	199.00	201.50	2.50	64.03	16.88	0.29	2.43	0.38	3.22	7.46	0.87	0.77	0.066		11	104			5	68	0.8	28	0.09	0.01			12	3

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: R6247

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SAMFALL PLOTTING COORDS GRID: SAM ALTERNATE COORDS GRID: SAM COLLAR DIP: -90° 0' 0"
 PROJECT NUMBER: NORTH: 991.10N NORTH: 10+ 0 LENGTH OF THE HOLE: 319.10m
 CLAIM NUMBER: EAST: 10389.60W EAST: 103+50 START DEPTH: 0.00m
 LOCATION: SAMATOSUM ELEV: 1213.70 ELEV: 0.00 FINAL DEPTH: 319.10m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 15, 1988
 DATE COMPLETED: September 18, 1988
 DATE LOGGED: September 27, 1988

COLLAR SURVEY: NO
 MULTISHOT SURVEY: NO
 R&D LOG: NO

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

CONTRACTOR: FRONTIER
 CASING: LTH
 CORE STORAGE: BARRIERE

PURPOSE: COLLAR CO-ORDS APPROX. CASING NOT FOUND.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
3.00	-	-90° 0'	ACID	OK		-	-	-	-	-	
45.70	-	-89° 0'	ACID	OK		-	-	-	-	-	
93.60	-	-89° 0'	ACID	OK		-	-	-	-	-	
137.20	-	-88° 0'	ACID	OK		-	-	-	-	-	
185.00	-	-83° 0'	ACID	OK		-	-	-	-	-	
230.70	-	-83° 0'	ACID	OK		-	-	-	-	-	
276.50	-	-84° 0'	ACID	OK		-	-	-	-	-	
319.90	-	-80° 0'	ACID	OK		-	-	-	-	-	
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MINNOVA INC.
DRILL HOLE RECORD

DATE: 6-December-1988

HOLE NUMBER: RG247

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	<CASING>	SURFACE OXID'N DOWN TO 11.0m.				
3.00 TO 22.70	MIXED MAFIC TUFF AND <MT AND CHT>	COLOUR- GREENISH, GREY GRAIN SIZE- F.M. ALTERED MAFIC TUFF AND CHERT. BRECCIATED, HEAVILY INTRUDED BY QUARTZ/FELD VEINS AND VEINLETS. ANGLE TO C.A. 55 DECREASING TO 15-20 AT FAULT CONTACT BELOW.		HEAVY Q.V'S AND SILICA FLOODING. SERICITIC FROM 3.0 - 8.7m.	<3-5% F.6.PY> THROUGHOUT Q.V'S OFTEN MIN'LIZED WITH GALENA. BEST AT 13.2- 16.3 AND 21.3- 22.7	
22.70 TO 57.00	MAJOR FAULT ZONE <FLT>	COLOUR- GREENISH, GREY GRAIN SIZE- M.C.G. INTENSELY BX'D MAJOR FAULT CONSISTING OF C.G. FRAGS AND GOUGE OF WALLROCK AND Q.V. FRAGS OFTEN ALIGNED TO 10-20 TO CORE AXIS. Q.V'S OFTEN BX'D AND REHEALED. FROM 39.6 ONWARDS C.G. FRAGS GEN MT OR MPYRO. 48.1- 51.3: BUFF COLOURED (SER'IC?) FRAGS.- POSS ALT'D DUE TO INTRUSIVE IMMEDIATELY BELOW. 51.3- 53.0 <TERTIARY DYKE> (BASALT? - ALTD BROWN)		Q.V: 32.2- 32.9 AND 35.8- 36.1 38.3- 38.8	<2-3% LOCALLY 8-10% F.6. DISS PY> IN FRAGS AND GOUGE. (TR GALENA) AT 39.6: 3.0cm. FLT BX WITH DISS SPH AND GA (1-2%)	
57.00 TO 174.70	MAFIC TO PYROCLASTIC <MPYRO>	COLOUR- GREEN - BUFF GRAIN SIZE- C-M.G. TYPICAL MPYRO WITH SER'IC FRAGS TO 5cm IN CHLORITIC MATRIX. FRAGS STRETCHED AT 57.0 ANGLE TO C.A. 45 DEG. TO 57.0 91.2- 97.7: Q.V. BY 121.0m. FRAGS NO LONGER SERICITIZED - EVERYTHING CHLORITIC 165.0- 166.7: ZONE OF INTENSE LAMINATED QUARTZ AND MT. (60% Q.V. AT 45-50 DEG. C.A.) MARKS BEGINNING OF SERICITIZATION ALSO.		LOCALLY INTRUDED BY Q.V'S (62.0- 63.0) ZONE OF Q.V'S 72.5- 73.5. ALT'N (QV.) 75.0- 75.3 QV. AND ALT'N 79.6- 80.4 QV. 86.4- 90.0 ABUND QUARTZ FELD - (50% IN LAMINATIONS) 138.6- 142.0 ZONE OF MINOR Q.V'S.	92.3- 92.5 1cm. TH Q.V. WITH 5-10% GA AND PY SUBPARALLEL CORE AXIS IN HEALED BX ZONE IN MPYRO.	104.4- 104.9 SHEAR ZONE.
174.70 TO 189.20	BRECCIATED TO MAFIC TUFF? <MT BX>	COLOUR- BUFF - GREY GRAIN SIZE- M.F.G. <TRANSITION ZONE> OF BX AND SERICITY TO SEDS BELOW. ABUND QUARTZ - FELD BX FRAGS.		SERICITE LOCALLY QUARTZ FLOODED LOCAL GREEN MICA.	<3-5% DISS PY>	

HOLE NUMBER: RG247

DRILL HOLE RECORD

LOGGED BY: B.FRIESEN

PAGE: 2

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CAI	ALTERATION	MINERALIZATION	REMARKS
189.20 TO 218.00	ARGILLITE AND CHERT <ARG AND CHT>	COLOUR- BLACK - GREY GRAIN SIZE- F.G. INTERBEDDED CHERT AND ARGILLITE; LOCALLY OFTEN BX'D AND QUARTZ INJECTED. ANGLE TO C.A. 40-45 DEG. FROM 200.0- 218.5 BECOMES VERY SERICITIZED AND LOCALLY 8-10% PYRITE (ALMOST LOOKS LIKE A MUT FROM 202.7- 204.2) WITH ARG ZONE REMNANTS.	70	LOCAL QUARTZ INJECTED AND BLEACHING SERICITE. LOCAL Q.V.'S.	<TR- MINOR PY> LOCALLY 1-3% DISS SPH, GA IN QUARTZ INJECTED ZONES (AS VEINLETS). 197.0- 197.2 - 1-3% DISS SPH - GALENA	SMALL SHEAR AT 218.0 (10cm).
218.00 TO 220.70	CHERT TO BRECCIA <CHT BX>	COLOUR- GREY - WHITE GRAIN SIZE- M.C.G. MASSIVE GREY CHERT BRECCIATED BY QUARTZ FELD VEINING. SOME LOCAL COXCOMB TEXTURE IN THE CHERT FRAGS.		QUARTZ FELD VEINING.	<TR PYRITE>	
220.70 TO 274.50	ARGILLITE TO CHERT BRECCIA <ARG CHT BX>	COLOUR- GREY - BLACK - BUFF GRAIN SIZE- M.G. ARGILLECEOUS CHERT BRECCIA. - GEN CHERTY FRAGS IN ARG MATRIX. 221.9- 223.5 ABUND GREY CHERT AND QUARTZ - FELD FRAGS SIM. TO ABOVE. 224.6- 225.3 BARREN QUARTZ - VEIN OFTEN STRETCHED AND ALIGNED INTO FOLIATION ARG LAMINAE OFTEN GRAPHITIC. 239.3- 242.6 SERICITE EQUIVALENT OF ARG CHT BX. 246.1- 246.9 SAME 263.7- 264.0 BARREN Q.V. ALSO AT 266.3- 267.0 (60% Q.V.) 271.2- 272.3 SER EQUIVALENT. WELL DEV. SER. AND SL. INCR IN PY.		LOCAL SERICITIC ZONES - GEN 10-20cm. THICK	TR- MINOR; LOCALLY 3-5% DISS PY <TR-MINOR PY>	
274.50 TO 313.90	SERICITIC TO ARG CHT BRECCIA. <SER ARG CHT BX>	COLOUR-BUFF GRAIN SIZE- F.M. HIGHLY SER'L EQUIV. OF ABOVE UNIT. NO ARG. COMPONENT REMAINS. WITH SERICITE IS INCR. IN PY CONTENT AND ALSO	70		298.8- 299.1 CRUSHED Q.V.W. 3-5% TET?	282.4- 282.5 SHEAR ZONE.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
		INTRD IN OF SLIGHT GREEN MICA. 291.3- 291.9 Q.V. SUB PARALLEL C. AXIS APPEARS BARREN. IMMED WALLROCK MORE BROWN FOR 10-30cm. EACH SIDE. SAME AT 292.5- 293.9 SERICITE BECOMES DARKER MORE YELLOW - OCHRE COLOR FROM 293.9 ONWARDS. MORE CHERTY COMPONENT DOMINATES FROM 297.5 ONWARDS POSS MYLONITIC TEXTURE AT 301- 302.5 306.0- 306.2 BARREN Q.V 306.6- 306.8 SAME 307.7- 308.1 Q.V. WITH LAST 2cm. SMS PY 312.3- 313.0 Q.V. WITH 3% PY				
313.90 TO 319.90	MAFIC TUFF AND CHERT <MT AND CHT>	COLOUR- GREY - BUFF GRAIN SIZE- F.M.G. MORE MASSIVE CHERT REMNANTS AND MAFIC TUFF (?) SER. NOT WELL DEV. EXCEPT AT 318.5- 319.1 E.D.H.				<TR PY>

Sample	From (m)	To (m)	Length (m)	ASSAYS													COMMENTS							
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t		As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm	
11825	7.00	8.00	1.00										32	96	42						1.2	10		
18101	13.20	14.70	1.50	0.002	0.06	0.08	2.1	0.02																
18102	14.70	16.30	1.60	0.015	0.17	0.11	3.8	0.02																
18103	16.30	17.80	1.50	0.004	0.06	0.02	2.2	0.03																
18104	17.80	18.90	1.10	0.001	0.02	0.02	2.1	0.02																
18105	18.90	20.70	1.80	0.002	0.03	0.01	2.3	0.01																
18106	20.70	22.10	1.40	0.003	0.04	0.04	2.0	0.02																
18107	22.10	22.70	0.60	0.002	0.11	0.12	2.7	0.04																
18108	22.70	24.70	2.00									48	183	71						1.6	65			
18109	32.20	32.90	0.70									23	82	47						1.0	25			
18110	35.80	36.50	0.70									21	128	30						0.8	5			
18111	38.30	39.60	1.30	0.004	0.03	0.04	23	0.03																
18112	50.40	51.30	0.90									60	100	31						1.4	5			
18113	56.00	57.00	1.00									33	268	263						1.5	10			
18114	79.60	80.40	0.80									10	30	73						0.6	5			
18115	91.20	91.70	0.50									21	40	122						0.7	5			
18116	92.30	92.50	0.20	0.021	0.86	1.58	14.1	0.22																
18117	165.00	166.70	1.70									58	78	36						1.0	5			
18118	178.90	180.40	1.50									32	89	132						0.9	25			
18119	191.70	193.00	1.30	0.007	0.01	0.02	1.0	0.01																
18120	197.00	197.20	0.20	0.001	0.09	0.034	2.2	0.01																
18121	197.20	198.80	1.60									27	117	221						1.0	10			
18122	209.90	211.40	1.50									54	136	37						0.9	5			
18123	221.90	223.70	1.80									53	389	249						2.2	80			
18124	246.10	246.90	0.80									16	51	28			39	150		1	1.2	5		
18125	246.90	247.70	0.80									16	73	28			40	133		2	1.3	5		
18126	281.00	282.40	1.40									17	86	32			58	102		1	1.1	10		
18127	291.30	291.90	0.60									105	384	253						1.4	5			
18128	291.90	292.50	0.60									15	63	70			55	100		1.0	0.7	5		
18129	292.50	293.90	1.40									16	226	49						1.0	5			
18130	293.90	295.40	1.50									33	101	89			126	100		1	0.4	5		
18131	295.40	296.90	1.50									36	112	232			121	105		1	0.8	10		
18132	296.90	298.80	1.90									96	1750	377						1.6	20			
18133	298.80	299.10	0.30	0.015	0.63	0.95	16.3	0.02									127	45		7				
18134	299.10	300.00	0.90									23	258	193						1.4	10			
18135	306.00	306.80	0.80									76	49	58						1.0	15			
18136	307.70	308.10	0.40	0.007	0.02	0.02	2.1	0.01																
18137	308.10	309.60	1.50									28	183	79						1.2	50			
18138	315.40	316.90	1.50									22	138	28						1.0	10			

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm										
18124	246.10	246.90	0.80	59.97	16.60	0.23	2.98	0.47	3.74	7.48	0.31	0.73	0.1	0.008																		0.13	0.01	2.63	95.39			
18125	246.90	247.70	0.80	66.49	15.24	0.22	3.32	0.49	3.00	5.43	0.23	0.59	0.077	0.005																			0.13	0.01	0.46	95.69		
18126	281.00	282.40	1.40	64.67	12.60	1.05	3.33	0.36	2.71	6.66	0.46	0.55	0.075	0.005																			0.10	0.01	2.18	94.76		
18128	291.90	292.50	0.60	33.60	12.79	13.23	10.21	0.37	2.46	8.64	0.64	1.66	0.085	0.009																			0.34	0.01	1.52	85.58		
18130	293.90	295.40	1.50	36.82	13.04	12.77	8.09	0.38	2.72	8.40	0.57	1.19	0.091	0.005																			0.22	0.01	1.39	85.70		
18131	295.40	296.90	1.50	42.18	13.00	9.21	7.80	0.30	2.14	9.51	0.59	1.21	0.070	0.005																			0.17	0.01	1.56	87.74		
18138	315.40	316.90	1.50	43.83	13.19	6.37	9.15	0.18	1.15	11.27	0.55	1.65	0.039	0.007																			0.26	0.01	98	88.65		

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: RG248

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SAMFALL	PLOTTING COORDS GRID: SAM	ALTERNATE COORDS GRID: 180	COLLAR DIP: -74° 0' 0"
PROJECT NUMBER: 340	NORTH: 890.10N	NDRTH: 0+ 0	LENGTH OF THE HOLE: 149.60m
CLAIM NUMBER:	EAST: 10483.50W	EAST: 0+ 0	START DEPTH: 0.00m
LOCATION: SAMATOSUM	ELEV: 1184.20	ELEV: 0.00	FINAL DEPTH: 149.60m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 21, 1988
DATE COMPLETED: September 23, 1988
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
R&D LOG: NO

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

CONTRACTOR: FRONTIER DRILLING
CASING: L.I.H.
CORE STORAGE: BARRIERE

PURPOSE: COLLAR CO-ORDS APPROX. :CSG NOT FOUND.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
3.05	-	-73° 0'	ACID	OK		-	-	-	-	-	
44.80	-	-71° 0'	ACID	OK		-	-	-	-	-	
93.30	-	-71° 0'	ACID	OK		-	-	-	-	-	
149.70	-	-69° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 7.70	<CASING>					
7.70 TO 39.85	MAFIC PYROCLASTIC <MPYROS>	COLOUR- MED. GREEN GRAIN SIZE- FINE LIGHTER GREEN LAPILLI, UP TO 6cm LONG IN F.G. MATRIX. WHITE, THIN QUARTZ VEINS AND PATCHES COMMON THROUGHOUT. ESPECIALLY STRONG OVER UPPER 26m. OFTEN OBSCURE TEXTURES. 35.0- 39.85 20% LIGHT BROWN, STRONGLY SERICITE ALT LAPILLI UP TO 8cm. LONG. LOWER CONTACT SHARP AT 60 DEG. TO C.A.		10-20% QUARTZ VEINS/FLOODS. 10.3- 11.7 STRONG SILICA FLOODING 12.3- 14.2 STRONG LIMONITE ON FRACTURES. 31.3- 31.5 STRONG QUARTZ - CARB FLOODING. 31.7- 39.85 MOD - STRONG SERICITE ALT. SERICITE AS THIN BANDS AND STRONGLY ALT LAPILLI. 33.3- 34.2 V. STRONG SERICITE ALT. 34.85- 35.0 5% 2-4mm. LONG OVAL GREEN MICA	<5% PY> DISS PY 11.0- 11.3 TR GN. 12.6- TR GN IN THIN QUARTZ VEINLET. 13.1- GN AND PY IN 10mm. WIDE ZONE. 31.3- 31.5 TR GN.	{29.2- 29.8} <FLT> MINOR FAULT ZONE, BROKEN CORE.
39.85 TO 106.80	ARGILLITE AND CHERT <ARG AND CHERT>	COLOUR- BLACK - GREY GRAIN SIZE- FINE. INTERBEDDED ARGILLITE AND GREY CHERT. BEDDING OFTEN VERY CONTORTED. SOME ZONES OF STRONG SERICITE ALT. 48.3- 66.9 CONTORTED ARG AND CHERT BEDS. SECTIONS OF MASSIVE GREY CHERT WITH STRONG QUARTZ VEINING CONTAINS SPH, GN, TET IN QUARTZ VEINS. CHERTY ZONES: 48.7- 49.8 51.3- 54.2 56.4- 56.85 64.9- 65.4 79.5- 80.9 FINELY DISS PY IN CHERTY MATRIX. 80.9- 81.4 ARGILLITE AND CHERT.		39.85- 41.6 HIGHLY SILICIFIED ARG AND CHERT. 41.6- 48.3} <SER ALT> STRONG SERICITE ALT AS BANDS AT 60 DEG. TO C.A. WITH GREY, CHERTY MATRIX. 66.9- 71.4 STRONG SERICITE ALT. 78.3- 79.4 STRONG QUARTZ FLOODING IN FAULT ZONE. 81.4- 82.6 MOD SERICITE ALT.	OVERALL 5% PY, TR SPH, GN, TET, CPY MINERALIZATION CONCENTRATED IN QUARTZ VEINS MOSTLY WITHIN GREY CHERT SECTIONS 39.85- 41.6 10% PY STRINGERS. 48.3- 66.9} <TR SPH, GN, TET> TR SPH, GN, TET V. TR CPY MOSTLY IN CHERTY SECTIONS AS LISTED UNDER TEXTURE 66.55- 66.60 5% CPY, 2% GN, WITH 2% PY, TR TET IN THIN QUARTZ VEIN. 79.5- 80.9 70% PY. 82.9- 86.5 TR SPH, GN	49.1- 49.4 MINOR FAULT. BROKEN CORE. 75.4- 75.6 6DUGE, MINOR FAULT. {77.8- 79.45} <FLT> FAULT. BROKEN AND 6DUGED CORE.

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: RG248

DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		81.4- 92.4 <CHT> MASSIVE GREY CHERT. V. MINOR ARGILLITE STRONG SILICA FLOODING. 92.4- 98.1 CHERT FRAGS AND BROKEN BEDS IN ARGILLITIC MATRIX. 40% MOD. SERICITE ALT GREY QUARTZITE AS NEXT SUB-UNIT.			86.5- 89.1 30-40% FINE PY 90.4- 92.3 TR TET AND SPH WITH PY IN QUARTZ VEINS. <50-70% PY> F.GR. DISS PY.	
106.80 TO 134.80	<PY ARG>	COLOUR- BLACK, BRASSY			<50-70% PY>	{112.3- 112.9} <FLT>
TO 134.80	ARGILLITE	GRAIN SIZE- FINE FINE GR. PYRITIC ARGILLITE WITH MINOR GREY QUARTZITE EQUIVALENT TO "MUDDY TUFF" IN STRONGLY PYRITIC SECTIONS. {121.8- 127.5} <MUT> "MUDDY TUFF" FINE GR. PYRITIC MATRIX WITH SMALL QUARTZ FRAGS.			F.GR. DISS PY.	FAULT ZONE. GOUGED CORE.
134.80 TO 149.60	PYRITIC QUARTZITE <PY QITE>	COLOUR- GREY GRAIN SIZE- FINE TO MED. GRANULAR TEXTURED QUARTZITE? WITH THIN BANDS OF F.GR. PY AT 60 DEG. TO C.A. POSSIBLY PARALLEL TO FOLIATION E.O.H.	60		<20% PY> 20% PY AS F.G. BANDS.	

HOLE NUMBER: RG248

DRILL HOLE RECORD

LOGGED BY: S.LEAR

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Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS					
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm
11921	48.70	49.80	1.10									610	1160	3140							5.2	20	
11922	49.80	51.30	1.50									166	400	390							1.2	5	
11923	51.60	52.90	1.30									590	1970	1900							5.6	50	
11924	52.90	54.20	1.30									26	95	194							0.4	5	
11925	56.30	56.90	0.60									100	2050	480							0.9	60	
18151	64.90	66.90	2.00									2740	2200	2650							17.8	125	
18152	82.60	84.10	1.50									268	920	540							1.4	5	
18153	84.10	86.50	2.40									127	1100	305							0.7	5	
18154	86.50	88.00	1.50									114	202	148							1.0	10	
18155	88.00	89.10	1.10									92	119	110							0.8	5	
18156	89.10	90.60	1.50									306	530	550							1.4	5	
18157	90.60	92.30	1.70									610	800	840							10.6	40	
18158	121.80	123.30	1.50									50	173	92							0.8	5	
18159	123.30	124.80	1.50									35	84	51							0.5	15	
18160	124.80	126.30	1.50									46	53	53							0.4	5	
18161	126.30	127.50	1.20									44	128	52							0.5	5	

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
11920	15.00	18.00	3.00	40.67	12.32	10.50	9.62	0.22	2.63	9.16	0.53	1.09	0.013	0.007	31	133			5	90	1.0	76	0.20	0.01	2.34	89.40	83	2

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: I

HOLE NUMBER: RG249

PROJECT NAME: SANFALL
PROJECT NUMBER: 340
CLAIM NUMBER:
LOCATION: SANATOSUM

PLOTTING COORDS GRID: SAM
NORTH: 959.30M
EAST: 10536.30W
ELEV: 1181.40

ALTERNATE COORDS GRID: 180
NORTH: 9+70
EAST: 105+ 0
ELEV: 0.00

COLLAR DIP: -68° 0' 0"
LENGTH OF THE HOLE: 290.20m
START DEPTH: 0.00m
FINAL DEPTH: 290.20m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 225° 0' 0"

DATE STARTED: September 25, 1988
DATE COMPLETED: October 6, 1988
DATE LOGGED: 0, 0

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

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

CONTRACTOR: FRONTIER
CASING: L.I.H.
CORE STORAGE: BARRIERE

PURPOSE:

DIRECTIONAL DATA:

Depth (a)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (a)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
47.90	-	-63° 0'	ACID	OK		-	-	-	-	-	
93.60	-	-62° 0'	ACID	OK		-	-	-	-	-	
139.30	-	-62° 0'	ACID	OK		-	-	-	-	-	
185.00	-	-61° 0'	ACID	OK		-	-	-	-	-	
290.20	-	-57° 0'	ACID	OK		-	-	-	-	-	
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HOLE NUMBER: RG249

DRILL HOLE RECORD

LOGGED BY: B.FRIESEN

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CAI	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.80	<CASING>	SURFACE OXIDATION DOWN TO 10.0m.				
4.80 TO 32.50	MIXED MAFIC TO TUFF AND QUARTZ/ CHERT FRAGS <MT AND QTZ CHERT BX>	COLOUR- GREY, WHITE, GREENISH GRAIN SIZE- M.C.G. FRAGMENTAL TEXT'D WITH QUARTZ/CHERT IN TUFFACEOUS? AND SERICITE MATRIX QUARTZ VEIN AT: 4.8- 5.2 6.7- 7.0 8.1- 9.2 (BARREN) VARIABLE AVG. 60 DEG.		SERICITE GREEN MICA COMMON.	<5-8% PY> TR GA. IN QUARTZ VEINLETS.	FIRST 15.0m SOMEWHAT RESEMBLES BX'D ZONE AND TUFFS AT TOP OF R6250.
32.50 TO 82.10	MAFIC TO PYROCLASTIC <MPYRO>	COLOUR- GREENISH GRAIN SIZE- M.C.G. TYPICAL MYPRO. INTENSE Q.V. BANDING FROM 43.3- 48.4 AND 54.3- 58.5 REST HAS LITE-MOD Q.V'S.	60	<25-50% QUARTZ VEIN> BOTH CROSS CUTTING AND CONFORMABLE.	<MINOR - 3% F.G. DISS PYRITE.> AT 81.9- 82.1 25% PY SPH, GA, TET, CPY IN QUARTZ INJ'D ZONE.	
82.10 TO 94.00	MIXED TO MPYRO AND MAFIC TUFF <MPYRO AND MT>	COLOUR- GREEN- BUFF GRAIN SIZE- F.M. C.G. FRAGMENTAL TEXTURE LOST. PARTLY M. TUFF AND MYPRO.		SERICITE AND Q.V.'D. (Q.V'S TO 1cm) LOCAL GREEN MICA IN SER'D ZONES	<TR - MINOR PY>	{88.3- 89.4} <FAULT ZONE> GOUGE AND CHIPS 60% CORE REC'Y.
94.00 TO 102.80	SERICITIC TO CHERT ARG. <SER'C ARG AND CHT>	COLOUR- BUFF- GREY GRAIN SIZE- F.M. SERICITIC EQUIVALENT OF CHERT/ARG UNIT BELOW. CHERT FRAGS IN SER MATRIX (EX ARGILLITE). SOME QUARTZ FRAGS. SOME ARG/CHERT REMNANTS	70	SERICITE LOCAL GREEN MICA		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
102.80 TO 164.80	CHERT AND ARGILLITE <ARG AND CHT>	COLOUR- BLACK GREY GRAIN SIZE- F.M. MIXED CHERT AND ARGILLITE BEDS HIGHLY CONTORTED AND VARIABLE. WELL LAM AND F.6. TO 107.5 THEN HIGHLY CONTORTED AND BX'D. LOCAL QUARTZ INJECTION AND FLOODING. 116.7- 117.2 MASS CHERT AND OR QUARTZITE AND Q.V'S AND POSS DOLOMITE VEINING (0.25cm THICK) HIGH PYRITE ZONES AT: 140.7- 141.1 142.0- 142.3 143.7- 144.6 (ALMOST PY MUT.) (60% PY) ANGLE TO C.A. 70-80 DEG. 144.6- 144.9 QUARTZ FLOODED <20% SPH, GA, TET> 145.5- 146.3 ALSO HIGH PY ZONE. 151.6- 153.8 VERY CHERTY - BEDDING SUB PARALLEL CORE AXIS		Q.V'S AND INJECTION VERY OCC. SERICITIC ZONES Q.V. AT 153.8- 154.8 160.6- 161.2		<MINOR IZ, LOCALLY 5-8% PY> VERY TR. SPH BLEBS IN CHERT FRAGS.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
		154.8- 158.2 ALMOST A HUT VERY PYRITE AND SERICITIC WELL LAM'D AND INTERBEDDED WITH STRETCHED CHERT FRAGS. VERY SERICITIC.			20-25% PY	
		158.2- 164.8 PYRITIC AND SERICITIC ARGILLITE PROB AN ALTERED ARGILLITE. (LOOKS SIMILAR TO AN INCOMPLETELY DEVELOPED MUDDY TUFF. LOCALLY MINOR CHERT (BLACK) BANDS		SERICITIC 160.6- 161.2 QUARTZ VEIN. SEDS AT BOTH CONTACTS ARE CONTORTED AND GRAPHITIC.	8-10% PY AS DISSEM INTERBANDS IN SER ARGILLITE.	
164.80 TO 170.10	CHERT BI. <CHT BX>	COLOUR- GREY BLACK GRAIN SIZE- M.C.G. A FRAGMENTAL CHERT RANGES FROM FRAG'M FROM TRANSPOSITION BY CLEAVAGE TO POSS ARG/CHT DEBRIS FLOW. ANGLE TO C.A. 75 (CLEAVAGE) BEDDING FLATTER. MORE MASSIVE SECTION OF CHERT AT 165.5- 166.3 WHICH IS VERY HIGHLY CDMTORTED.		MINOR SER.	<3-SZ PY> GEN AS CLASTS	
170.10 TO 186.60	SER'D CHERT /ARG <SER'C ARG AND CHT>	COLOUR- GREY WITH MINOR BUFF, BLACK GRAIN SIZE- F.C.G. GEN A FRAG'D MASS GREY CHERT WITH MINOR ARG COMPONENT NOW MOSTLY SER'D 170.1- 170.6 WAKE COMPONENT. 172.7- 174.3 VERY SERICITIC (50% PLUS) 174.3- 175.2 HIGHLY Q.V.'D CHERT. (MASSIVE WHITE QUARTZ WITH 10-20% C.G. PYRITE).		SER. Q.V.'S	OVERALL <3-SZ PY> LOCALLY N. MASS BANDS TO 5cm THICK.	5cm FAULT GOUGE AND CHIPS AT 184.8m.
186.60 TO 191.40	FAULT <FLT>	COLOUR- GREY BLACK GRAIN SIZE- STRONG FAULT ZONE CONSISTING OF CHERT FRAGSS AND DCC PY FRAGMENT IN SH'D ARGILLACEOUS GROUNDMASS.				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA	ALTERATION	MINERALIZATION	REMARKS
191.40 TO 194.50	CHERT ARG BRECCIA <CHT ARG BX>	COLOUR- GREY BLACK GRAIN SIZE- F.C.G. FRAGMENTED FRAGS GEN STRETCHED AND ALIGNED. ARG. COMPONENT TO LOWER CONTACT. ANGLE OF C.A. 75 (CLEAVAGE)		WK - MOD SERICITE.	<MINOR - 1% DISS PY>	
194.50 TO 203.90	SER'D CHT ARG BRECCIA <SER'C ARG CHT BX>	COLOUR- GREY BUFF GRAIN SIZE- F.C.G. SAME UNIT AS ABOVE ONLY ZONE IS NOW STRONGLY SERICITIC AND LOCALLY QUARTZ INJECTED. ANGLE TO C.A. 70 DEG (CLEAVAGE) HIGHLY CONTORTED AND BX'D. FRAGS OFTEN STRETCHED AND ALIGNED.		WELL DEV SER. Q.V'S OR INJ'N.	<1-3% LOCALLY N MASS BANDS AND TR GA SPH> ASSOC WITH QUARTZ INJECTION N MASS AT 198.3- 198.5 <1-3% PY, TR GA, SP>	
203.90 TO 208.20	CHERT BRECCIA <CHT BX>	COLOUR- GREY GRAIN SIZE- F.C.G. FRAGMENTED, QUARTZ INJECTION, 206.5-208.0 RESEMBLES C.G. PY MUT WITH ABUND C.G. CHT FRAGS. ANGLE TO C.A. VARIABLE		HIGHLY SERICITIC SL. GREEN MICA	206.1- 206.5: Q.V. WITH 1% GA, TET. <20% PY>	
208.20 TO 209.40	ALT'D MAFIC TUFF AND CHT <ALT'D MT AND CHT>	COLOUR- GREENISH YELLOW GRAIN SIZE- F.C.G. CHERTY FRAGS - GENERALLY STRETCHED AND ALIGNED PROB. TRANSITION TO MAFIC PYRO'S BELOW		MINOR SER TR GREEN MICA MINOR Q.V.	<TR PY>	
209.40 TO 229.60	MAFIC PYROCLASTIC <MYPRO>	COLOUR- LIGHT GREEN GRAIN SIZE- M.C.G. TYPICAL MAFIC PYRO OFTEN STREAKED WITH NARROW Q.V'S LAPILLI SIZE FRAGS OFTEN SER'D. MATRIX IS MORE CHLORITIC BETWEEN 218.0- 229.0 TUFFACEOUS COMPONENT FROM 215.7- 216.1		SER'D FRAGS Q.V'S.		
229.60 TO 243.40	SER CHT BRECCIA <SER'C CHT BX>	COLOUR- GREY BUFF GRAIN SIZE- F.C.G. APPEARS TO BE LAYERED FRAGS OF CHT AND OR SILICA INJECTION WITH MODERATE TO LOCALLY WELL SER'D MATRIX POSS EX TUFFACEOUS COMPONENT. QUARTZITE FROM 231.2- 232.4 (GREY, MASSIVE, SL GRANULAR TEXT). FROM 241.8- 243.4: VERY CHERTY AND ALT'D (SER?) GIVING LIGHT YELLOW AND GREEN COLOUR. ANGLE TO C.A. 65-70 (FDL'N)		MED. SERICITE NUMEROUS QUARTZ/FELD VEINS AND VEINLETS (TO 10cm MAX)	QUARTZ/FELD VEINING OFTEN CARRIES GA, TET. OVERALL 1-2% PY = 1% GA/TET. LOCALLY 2-3% <1-2% PY, 1% GA, TET>	

Sample	From (m)	To (m)	Length (m)	Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm			
1E209	245.60	247.20	0.60																						

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm	
18144	20.40	21.40	1.00	31.20	11.13	12.68	8.03	0.46	1.85	10.38	0.84	1.09	0.051	0.005						43				0.15	0.01	6.85	84.73	549	3
18145	28.40	29.90	1.50	35.38	7.91	14.70	9.66	0.08	1.89	8.38	0.80	0.66	0.049	0.005						55				0.12	0.01	4.72	84.35	253	1
18149	88.50	90.30	1.80	40.74	10.86	12.85	7.59	0.25	2.29	8.77	0.30	0.98	0.135	0.005						140				0.17	0.01	0.59	85.57	135	1
18150	97.40	98.90	1.50	62.57	13.18	1.01	2.02	0.21	2.80	7.14	0.27	0.51	0.087	0.005						92				0.09	0.01	5.75	95.64	111	1
18184	161.20	162.70	1.50	40.31	23.19	0.29	0.43	1.82	3.09	11.50	0.03	0.83	0.290	0.008						66				0.21	0.03	15.40	97.44	130	6
18200	231.20	232.40	1.20																										

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: RG250

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.10	<CASING>	SURF OXID'N ON PARTING SURF'S DOWN TO 8.0m				
6.10 TO 14.00	MAFIC TUFF <MT>	COLOUR- BROWNISH GREEN GRAIN SIZE- F.M. MASSIVE TO LAMINATED WITH QUARTZ / FELD?	65	LITE SER QUARTZ VEINED AND LAMINATED.	<MINGR 1% LOCALLY 3-5% DISSPY>	
14.00 TO 17.10	SILICIFIED MAFIC TUFF? WITH Q.V. <SIL MT AND Q.V.>	COLOUR- GREY GRAIN SIZE- F.C.G. FRAGS HEAVILY QUARTZ? INJECTED MAFIC TUFF? FOLIATED IN PLACES AND OFTEN FRAGMENTAL.		NUMEROUS QUARTZ/FELD. VEINLETS OFTEN CONT DISS GALENA AND TET OCC. GREEN MICA.		
17.10 TO 38.60	BRECCIA <BX>	COLOUR- GREY GRAIN SIZE- F.C.G. WELL DEV. METROLITHIC BRECCIA (VOC BX?) WELL HEALED FRAGS OF TUFF, QUARTZ, ETC. ANGULAR BUT ROUGHLY ALIGNED ANGLE TO C.A. FRAGS FROM 17.1- 23.0 ALIGNED AT 65-75 DEG TO C.A. BX BEST DEV FROM 17.1- 22.9 FRAGS COARSER AND MORE RANDOM AFTER AND WITH TUFFACEOUS COMPONENTS OR VERY LARGE FRAGS. 30.4- 31.1 Q. VEIN WITH TR GA, TET.		SERICITE OCC QUARTZ VEIN AND LOCAL QUARTZ INJ'N TO 30cm THICK. LOCAL GREEN MICA.	<1-3% PY TR GA AND TET> (BEST AT 25.6- 26.3) (1% GA TET WITH QUARTZ - FELD FRAGS.	
38.60 TO 43.20	ALTERED MAFIC TUFF <ALT'D MT>	COLOUR- GREY GREEN GRAIN SIZE- F.M. LOOKS LIKE SER'D MAFIC TUFF; BX'D. LOCAL QUARTZ INJ'N SL. FOLIATED. QUARTZ INJ'N BETWEEN 41.8 AND 43.2 AT 5-20cm INTERVALS.				BEST AT 42.8- 43.0 20% PY, GA, SPH CPY.
43.20 TO 45.00	ALT'D MAFIC TUFF WITH QTZ AND OR CHERT FRAGS	COLOUR- YELLOW BUFF GRAIN SIZE- F.C.G. V. FRAG'L TEXTURE 80% ALIGNED FRAGS OF QUARTZ / CHERT	70	<SERICITE>	<5% DISS PY>	
45.00 TO 160.80	MAFIC PYRO- <MPYRO>	COLOUR- GREENISH GRAIN SIZE- M.C.G. TYPICAL MPYRO LAPILLI SER'D TO 55.0m QUARTZ VEINED.		AT 53.4: 4cm Q V WITH GA. 1% AT 57.2- 57.3 3-5% GA/TET ABUND CARBONATE ALT AT 74.2- 78.7	154.9- 155.0 SILICA INJ'D MT WITH 20% SPH, GA, TET PY.	

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				AS STOCKWORK LIKE VEINLETS AND DISS-EMINATIONS. (NO BLEACHING OF MPYRO.) AT 148.6 LAPILLI BECOME SERICITIC AND QUARTZ/CALITE ALT'M INCREASES V. SUBSTANTIALLY FROM 153.1 ENTIRE ROCK IS HEAVILY SER'D AND WITH GREEN MICA.		
160.80 TO 256.50	MIXED CHERT AND ARGILLITE <MIXED CHT AND ARG>	COLOUR- GREY BLACK GRAIN SIZE- F.M.G. INTERBEDDED CHERT AND ARGILLITE LAMNAE. OFTEN INTENSELY BRECCIATED . FROM 177.4- 190.5 LAM'D TEXTURE OBSCURE - POSS BLEACHED OUT OR ELSE RK IS ALT'D MAFIC TUFF. BECOMES QUITE SERICITIC AND CHERTY FRAG FROM 194.5 TO 201.3. FROM 201.3- 211.4 INTENSELY BX'D CHERTY ARG. (DEBRIS FLOW)? ANGLE TO C.A. VARIABLE WHERE WELL LAMINATED APPROX. 70-80 DEG TO CORE AXIS.		LOCAL SER'ZN OCC. GREEN MICA. Q.V'S AND QUARTZ/FELD FLOODING MAJOR Q.V'S AT 165.1- 165.7 166.6- 167.1 168.6- 169.9. 212.5- 214.0 QUARTZ VEIN WITH POSS ARSENOPYRITE ILS AT 213.7. {212.5- 256.5} <ABUND QUARTZ VEINING> AND SERITIZATION WITH LOCAL ARG COMPONENTS PRESERVED.	<3-5% LOCALLY 8-10% PY> AS DISS AND BANDS.	{199.0- 199.8} <FAULT> GOUGE AND FRAGS., CROSS CUTTING NARROW SHEAR AT 253.0- 253.6.
256.50 TO 259.60	MAFIC TUFF? AND CHERT <MT AND CHT>	COLOUR- GREY GRAIN SIZE- F.M.G. ALTERED AND STRETCHED FRAGMENTAL TEXT. LENSES OF CHERT IN A SER'IC TUFF.	70	SERICITE	<TR - MINOR PY>	
259.60 TO 265.80	SERICITIC CHERT BRECCIA <SER CHT BX>	COLOUR- GREY BUFF GRAIN SIZE- F.M.C.G. C.G'D CHERT BX IN A SER'IC MATRIX. FRAGS TO 3cm THICK. VARIABLE		SERICITE MATRIX INCREASING QUARTZ FLOODING/INJ'M AT 263.5- 265.5.	<TR MINOR PY> TO 263.3. SPH AT 263.3 AT 264.6- 265.6 1-3% GA, TET, TR CPY AND N. MASS PY BANDS TO 10cm THICK.	
265.80 TO 284.60	FAULTED CHERT BRECCIA (SERICITIC) <FLT'D CHT BX>	COLOUR- GREY YELLOW, OCHRE GRAIN SIZE- F.M.C.G. INTENSELY BRECCIATED AND FAULTED CHERT WITH ABUND. SERICITE MATRIX (NOW OCHRE COLOR). ABUND GOUGE. LOCAL SERICITIC TUFF WITH CHERT BANDING AT 278.0- 281.6. VARIABLE		<20% SERICITE> MATRIX IN FAULT. SOME MINOR QUARTZ VEINING.	<TR - MINOR PY>	
284.60 TO 287.60	FAULTED SULFIDE HORIZON <FLT'D SULF HORIZ.>	COLOUR- BLACK GRAIN SIZE- F.C.G. CONTINUATION OF FAULT ABOVE INTO SULFIDE HORIZON BELOW. GOUGY, BX'D TEXTURE.			<15-20% PY>	

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DRILL HOLE RECORD

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
287.60 TO 315.00	SULFIDE HORIZON IN MT'S? AND CHERTS <SULF AND MT AND CHT>	COLOUR- DARK BROWN GRAIN SIZE- M.C.G. SULFIDE MINERALIZED MAFIC TUFF? AND CHERT HORIZDN.		MOD SER'N TUFF? ZONES QUARTZ FLOODING INJECTION OFTEN ASSOC. WITH MINERALIZATION.	RANGES FROM <L/6 DISS TO MASS PY> AND SPH, GA, TET? AND CPY: 287.6- 289.4 10% F.G.PY IN ALT'D TUFF? CONTAINS 15c# MASS PY AT 287.8- 287.95 289.4- 290.1 MAINLY MASSIVE PY 5-8% SPH, GA, TET? AND MINOR CPY. 290.1- 291.8 15% PY IN DISRUPTED CHT/ARG 1-2% GA, SPH, CPY. (291.6- 291.8 MASS) 291.8- 292.7 10-15% PY SAME AS BEFORE. 292.7- 294.4 PRED N. MASS- MASS PY WITH SILICA COMPONENT. 5-8% GA SPH. (TET?) 294.4- 295.4 BROWN TUFFACEOUS? (NOW SER) WITH SOME CHERT. TR GA SPH. 295.4- 296.6 SAME AS ABOVE BUT PROB LESS MIN'LZ'N AND NO CHERT COMPONENT. 296.6- 297.5 S.M.S.- 20% C6 SPHAL. 3-5% GA TET? WITH QUARTZ FLOODING IN BROWN SER'C TUFF? 297.5- 300.3 BROWN SER TUFF? 8-10% PY. 300.3- 308.4 SERICITIC CHERT BRECCIA 8-10% WITH LOCAL SMS TO MASS PY ZONES AT: 300.3- 300.7 AND (W CHT) 301.1- 301.4 AT 306.7- C.G.SPH BLEBS (2.0c#) 308.4- 315.0	ABUND CHT AND OR SILICA FLOODING WITH INTERSTITIAL WISPY BROWN SER.

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					SILICA FLOODED CHERT(?) OR OTHER SED. 10-20% PY. LOCALLY N.MASS TO MASS PY TRACE SPHALITE. VERY COMPETENT RK.	
315.00 TO 323.80	SIL FLOODED MAFIC TUFF? <SIL HT>	COLOUR- BROWNISH TO GREEN GRAIN SIZE- F.M. INTENSELY SIL'D RK VAGUE QUARTZ/CHERT BANDING INDICATES MAYBE A SIL'D SER TUFF AND CHERT SOME BI V. HARD COMPETENT RK. ANGLE TO C.A. VAGUE POSS 60-70 DEG.		ABUND QUARTZ (SILICIFICATION) MINOR SER? GREEN MICA?	<5-8% PY LOCALLY 10-15% PY> LOCALLY TR - 1% GA TET. (319.1- 319.4) AND (320.7- 321.1)	
323.80 TO 327.40	SER'D CHT <SER CHT>	COLOUR- GREY WHITE GRAIN SIZE- F.M. SER'D CHERT FRAGMENTAL. SOME OF FRAGS TEXT DUE TO TRANSPOSITION. VARIABLE E.D.H.		MOD-LITE SER. SOME QUARTZ FLOODING AT 324.9- 325.3 VERY SERICITIC.	<1-3% LOCALLY 3-5% PY>	

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Sample	From (m)	To (m)	Length (m)	Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm		
18249	238.90	240.20	1.30								8	70	31				73	112		1	0.8	20		
18250	253.60	254.20	0.60								31	31	17								0.4	10		
18251	254.20	255.50	1.30								167	145	198								2.6	100		
18252	260.40	262.00	1.60							450	164	117	109								2.0	85		
18253	262.00	262.30	1.30								375	19	82	208							1.2	160		
18254	263.30	263.40	0.10	0.006	0.46	0.21	4.3	0.14		0.01														
18255	263.40	264.60	1.20	0.002	0.05	0.04	1.2	0.002		0.01														
18256	264.60	265.60	1.00	0.133	0.76	0.91	47.8	0.84		0.02														
18257	265.60	265.80	0.20	0.012	4.59	1.18	20.3	0.20		0.01														
18258	269.90	271.40	1.50								43	169	93								1.2	30		
18259	284.60	286.10	1.50	0.013	0.38	0.43	6.4	0.04		0.01														
18260	286.10	287.60	1.50	0.008	0.19	0.19	2.9	0.16		0.01														
18261	287.60	288.10	0.50	0.016	0.48	0.20	4.4	0.24		0.01														
18262	288.10	289.40	1.30	0.009	0.11	0.06	1.8	0.18		0.01														
18263	289.40	290.10	0.70	0.222	4.19	1.83	25.9	0.22		0.01														
18264	290.10	291.60	1.70	0.213	2.04	1.26	20.3	0.21		0.02														
18265	291.80	292.70	0.90	0.075	0.36	0.32	4.1	0.17		0.01														
18266	292.70	294.40	1.70	0.131	2.44	3.68	55.6	0.80																
18267	294.40	295.40	1.00	0.008	0.43	0.22	3.9	0.03																
18268	295.40	296.60	1.20	0.009	0.05	0.06	1.8	0.05																
18269	296.60	297.50	0.90	0.123	6.03	0.63	11.3	0.25																
18270	297.50	299.00	1.50	0.010	0.06	0.08	1.8	0.16																
18271	299.00	300.50	1.30	0.007	0.02	0.01	1.2	0.08																
18272	300.30	300.70	0.40	0.001	0.01	0.01	1.8	0.04																
18273	300.70	301.10	0.40	0.011	0.13	0.05	2.3	0.22																
18274	301.10	301.40	0.30	0.004	0.04	0.04	2.8	0.24																
18275	301.40	302.90	1.50	0.002	0.01	0.01	1.6	0.03																
18276	302.90	304.40	1.50	0.003	0.01	0.01	1.4	0.01																
18277	304.40	305.90	1.50	0.002	0.01	0.01	1.8	0.04																
18278	305.90	307.40	1.50	0.004	0.01	0.02	1.6	0.18																
18279	307.40	308.40	1.00	0.002	0.01	0.01	0.4	0.19																
18280	308.40	309.70	1.30	0.001	0.01	0.04	0.7	0.03		0.01														
18281	309.70	310.70	1.00	0.002	0.01	0.01	0.8	0.01		0.01														
18282	310.70	312.20	1.50	0.001	0.02	0.01	1.3	0.02		0.01														
18283	312.20	313.60	1.40	0.001	0.05	0.02	1.8	0.03		0.01														
18284	313.60	315.00	1.40	0.002	0.06	0.002	1.7	0.01		0.01														
18285	315.00	316.10	1.10								10	80	38								0.6	10		
18286	316.10	317.10	1.00								11	152	93								0.8	10		
18287	317.10	319.10	2.00	0.001	0.02	0.04	0.9	0.01																
18288	319.10	319.40	0.30	0.019	1.49	0.25	8.2	0.02																

Sample	From (m)	To (m)	Length (m)	Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm	
18289	319.40	320.70	1.30	0.002	0.03	0.02	0.7	0.01															
18290	320.70	321.10	0.40	0.001	0.34	0.22	3.6	0.02															
18291	321.10	322.60	1.50								15	80	91								0.6	20	
18292	322.60	323.80	1.20								32	83	44								0.6	5	
18293	323.80	324.90	1.10								14	34	50								0.7	5	

Sample	From (#)	To (#)	Length (#)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm	
18209	9.50	10.30	0.80																										
18231	41.80	42.80	1.00	54.31	10.66	5.20	6.03	0.17	1.76	8.00	0.37	0.91	0.43	0.005									0.21	0.01	3.10				
18236	158.60	160.10	1.50																										
18242	180.00	181.50	1.50	43.57	13.68	1.62	13.37	0.45	0.53	12.30	0.61	1.62	0.027	0.005									0.20	0	.01	0.01	88.00		
18249	238.90	240.20	1.30	63.92	13.35	0.98	4.13	0.27	2.82	6.32	0.33	0.51	0.088	0.01									0.10	0.01	0.01	92.82			
18286	316.10	317.10	1.00																										

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		LOWER 0.4# CHERTY ARGILLITE WITH QUARTZ VEINS.				
128.23 TO 151.20	MAFIC TUFF <MT>	COLOUR- LIGHT MED GREEN GRAIN SIZE- MED. VAGUE GREY FRAGS IN F.G. GREEN MATRIX. 151.2- 133.3 LIGHT BROWN, MOD - ST SERICITE ALT AND QUARTZ VEINING. ARG FRAGS AT LOWER CONTACT.		WK - MOD. SERICITE ALT. THROUGHOUT	<TR PY>	
151.20 TO 164.90	CHERT AND ARGILLITE <CHT AND ARG>	COLOUR- BLACK AND GREY GRAIN SIZE- VERY CONTORTED AND BROKEN, BLACK ARGILLACEOUS SEDS WITH GREY CHERTY BANDS.		MINOR QUARTZ VEINS	<SZ PY>	
164.90 TO 198.10	SERICITE ALT SEDS. <SERN SED>	COLOUR- BLACK AND GREY GRAIN SIZE- INTERMIXED GREEN SERICITE AND BLACK ARGILLITE. E.D.H.		164.9- 172.8 30% QUARTZ VEINS 172.8- 182.0 SOLID, BULL QUARTZ INTERMIXED WITH SERICITIC VOLCANICS OVER LOWER 3.0#		

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Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS						
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm	
18626	57.25	60.00	2.75									86	235	121								2.6	55	
18627	60.00	63.00	3.00									49	76	55								1.4	10	
18628	63.00	66.00	3.00	0.004	0.02	0.01	0.7	0.02																
18629	66.00	69.00	3.00									47	182	43								0.7	5	
18630	69.00	72.00	3.00									48	103	36								1.1	20	
18631	72.00	72.90	0.90									97	191	42								4.2	5	
18632	90.50	93.50	3.00									10	59	39								0.5	5	
18633	115.10	115.40	0.30									16	36	68								0.8	5	
18634	164.90	167.00	2.10									22	31	17								0.7	10	
18635	167.00	169.00	2.00									67	34	11								0.6	95	
18636	169.00	172.80	3.80									41	46	18								0.7	70	
18637	172.80	175.00	2.20									6	18	69								0.4	310	
18638	175.00	177.00	2.00									3	4	3								0.5	5	
18639	177.00	179.00	2.00									13	97	48								0.9	5	
18640	179.00	182.00	3.00									23	104	86								1.4	115	

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GEOCHEM. SHEET

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Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18641	136.00	139.00	3.00	46.72	13.69	5.95	8.86	0.63	0.77	10.50	0.37	1.26	0.032	0.005	10	78			10	27	0.5	29	0.16	0.01	0.35	89.28	72	3

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GEOCHEM. SHEET

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.50	<CASING>	SURFACE OXIDATION TO 16.7m				
6.50 TO 25.00	MAFIC <MPYRD>	COLOUR- GREEN GREY GRAIN SIZE- F.C.G. TYPICAL MPYRD BUT SHOT THROUGH WITH DISCONTIN QUARTZ BLEBS AND VEINLETS IN FRAGS AND MATRIX FRAGS AND SOME MATRIX MOD SER'D. FROM 18.2: MPYRD MIXED WITH QUARTZ AND OR CHERT. Q.V.'S AT 19.4- 20.0 (CONT FRAG OF SPH, GA, PY - 3cm) AND 21.2- 21.6 AND 24.0- 24.7 MAFIC TUFF AT 21.7- 23.0. (F.G. BROWNISH WITH LIMY Q.V.'S AND GREEN MICA.) (23.0- 24.0 MT AND QUARTZ CHERT FRAGS).		MOD. SER THROUGHOUT QUARTZ INJ'D. MINOR GREEN MICA IN SER'C ZONES.	210.0- 21.2 QUARTZ INJ'D MT. 10-15% SPH, GA.	
25.00 TO 35.90	MIXED MAFIC TUFF AND QUARTZ/ CARBONATE ZONE <MT & QTZ CARB>	COLOUR- GREY GRAIN SIZE- F.C.G. A VERY MIXED UP ZONE OF MAFIC TUFF AND QUARTZ /CARBONATE (NOT CA CO3 - POSS DOLOMITE?) TRUE EXHALITE?? ANGLE TO C.A. NONE		OCC GREEN MICA M.T'S SER'D BUFF. LIGHT BROWN. 25.0- 25.7 MT AND QUARTZ - DOLOMITE? ALT'D BY GREEN MICA.	<MINOR - 1% PY> TR GA.	
35.90 TO 100.00	ARGILLITE WAKE < ARG AND WAKE>	COLOUR- BLACK DARK GREY GRAIN SIZE- F.G. TYPICAL ARG/WAKE UNIT. LOCALLY GRAPHITIC. SOME SOFT SED DEFORM'N. {35.9- 36.4} <BX> WELL PACKED HETEROLITHIC BX. ARG/TUFF/QUARTZ ETC FRAGS WITH FINE PY GROWTHS IN MATRIX. {39.0- 40.6} <BX> FRAGS WELL PACKED AND ALIGNED. ANGLE TO C.A - VARIABLE BUT AVG 75-80% C.A. Q.V. AT 57.0- 57.3 66.7- 67.0 ANGLE TO C.A. VARIABLE GEN 75 D.		MINOR SER IN BX ZONES. Q.V. AT 43.2- 43.5 FROM 96.0m WAKE COMPONENT BECOMES SER AND TURNS BROWN. FROM 98.7m ENTIRE CORE IS BROWN.	MINOR - 1% XLNE PY. <V TR PY>	BROKEN CORE THROUGHOUT: AT 44.8: 1m CORE GROUND 46.0: 0.6m CORE GROUND 47.2: 0.4m CORE GROUND 48.2: 0.5m CORE GROUND ALSO AT 48.9- 50.3m {53.3- 57.0} <FLT> ZONE (1.2m CORE GROUND).
100.00 TO 102.50	MUDDY TUFF <MUT>	COLOUR- BROWN GRAIN SIZE- F.M. A QUARTZ INJ'D MUT WITH CHERT FRAGS AND BANDS	75	SERICITE	<20-40% PY> (F.G. BEDDED TYPE)	

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
102.50 TO 105.90	SERICITIC CHERT BRECCIA	COLOUR- GREY BUFF GRAIN SIZE- F.C.G. A BX'D GREY CHERT MATRIX ALMOST COMPLETELY SER'D. 102.5- 102.7 Q.V. ANGLE TO C.A. 75 DEG (ALIGNED CHERT FRAGS)		<10-15% SER> 1-2% LOCALLY 3-SZ GA, (F.G.)	<1-2% GA>	
105.90 TO 107.60	QZ INJ'D PYRITIC CHERT BX	COLOUR- GREY BROWN GRAIN SIZE- F.G. MASSIVE A VERY SILICEDUS RK - CHERT AND Q.V'S WITH LARGE MASS PY CLASTS TO 5cm.		SILICA INJ'M (Q.V.)	<20% PY> AS LARGE CLASTS WITH TR - MINOR SPH, GA.	HOLE DEEPENED FROM 57.6m- 167.9m.
107.60 TO 110.80	CHT BRECCIA CHT BX	COLOUR- GREY GRAIN SIZE- F.C.G. FRAGMENTAL; GRADATIONAL FROM ABOVE. NOT QUARTZ INJ'D (VEINED). ALSO PRESENCE OF SERICITE.		MINOR SERICITE 110.3- 110.8 QUARTZ FELD ZONE WITH INTERSTITIAL GA (1-2%)?	<10-15% PY WITH TR GA AND SPH>	
110.80 TO 128.50	SERICITIZED MAFIC TUFF AND CHERT SER'C MT AND CHT	COLOUR- GREY BROWN GRAIN SIZE- F.M.G. BROWN F.G. TUFFACEOUS TEXT PREDOMINATES TUFF COMPONENT OFTEN BX'D. NUMEROUS QUARTZ VEINS AND FRAGS., OCC THIN CHERT BANDS. SPOTTY ARGILLACEOUS SECTIONS.		MOD - WELL DEV. SER IN TUFF COMPONENT. QUARTZ / FELD? VEINLETS.	<TR-PY>	{114.8- 115.3} <FAULT ZONE>
128.50 TO 135.70	SER'C CHERT ARG SER'C CHT ARG	COLOUR- GREY YELLOW GREEN GRAIN SIZE- F.M.CG. GEN WELL SER'D CHERT ARG. UNIT WITH ARG COMPONENT OFTEN SER'D. ZONES OF ORIG. ARG STILL PRESERVED IN NARROW ZONES. ANGLE TO C.A VARIABLE 70 DEG. LOCALLY SOME TUFFACEOUS? COMPONENT LIKE ABOVE UNIT IS PRESENT. OVERALL BEDDING IS HIGHLY CONTORTED AND BX'D - TRANSPPOSITION COMMON.		GEN WELL - DEV SER.	<TR PY>	
135.70 TO 138.90	MAFIC TUFF MT	COLOUR- BROWNISH GRAIN SIZE- F.G. DOMINATELY TUFFACEOUS COMPONENT AS BX'D FRAGS OF F.G. TUFF. ANGLE TO C.A. VARIABLE		LIGHT MOD SER.	<TR PY>	

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138.90 TO	CHERT <CHT>	COLOUR- GREY WHITE GRAIN SIZE- MASS F.G.		Q.V'S.	<TR PY>	
141.20		ORIG. MASS CHERT V; HEAVILY INTRUDED AND BX'D BY VEINING.				
141.20 TO	MAFIC TUFF <MT>	COLOUR- BROWNISH GRAIN SIZE- M.G.	75	LITE - MOD SER	<TR PY>	
143.40		SIMILAR TO MT'S ABOVE, BUT WELL ALIGNED WITH STRETCHED FRAGS.				
143.40 TO	<SER'C CHT / ARG>	COLOUR- GRAIN SIZE-		BARREN Q.V. FROM 144.0- 144.5 155.9- 156.4 AND 158.80- 159.1		
167.90		AS BEFORE. E.O.H.				

Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS									
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm				
18342	18.30	18.60	0.30	0.055	0.375	0.43	4.0	0.03																			
18343	18.60	19.40	0.80	0.018	0.08	0.04	1.6	0.01																			
18344	19.40	20.00	0.60	0.002	0.01	0.01	1.8	0.01																			
18345	20.00	21.00	1.00	0.006	0.02	0.02	2.0	0.02																			
18346	21.00	21.20	0.20	0.368	4.62	4.29	48.5	0.82																			
18347	21.20	21.60	0.40	0.014	0.04	0.02	2.5	0.01																			
18348	23.10	24.00	0.90								47	230	218										1.8	70			
18349	24.00	24.70	0.70								13	137	55										0.7	30			
18350	25.00	25.70	0.70								22	94	58			174	97				4		1.5	55			
18351	25.70	27.30	1.60								36	201	109										1.7	80			
18352	27.30	29.30	2.00								41	230	183										1.8	55			
18353	29.30	30.80	1.50								27	108	56										1.5	70			
18354	30.80	32.30	1.50								139	715	480										4.6	20			
18355	32.30	33.80	1.50								39	230	241			174	97				4		3.3	60			
18356	33.80	35.90	2.10								335	335	445										8.9	45			
18357	100.50	102.50	2.00								395	145	112										2.8	510			
18358	102.50	102.70	0.20								10	38	16										0.4	20			
18359	102.70	104.20	1.50	0.010	0.04	0.01	0.6	0.02							0.02												
18360	104.20	105.90	1.70	0.018	0.22	0.12	3.8	0.03							0.03												
18361	105.90	107.60	1.70	0.015	0.18	0.06	4.5	0.02							0.13												
18362	107.60	108.80	1.20								132	2800	1310										3.2	15			
18363	108.80	110.30	1.50								90	1780	1590										2.5	15			
18364	110.30	110.80	0.50	0.012	0.15	0.21	3.9	0.01							0.11												

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18350	25.00	25.70	0.70	45.05	11.36	8.03	8.21	0.40	2.39	8.78	0.89	0.58	0.082	0.005									0.10	0.01	2.75	88.15		
18255	32.30	33.80	1.50	44.53	13.98	4.17	10.21	0.11	0.99	9.74	0.70	0.75	0.044	0.005									0.15	0.01	2.67	89.48		

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 7.50	<OB> OVERBURDEN					
7.50 TO 33.00	REA SEDIMENTS <SEDS>	COLOUR- GREY TO BLACK. ANGLE TO C.A. 90 DEG FOLIATION AND BEDDING. INTERBEDDED MEDIUM TO COARSE GRAINED WACKES AND BLACK SHALES. {7.5 TO 17.4} <WACKES> {17.4 TO 20.5} <SHALES> {20.5 TO 23.3} <WACKES> {23.3 TO 23.7} <SHALES> {23.7 TO 28} <WACKE AND CHERT PEBBLE CONGLOMERATE> {28.0 TO 28.2} <SHALE> {29.2 TO 29.8} <WACKE> {29.8 TO 30.8} <SHALE> {30.8 TO 31.6} <WACKE> {31.6 TO 33.0} <FLT> EARLY - RE HEALED		UNALTERED	PY CLASTS IN (2%) CHERT PEBBLE CONGLOMERATE {10.0 TO 10.5} <Q.V.> 2% LIMONITE {15.3 TO 15.8} <Q.V.> 1% PY {16.3 TO 16.35} <Q.V.> 1% PY {16.6 TO 16.75} <Q.V.> TR PY.	NOTE: NORMAL GRADING. TOPS UP. UNITS AUTOCHTHONOUS. (IN PART) WACKES
33.00 TO 41.10	<FELSIC FLOWS>	COLOUR- LIGHT GREEN GRAIN SIZE- M.G. MASSIVE, VERY SMALL PORPHYRY (.5mm) OF QUARTZ 20% AND FELDS PAR 25%, BROKEN PORPHYRY OFTEN GIVE GRAINY TEXTURE, CLOSED MATRIX, FRAGMENT (PORPHYRY) SUPPORTED. {34.6 TO 34.8} <Q.V.> MINOR LIMONITE {37.8 TO 38.2} <20% QUARTZ VEIN 80% FAULT GOUGE> ANGLE TO C.A. 90 DEG FOLIATION		SLIGHT BLEACHING AROUND QUARTZ VEINS.	2-3% BLACK SULPHIDE BLEBS.	THIS UNIT MAY HAVE EPICLASTIC INPUT. NOTE: OCCURENCE OF GREEN BARIUM MICA, IN TRACE AMOUNTS. SHEARING SEEN ON SURFACE NOT SEEN HERE,
41.10 TO 102.70	<QFP FLOWS> LESSER FRAGMENTALS	COLOUR- GREY GREEN GRAIN SIZE- M.G. STRONGLY PORPHTRITIC. QUARTZ: EYES 3-6mm 10% FP, EVH, 2-7mm, 30% CHL. MATRIX. ANGLE TO C.A. 90 DEG FOLIATION VARIABLY ALTERED, GHOSTING OF PRIMARY FRAGMENTALS COMMON. {67.0 TO 67.5} <30% Q.V. 70% FAULT GOUGE.>		VAGUE SERICITE COMMON IN MATRIX.	<MINOR PY> BLEBS 91-3mm THROUGHOUT. PYRITIC SELVAGE	QUITE A LOW COLOUR INDEX FOR A FELSIC.

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		97.4 TO 97.9: <FLT> EARLY - REHEALED E.O.H.				

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GEOCHEM. SHEET

DATE: 6-December-1988

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
17666	28.40	29.20	0.80	73.69	7.86	4.18	1.91	0.41	2.02	3.49	0.09	0.36	0.055	0.003	12	49			5	65	0.5	22	0.15	0.02	0.05	94.29	13	1
17667	33.00	36.00	3.00	76.90	7.61	3.10	1.37	0.09	2.03	2.88	0.06	0.01	0.061	0.007	10	42			5	47	0.8	21	0.08	0.01	0.5	95.06	11	2
17670	60.50	63.30	2.80	62.55	16.00	3.23	1.35	3.66	2.86	3.47	0.10	0.28	0.099	0.005	13	53			5	73	0.5	29	0.21	0.02	1.04	94.87	11	1
17673	93.50	96.30	2.80	66.76	16.37	1.47	1.11	3.71	3.32	2.98	0.08	0.28	0.083	0.005	20	34			5	72	0.9	72	0.16	0.01	0.0	96.36	11	2

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
151.44 TO 176.25	ARGILLITE AND DEBRIS FLOW <ARG & > <DEB F>	COLOUR- BLACK GREY GRAIN SIZE- FINE ARGILLITE AND SILTSTONE, BEDDED IN PLACES. SECTIONS OF DEBRIS FLOW - CHERT FRAGS IN ARGILLITE MATRIX. 151.44- 157.6 BEDDED ARGILLITE, SILTSTONE AND FG. WACKE. BEDDING 157.6- 160.0 PYRITIC ARGILLITE. VERY BROKEN AND GOUGED IN PLACES. 160.0- 161.2 DEBRIS FLOW. CHERT FRAGS 1mm-1cm IN ARGILLITIC MATRIX. FRAGS COMPRISE 20-30%. 161.2- 174.0 BLACK ARGILLITE WITH CONTORTED, GREY SILTSTONE BEDS. 174.0- 176.25 GREY, CHERTY SEDIMENT WITH BEDS DISRUPTED BY F.G. PYRITE LAMINATIONS. GRADATIONAL CONTACT WITH UNDERLYING MUDDY TUFF.	70	151.44- 157.6 THIN 1-4mm WIDE QUARTZ VEINS AT 60 DEG C.A. (5%) 157.6- 160.0 OCC. 1-8mm WIDE QUARTZ VEIN. DISRUPTED AND FOLDED.	151.44- 157.6 TR PY AS F.G. DISS IN ARGILLITE SECTIONS. 157.6- 160.0 20-30% F.G. DISS PY 160.0- 161.2 10% DISS PY 161.2- 172.5 TR - 10% FINE PY. HIGHER IN MORE BROKEN SECTIONS. 172.5- 174.0 20-30% F.G. PY LAMINATIONS.	{165.0- 172.5} <FLT> SECTIONS OF VERY BROKEN CORE CEMENTED BY GOUGE. OCC QUARTZ VEINS WITH GOUGE. GRAPHITE ON FRACTURES.
176.25 TO 189.80	MUDDY TUFF <MT>	COLOUR- GREY GREEN GRAIN SIZE- FINE F GR., PYRITIC MATRIX WITH 10-20% 1-4mm LONG WHITE QUARTZ CHIPS. OCC. CHERTY LAYERS. ORIENTATION OF CHIPS AND LAYERING LOWER 1.5m IS LESS PYRITIC AND HAS ARGILLITE INTERBEDS.	70	182.45- 182.55 WHITE QUARTZ VEIN. 183.4- 183.85 WHITE QUARTZ VEIN. 188.4- 188.7 QUARTZ AND MINOR CALCITE VEIN IN FAULT ZONE.	<40% PY> 40-50% V. FINE PY DISS. 189.4- 189.8 TR LIGHT BROWN SPH, TET, GN CONCENTRATED IN 1-10mm WIDE QUARTZ VEINS.	181.95- 182.0 MINOR FAULT. CLAY GOUGE WITH QUARTZ VEIN. {182.85- 189.0} <FLT> CLAY GOUGE WITH QUARTZ VEINS.
189.80 TO 229.55	CHERT AND CHERT BX <CHT & BX>	COLOUR- GREY BLACK GRAIN SIZE- APHANITIC M.GR. FRAGS MASSIVE, MED. GREY CHERT. OCC WITH V.FINE (LESS THAN .5mm) WHITE SPOTS, BLACK, SUB-ROUNDED ARGILLITE CLASTS RANGE FROM 1mm TO 1cm. CLASTS UP TO 10%. MOSTLY 5% AND AVG 1-3mm. MINOR ARGILLITE SECTIONS 197.25- 197.5		QUARTZ VEINS AND PATCHES THROUGHOUT. SOME SILICA FLOODED ZONES AS NOTED BELOW. {195.2- 195.7} <GRN MICA> 55 GRN MICA ALTERATION, 10% SERICITE; 5-10% WHITE QUARTZ PATCHES. 195.7- 197.25 STRONGLY SILICIFIED ZONE. BLACK, SILIC	<5% PY, TR SPH, GR, TET, CPY> PY AS F.GR. STRINGERS AND PATCHES. SPH, GN, TET, CPY ASSOCIATED WITH QUARTZ AND VEINS. 191.6- 191.8 10% PY, 2% CPY, 2% SPH, 1% GN, TR TET IN QUARTZ VEINS. 194.4	{198.4- 199.0} <FLT> FAULT ZONE. CLAY GOUGE AND BROKEN. 211.35- 211.8 MINOR FAULT. BROKEN CORE. 214.2- 217.5 FAULT ZONE. VERY BROKEN CORE. POOR RECOVERY AT 40-60%

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		ARGILLITE. 10% GREY SILICA CHIPS. MINDR GREEN MICA.		ARGILLITE? WITH QUARTZ VEINS., FRACTURE FILLINGS AND GREY CHERT.	TR CPY, GN IN PY/QUARTZ STRINGER.	
		199.0- 199.2 BROKEN BLACK ARGILLITE		MOTTLE APPEARANCE LOWER 30cm IS MED GREY, HIGHLY SILIC, WITH 5% THIN SERICITE PARTINGS.	195.22- 195.22 5% PY, 1% CPY, 1% GN, TR TET? IN QUARTZ VEINS	
		199.2- 199.8 STRONGLY FOLIATED CHERT BRECCIA, WITH 5% ARGILLITE CLASTS. FOLIATION	60	197.5- 198.4 STRONGLY SILIC. ZONE	197.5- 198.3 10% PY, 2% SPH, 1% GN, 1% TET.	
		199.8- 202.8 MOSTLY ARGILLITE WITH CHERT FRAGS AND LAYERS. PERCENTAGE OF CHERT INCREASES TOWARDS BASE.		199.2- 199.8 SERICITE ALONG FOLIATION PLANES.	199.8- 202.8 3% DISS PY. V. TR SPH.	
		LAYERING - ORIGINAL BEDDING DR FOLIATION? AT 202.8 CHERT AND CHERT BRECCIA, AS ABOVE.	60	202.3- 202.6 STRONG SERICITE ALT. ON FOLIATION.	206.1- 217.5 5% PY PATCHES OF LIGHT BROWN SPH, GN, TET, CPY IN WHITE QUARTZ. OVERALL AVG: TOTAL 1% SPH-GN-CPY-TET.	
		222.5- 223.3 GREY, CHERT, LACKING GRANULAR APPEARANCE. SPH, GN, TET IN QUARTZ VEINS. VERY SIMILAR TO SECTION AT UPPER CONTACT.		{206.1- 217.5} <SILIC> STRONG SILICA FLOODING. MOTTLED GREY AND WHITE.	222.5- 223.3 SPH, GN, TET IN 1-15mm QUARTZ VEINS. VEINS 10%	
				210.1- 210.96 10% GREEN MICA.	224.1- 229.55 3% PY STRINGERS TR SPH, GN, TET.	
229.55 TO 263.50	ARGILLITE & ARGILLITE BI <ARG AND BI AND CHT>	COLOUR- BLACK GRAIN SIZE- FINE. BEDDED ARGILLITE WITH GREY CHERT LAYERS ALSO ROUNDED CHERT FRAGMENTS AND DISRUPTED BEDS. SECTIONS OF SERICITE ALTERATION. MINDR GREEN MICA. STRONG FOLIATION?		231- 233 MOD SERICITE ALT {233- 236.4} <SILICA> SILICA FLOODING LOWER 1.5m MOTTLED GREY/WHITE.	{5%PY}> 232.3- 233.0 10% F.G. PY. 234.7- 236.4 2% PY, TR SPH, POSS, TET?	{229- 230.5} <FLT> BLACK MUD, QUARTZ CHIPS TOWARDS BASE.
			70	240.0- 242.0 20% GREEN MICA IN GREY, SILICIC MATRIX.		
				244.7- 244 WHITE QUARTZ VEIN.		
				244- 261.8 80% STRONG SERICITE ALTERED SECTIONS. WHITE QUARTZ VEINS:		
				247.5- 247.7 (BROKEN)		
				252.8- 253.3		
				260.8- 261.5		

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263.50 TO 276.50	MAFIC TUFF <MT>	COLOUR- MED. GREEN GRAIN SIZE- FINE. SERICITE ALTERED TUFF. DCC. REGULAR WHITE FRAGS 2-4mm. SHARP UPPER CONTACT AT 60 DEG. DISTINGUISHED FROM OVERLYING SERICITE ALT SEDIMENTS BY MORE MASSIVE APPEARANCE . LACK ARGILLITE LAYERS. E.O.H.		WK. TO MOD. SERICITE ALTERATION THROUGHOUT. 5% QUARTZ VEINS (1-5mm) AND PATCHES.	<2-5% AS F.G. DISS.>	

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ASSAY SHEET

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Sample	From (m)	To (m)	Length (m)	ASSAYS														COMMENTS					
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm		Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm
18726	176.20	178.20	2.00								56	132	63							0.8	145		
18727	178.20	180.20	2.00								54	138	52							0.3	20		
18728	180.20	182.20	2.00								53	330	70							0.5	5		
18729	182.20	184.20	2.00								45	123	57							0.2	5		
18730	184.20	186.20	2.00								35	33	61							0.3	5		
18731	186.20	188.20	2.00								59	175	75							2.1	15		
18732	188.20	189.40	1.20								52	127	158							1.3	5		
18733	189.40	189.80	0.40								710	3400	2000							20.2	35		
18734	191.50	191.90	0.40	0.051	0.76	0.69	25.8	0.03															
18736	195.70	197.20	1.50								153	579	265			159	81		55	5.5	15		
18737	197.50	198.30	0.80	0.098	0.33	0.78	20.3	0.04															
18738	206.10	207.60	1.50								2646	7532	10062			1102	42		99	12.4	5		
18739	207.60	209.10	1.50								657	5636	741			1462	175		145	20.7	5		
18740	209.10	210.10	1.00								69	323	254			300	127		6	2.3	10		
18742	211.00	212.50	1.50								43	49	41			167	77		3	1.1	5		
18743	212.50	214.00	1.50								72	29	60			1214	48		31	3.0	60		
18744	214.00	216.00	2.00								493	7210	1696			414	87		97	11.7	25		
18745	216.00	217.50	1.50								663	2108	1669			257	57		184	20.5	5		
18746	222.50	223.30	0.80								166	2308	1634			129	46		96	9.0	5		
18747	224.00	226.00	2.00								219	619	487			158	43		95	7.8	5		
18748	226.00	228.00	2.00								15	42	41			44	8		4	3.3	5		
18749	228.00	229.50	1.50								22	57	116			65	34		2	1.8	5		
18750	232.30	233.00	0.70																				
18701	233.00	234.70	1.70								19	12	18							0.5	5		
18702	234.70	236.40	1.70								543	1520	417							10.2	20		

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DATE: 6-December-1988

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO %	TiO2 %	Ba %	Zr %	Cu ppm	Zn ppm	Pb %	TOTAL %	Au ppb	Ba ppm	Ag ppm	Pb ppm	P2O5 %	Sr %	S %	TOTAL %	As ppm	Sb ppm
18735	195.20	195.70	0.50	63.19	14.17	0.54	1.02	0.30	3.25	7.39	0.01	0.77	0.179	0.005	212	1063			25	98	2.5	647	0.10	0.01	6.10	413	2	
18736	195.70	197.20	1.50	80.77	4.09	1.10	0.66	0.09	0.90	4.20	0.05	0.21	0.047	0.005									0.11	0.01	4.70			
18738	206.10	207.60	1.50	81.57	2.45	0.65	0.52	0.05	0.59	5.93	0.02	0.13	0.026	0.005									0.04	0.01	3.52			
18739	207.60	209.10	1.50	84.72	2.53	0.70	0.42	0.05	0.64	3.78	0.01	0.12	0.028	0.005									0.05	0.01	2.76			
18740	209.10	210.10	1.00	73.19	9.24	1.56	0.73	0.16	2.31	4.90	0.06	0.37	0.086	0.005									0.51	0.01	3.48			
18741	210.10	211.00	0.90	60.00	11.08	3.25	2.97	0.17	2.38	7.78	0.68	0.44	0.016	0.005	8	92			1.1	154	1.1	117	0.19	0.01	4.90	468	3	
18742	211.00	212.50	1.50	84.50	3.24	0.77	0.41	0.04	0.80	3.68	0.08	0.15	0.033	0.005									0.12	0.01	3.55			
18743	212.50	214.00	1.50	82.84	2.57	0.38	0.24	0.06	0.57	5.58	0.03	0.11	0.022	0.005									0.06	0.01	5.20			
18744	214.00	216.00	2.00	82.06	3.69	0.54	0.33	0.06	0.89	4.62	0.01	0.17	0.170	0.005									0.07	0.01	4.10			
18745	216.00	217.50	1.50	84.91	2.63	1.18	0.69	0.03	0.65	3.60	0.02	0.15	0.030	0.005									0.08	0.01	2.65			
18746	222.50	223.30	0.80	73.24	6.67	0.58	0.36	0.12	1.70	7.34	0.01	0.58	0.085	0.005									0.15	0.01	6.30			
18747	224.00	226.00	2.00	84.00	2.31	1.79	1.20	0.06	0.51	3.46	0.14	0.11	0.021	0.005									0.05	0.01	2.47			
18748	226.00	228.00	2.00	89.38	2.26	0.77	0.45	0.06	0.46	2.66	0.09	0.08	0.022	0.005										0.01	0.01	1.64		
18748	226.00	228.00	2.00	89.38	2.26	0.77	0.45	0.06	0.46	2.66	0.09	0.08	0.022	0.005									0.01	0.01	1.64			
18749	228.00	229.50	1.50	92.26	1.31	0.33	0.14	0.03	0.31	1.55	0.04	0.05	0.013	0.005									0.03	0.01				
18749	228.00	229.50	1.50	92.26	1.31	0.33	0.14	0.03	0.31	1.55	0.04	0.05	0.013	0.005									0.03	0.01	1.72			
18750	232.30	233.00	0.70	60.22	13.76	1.04	1.61	0.24	3.55	7.59	0.24	0.83	0.110	0.005									0.12	0.01	7.15			
18703	240.00	242.00	2.00	38.45	8.13	12.01	9.73	0.14	1.26	10.35	1.09	0.59	0.041	0.005	2	52			5	45	0.4	27	0.13	0.02	3.85	411	8	
18704	267.00	270.00	3.00	41.71	13.16	6.12	10.85	0.13	1.02	10.38	0.55	1.60	0.174	0.005	13	209			10	91	1.0	82	0.32	0.01	1.56	209	7	

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
218.50 TO 262.90	ARGILLITE DEBRIS FLOW AND SERICITE ALT <ARG DF> <AND SER>	COLOUR- BLACK, GREY, GREEN GRAIN SIZE- FINE CONTORTED GREY CHERT BANDS AND FRAGS IN ARGILLITE MATRIX. 70% OF UNIT IS STRONGLY SERICITE ALT. SERICITE OCCURS AS THIN LIGHT OLIVE GREEN BANDS AT 70-90 DEG TO C.A. MATRIX IS LIGHT GREY, HIGHLY SILICIFIED. OCC ARGILLITE LAYERS. 240.55- 243.6 CONTORTED ARGILLITE AND CHERT BEDS. 5% QUARTZ VEINING. 259.1- 260.3 CHERT FRAGS IN ARGILLITE MATRIX. ALSO 20% SERICITE BANDSS. 260.3- 261.6 FLATTENED GREY CHERT OVALS IN SERICITIC MATRIX. TEXTURE POSSIBLY FORMED BY SHEARING AND LATER SERICITE ALT OF BEDDING ARG AND CHERT.		STRONG SERICITE ALT OCC ZONES OF STRONG QUARTZ FLOODING. 231.3- 231.4 WHITE QUARTZ VEIN, TR CARB. 234.4- 234.7 QUARTZ FLOODING 235.2- 235.4 QUARTZ FLOODING 235.85- 235.95 QUARTZ FLOODING 240.2- 240.55 QUARTZ FLOODING 246.6- 247.2 STRONG QUARTZ FLOODING 250.3- 250.65 GOUGED SERICITE WITH QUARTZ VEINS. 251.3- 251.9 ST QUARTZ AND MINOR CARB FLOODING. 257.8- 259.1 ST QUARTZ FLOODING IN SER ALT. ARGILLITE.	<TR- 5% PY> PY CONCENTRATED IN SERICITE ALT. ZONES. 234.45 TR DK BROWN SPH. 253.35 TR DK BROWN SPH IN VEIN. 259.1- 260.3 TR LIGHT BROWN SPH, TET.	257.5- 257.8 GOUGED ARG AND CHERT. MINOR FAULT.
262.90 TO 298.70	CHERT AND SERICITE <CHT AND SER>	COLOUR- GREY GRAIN SIZE- FINE F.G., GREY CHERTY MATRIX; HAS GRANULAR APPEARANCE IN PLACES. POSSIBLY ALT. WACKE / QUARTZITE OCC. ARGILLITE BANDS SERICITE BANDS AT 70-90 DEG TO C.A. E.D.H.		20% SERICITE ALT. AS THIN (1-3mm) YELLOW BROWN BANDS. MUCH DARKER COLOUR THAN SERICITE IN UNIT ABOVE. 2-3% WHITE QUARTZ PATCHES. 264.8- 265.2 STRONG QUARTZ FLOODING. V. TR GREEN MICA. 277.8- 278.9 ST QUARTZ FLOODING. 283.55- 284.7 MOD QUARTZ FLOODING. 292.6- 293.0 QUARTZ FLOODING.	2% PY 266.0- 273.5 TR SPH, GN, TET ESPECIALLY IN QUARTZ PATCHES. SPH DIFFICULT TO SPOT AS IT IS SIMILAR IN COLOUR TO THE SERICITE. 297.5- 298.0 TR SPH.	279.4- 279.5 FAULT GOUGE. 289.3- 289.5 MINOR FAULT GOUGE.

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MINNOVA INC.
DRILL HOLE RECORD

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FROM TD	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
				294.8- 295.2 QUARTZ FLOODING.		
				297.5- 298.0 QUARTZ FLOODING		

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MINNOVA INC.
DRILL HOLE RECORD

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DATE: 6-December-1988

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
156.00 TO 157.30	CHERT/ARG <CHT/ARG>	COLOUR- BLACK GREY GRAIN SIZE- F.M.G. INTERBEDS OF CHERT AND ARG. SOMETIMES BX'D AND DEFORMED. MORE CHERTY LAST 10cm.	65		<5% F.M.G. DISS PY>	
157.30 TO 159.30	<SMS-MASS PY>	COLOUR-BRASS YELLOW GREY WHITE GRAIN SIZE- F.M.G. MOSTLY SMS IN SILICA FLOODED ZONE IN DISRUPTED CHERT HORIZON. GENERALLY PYRITE TO APPROX CONFORMABLE TO EXISTING CHERT. BEDDING. VARIABLE		SILICA FLOODING.	<25% PY> LOCALLY MASS PY OVER 10cm. 3-5% SPH, TET, GA, CPY (CPY MAINLY IN QUARTZ VEINLETS) LOCALLY 5-8%.	
159.30 TO 159.90	QUARTZ VEIN <Q.V.>	COLOUR- WHITE GRAIN SIZE- MASS Q.V.- PROB ASSOC WITH SILICA FLOODING IN MIN'LIZED ZONE ABOVE.			BARREN	
159.90 TO 167.50	PYRITIC ARG /WACKE CHERT <PY'C ARG & WAKE AND CHT>	COLOUR- BLACK GREY GRAIN SIZE- F.M. INTERBEDS OF ARG / WAKE / CHERT VERY PYRITIC TO 162.1m. LOCALLY POSS DEBRIS FLOW (161.7- 162.1). ANGLE TO C.A. 55-60 DEG.		QUITE SER TO 162.1 LOCALLY GRAPHITIC.	<20% PY> TO 162.1 3-5% AFTER.	166.0- 166.4 SHEAR ZONE.
167.50 TO 168.80	GREY CHERT <CHT>	COLOUR- GRAIN SIZE- F.M.G. BANDED. GRADES INTO UNIT BELOW. ANGLE TO C.A. 45-50 DEG		<TR PY>		
168.80 TO 170.30	PYRITIC AND SILICA FLOODED CHERT/ARG. <PY'C AND SIL CHT ARG>	COLOUR- GREY BLACK GRAIN SIZE- F.M.C.G. MINERALIZED CHERT ARGILLITE UNIT GRADATIONAL FROM ABOVE. REMNANT ARGILLITE IN CHERT AT 169.5- 169.8 VARIABLE		SILICA FLOODING, SOME SERICITE.	168.8- 169.8 - 5-8% PY 169.8- 170.3: 20% PY, SPH, CPY, GA? TET?	
170.30 TO 171.80	ALTERED CHERT/ARG <ALT'D CHT AND ARG>	COLOUR- GREY GREEN GRAIN SIZE- F.M.CG. ALTERED BY SERICITE AND V. WELL DEV. GREEN MICA. CONTAINS PY LENSES OR MODULES.		VERY WELL DEV GREEN MICA. SERICITE LOCAL 2cm TH Q.V.	<10-15% PY> AS MASSIVE LENSES AND STRETCHED MODULES TO 1cm TH.	

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE: TO CA:	ALTERATION	MINERALIZATION	REMARKS
171.80 TO 227.10	ALTERED CHERT - ARGILLITE <ALT'D CHT AND ARG>	COLOUR- GREY BLACK GRAIN SIZE- F.C.G. INTERBEDDED CHT ARG. BOTH LAM'D IN PLACES AND BX'D SER'C ALT'N BLEACHES OUT ARG IN ALTERNATING ZONES WITH UNALTERED REMNANTS. SER'C ZONES BEST. DEV. IN ASSOC WITH Q.V'S. LOCAL SOFT SED DEFORM'N. ANGLE TO C.A. 50 AT 172.8 45 AT 175.8 50 AT 178.7 218.8- 219.2 SIL'D ZONE WITH SER AND 3-SZ DISS PY 221.6- 224.1 BROWNISH SER'C AND SILICA FLOODED - POSS A M.T. STILL WITH CHT REMNANTS. 224.1- 266.8 QUARTZ VEIN AND QUARTZ INJ'D ARG/CHT.		MOD - WELL DEV, SERICITE LOCAL Q.V'S TO 0.5m THICK.	<MINOR - 1% PY>	219.4- 221.6 STRONGLY DEFORMED SER - ARG CHT. VERY SHEARED BUT PROB BEDDING PLANE SHEARING ONLY.
227.10 TO 254.90	SERICITIC CHT BX <SER'C CHT BX>	COLOUR- GREY BROWN GRAIN SIZE- F.M. GEN FRAG'D CHT WITH SER MATRIX AND SOME REMNANT ARG. COMPONENT. DOMINANT FEATURE IS CHT FRAGS. ANGLE TO C.A. VARIABLE 50-60 TO 235.0		MOD - WELL DEV BROWNISH SER. VERY LOCAL GREEN MICA.	<1-3% PY> TR CPY AT 239.5	
254.90 TO 258.40	SIL'D ARG/CHT <SIL ARG & CHT>	COLOUR- BLACK, GREY BX. GRAIN SIZE- F.M. SIL'D ARG/CHT BX'D AND SILICA FLOODED.			VERY TR SPH. <TR MINOR PY>	
258.40 TO 265.80	SIL ALT'D CHT BX <SIL CHT BX>	COLOUR- MED GREY GRAIN SIZE- F.M.G. INTENSELY AND FINELY BX'D CHT. AND POSS SILICA FLOODED? AND MIN'LIZED WITH PY AND MINOR SP. VARIABLE		SILICA FLOODING (OR INJ'N); MINOR OCHRE COLOURED SERICITE.	<3-5% LOCALLY SMS PYRITE> MINOR - 1% SPH AS M-CG. BLEBS ASSOC WITH QUARTZ INJ'N.	
265.80 TO 286.30	ALT'D CHT BX <ALT'D CHT BX>	COLOUR- MED GREY - YELLOW GRAIN SIZE- F.M.G. SAME UNIT AS ABOVE TRANSITIONAL INTO MORE OCHRE SER'D ALTERATION.		INCR. IN OCHRE SER.	<TR - MINOR SPH> AS ABOVE TO 267.3. 1-3% PY WITH LOCAL BANDS OF SMS TO 2cm THICK TR GALENA.	

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DRILL HOLE RECORD

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		284.4- 285.2 ZONE OF INTENSE QUARTZ INJ'N ALMOST ENTIRELY QUARTZ.		SL. SER. SL. GREEN MICA.	<2-5% PY SPH, CPY, GA> LOCAL SMS (PYRITE) CLOTS IN QUARTZ.	
286.30 TO 300.50	QTZ INJ'D CHT BX WITH M.T. <CHT BX AND MT>	COLOUR- GREY YELLOWISH GREEN. GRAIN SIZE- M.C.G. ZONE ABOVE TRANSITIONAL INT'D SL. GREENISH COL'D RK. STILL ABUND ORCHE SER. VERY INTENSE QUARTZ INJ'N FROM 295.3- 300.5 HIGHLY VARIABLE TUFFACEOUS COMPONENT STARTS AT 295.3 V.F.G. BROWN COL'D RK. CORE BADLY BROKEN BUT APPEARS START OF TYPICAL MPYRO. E.D.H.		ORCHE SERICITE SL GREEN MICA. FRAGS SER'D MTRIX ALSO MOD SER'D.	SEVERAL SMS (PY, SPH.) NO DES TO 10cm THICK. AT 286.5- 287.5 (ASSOC WITH QUARTZ INJ'N)	

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Sample	From (m)	To (m)	Length (m)	ASSAYS																		COMMENTS	
				Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm		Au ppm
18294	157.30	159.30	2.00	0.498	1.79	1.26	174.0	0.59															
18295	159.30	159.90	0.60																		1.7	10	
18296	159.90	162.10	2.20																		2.5	140	
18297	168.80	169.80	1.00	0.206	1.02	0.74	27.0	0.18															
18298	169.80	170.30	0.50	0.109	0.37	0.18	30.0	0.19															
18299	170.30	171.80	1.50																		52	86	142
18300	182.80	184.40	1.60																		8	96	17
18301	199.80	201.20	1.40																		38	128	3
18302	218.80	219.20	0.40																		37	142	62
18303	221.60	223.10	1.50																		67	202	252
18304	223.10	224.10	1.00																		41	172	114
18305	224.10	225.30	1.20																		36	38	81
18306	225.30	226.80	1.50																		32	110	49
18307	222.20	233.20	1.00																		45	112	221
18308	239.20	240.40	1.20																		465	1920	1040
18309	244.80	246.30	1.50																		69	105	90
18310	249.20	250.70	1.50																		21	252	300
18311	258.60	259.20	0.60	0.052	0.73	0.37	19.0	0.10															
18312	259.20	260.60	1.40	0.009	0.06	0.11	3.2	0.17															
18313	260.60	261.80	1.20	0.004	0.14	0.16	2.5	0.27															
18314	261.80	262.60	0.80	0.013	0.33	0.09	8.2	0.08															
18315	262.60	264.30	1.70	0.008	0.09	0.12	4.3	0.23															
18316	264.30	265.80	1.50	0.006	0.13	0.17	6.2	0.18															
18317	265.80	266.50	0.70	0.004	0.06	0.03	1.0	0.03															
18318	266.50	267.40	0.90	0.007	0.23	0.04	1.0	0.01															
18319	267.40	268.70	1.30	0.011	0.14	0.36	6.0	0.06															
18320	268.70	270.30	1.60	0.008	0.03	0.14	2.6	0.14															
18321	270.30	271.80	1.50																		35	953	396
18322	271.80	273.10	1.30																		31	299	137
18323	273.10	274.80	1.50																		29	132	400
18324	274.80	275.40	0.80	0.12	0.62	0.09	1.8	0.14															
18325	275.40	277.00	1.60																		21	230	210
18326	277.00	278.40	1.40																		20	520	480
18327	278.40	279.60	1.20																		82	265	168
18328	279.60	281.20	1.60																		59	592	382
18329	281.20	282.50	1.30																		53	151	675
18330	282.50	284.40	1.90																		60	904	370
18331	284.40	288.30	1.90	0.073	0.41	0.26	8.4	0.16															
18332	286.30	287.60	1.30																		269	196	176
18333	287.60	288.60	1.00	0.178	0.27	0.19	12.2	0.40															

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Sample	From (m)	To (m)	Length (m)	Cu %	Zn %	Pb %	Ag g/T	Au g/T	Sb %	As %	Cu ppm	Zn ppm	Pb ppm	S.G.	Ag oz/t	Au oz/t	As ppm	Ba ppm	Ba %	Sb ppm	Ag ppm	Au ppm
18334	288.60	290.20	1.60								82	334	242								2.0	120
18335	290.20	291.60	1.40								38	332	494								1.0	10
18336	291.60	293.10	1.50								40	143	64								0.5	10
18337	293.10	294.70	1.60								165	122	146				35	70		1	0.1	5
18338	294.70	296.30	1.60								17	158	43				150	210		1	0.2	40
18339	296.30	297.70	1.40								42	720	70								0.5	5
18340	297.70	299.20	1.50								38	264	54								1.0	10
18341	299.20	300.50	1.30								28	72	91								1.1	80
18342	300.50	301.80	1.30																			

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