

CLISBAKO 93C/09  
Drill Logs CL 92-20 to 30

**821099**

HOLE NUMBER: CL-92-20

MINNOVA INC.  
DRILL HOLE RECORD

IMPERIAL UNITS:      METRIC UNITS: X

PROJECT NAME: 1992	PLOTING COORDS GRID: UTM	ALTERNATE COORDS GRID:	COLLAR DIP: -45° 0' 0"
PROJECT NUMBER: 667	NORTH: 41550.00N	NORTH: 0+ 0	LENGTH OF THE HOLE: 132.60m
CLAIM NUMBER:	EAST: 29650.00E	EAST: 0+ 0	START DEPTH: 0.00m
LOCATION: TUFA ZONE	ELEV: 1293.00	ELEV: 1293.00	FINAL DEPTH: 132.60m

COLLAR GRID AZIMUTH: 90° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 90° 0' 0"

DATE STARTED: August 14, 1992	COLLAR SURVEY: NO	PULSE EM SURVEY: NO	CONTRACTOR: FRONTIER DRILLING
DATE COMPLETED: August 17, 1992	MULTISHOT SURVEY: NO	PLUGGED: NO	CASING: 10' LEFT IN HOLE
DATE LOGGED: August 20, 1992	RQD LOG: YES	HOLE SIZE: NQ	CORE STORAGE: CAMP

PURPOSE: TO TEST IP "PIPE" ANOMALY UNDER TUFA ZONE

DIRECTIONAL DATA:

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

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 0.00 TO 10.40	«CASING»					
10.40 TO 17.40	«OVERBURDEN -BASALT»					
17.40 TO 26.60	«OXIDE ZONE -FB FS RHYO »	F.B. FS Phyrlic rhyolite.(Classic FB latite)	40	highly fractured, gougy,«ST ARG»		
26.60 TO 40.10	«TUFF BRECCIA»	green, coarse grained, heterolithic depositional breccia.1-10 cm frags of perlitic rhyolitic,welded tuff and crystal ash tuff in a tuffaceous, locally bedded matrix. Matrix supported. ‡36-38‡ «Fault zone»	65	Strongly fractured locally gougy«ST ARG » mottled green (chlorite) to black (he matite) alteration of frags and matrix.		
40.10 TO 44.50	«PERLITE»	Green, fine grained, classic perlitic rhyolite, locally intense, gives breccia like texture, upper contact is gougy- might be a fault.		«ST ARG»		
44.50 TO 45.20	«FAULT»	Grey coarse grained , 80% clay gouge zone.	65	«INT ARG»	Trace of sulphides.	
45.20 TO 66.20	«SPHEROIDAL RHYOLITE»	Green/maroon, fine grained, incredibly balliferous rhyolite, amazing density and size range from classic 1-3cm hematitic red balls to smaller <1cm trout spots. Many coalesce to form bands or cigar shapes. Perlitic texture is common between larger balls. Smaller spots often coalesce to become semi massive over 5-15cm larger balls commonly rimmed by white rind, in matrix, part of perlitic alteration which does not affect balls. Many smaller spots are stretched and hollow- filled by py and chl and bright orange red mineral. These are the first true "lithophaysae" observed, look like amygdales but hematitic ball alteration surrounds the core. I'm now convinced that the balls are classic spheroidal alkali feldspar alteration accompanying devitrification. There chemistry is enriched in silica and sodium relative to groundmass.	50	«PATCHY ARG» «MOD PROP» Pyrite doesn't exceed 1 or 2% but may be responsible for I.P. chargeability although offset by 25m, this is the only sulphidic zone in the hole! Lower contact is gradational. ‡55.8-57.0‡ «lithophaysae» <5mm, stretched, filled by calcite.		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
66.20 TO 72.60	«PERLITE»	Dark green, fine grained, classic perlitic net textured rhyolite, rare balls.		«ST SIL»		
72.60 TO 77.20	«PERLITE»	Pale green, fine grained, intense perlitic				
77.20 TO 87.80	«HEMATITE BRECCIA»	Green and red coarse grained depositional breccia of f.b. rhyolite and perlite frags, variably chloritized in a red to black hematitic matrix.		«ST CHL»frags «ST HEM» matrix, weak calcite stringers «PATCHY ST ARG»		This is where I.P. anomaly should be!
87.80 TO 88.20	«FAULT»	70% CLAY GOUGE				
88.20 TO 96.20	«PERLITE»	Classic perlite with local breccia like textures. rare balls.		highly fractured «MOD-INT ARG»		
96.20 TO 99.00	«FAULT» «GOUGE»	Major fault zone 60% clay gouge. ↓97.8-98.3↓ 90% clay gouge w\ minor py		«INT ARG» «EXT ARG»	3% disseminated py	this is probably I.P. anomaly.
99.00 TO 105.30	«PERLITE»	Pale grey, fine grained, finely banded, f.b. rhyolite overprinted by perlitic textures. Flow banding most apparant in upper 2m. Bands <1cm at lower contact "islands" of glassy unperlitized rhyolite remain. These are more silicious, less argillic like underlying rhyolite unit.	25	«MOD ARG»		
105.30 TO 132.60	«FLOW BAND RHYOLITE»	Dark grey, fine grained glassy unaltered flow banded rhyolite. Upper perlite represents alteration (hydration) halo around fault. Darker the rock the more silicious upper contact w\ perlite is "patchy". Rhyolite is flow banded and has variable feldspar microcrystals. ↓111.9-112.2↓ «FAULT» ↓118.5-120.9↓ «FRACTURE ZONE» fractured and ↓122.0-125.6↓ «FRACTURE ZONE» bleached zone with ↓128.4-132.6↓ «FRACTURE ZONE» some white clay. ↓124.4-132.6↓ «CALCITE VN» 3cm barren fracture fill.	45          20	«ST SIL» «PATCHY MOD ARG» minor calcite stringers.  «MOD ARG» flow bands are hematite hairlines with weak chloritic halos.	trace of sulphides.	Contains bleached fracture zones.

HOLE NUMBER: CL-92-20

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 11-December-1992

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
132.60 TO 132.70	«E.O.H.»					

HOLE NUMBER: CL-92-20

ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			

HOLE NUMBER: CL-92-21

MINNOVA INC.  
DRILL HOLE RECORD

IMPERIAL UNITS:

METRIC UNITS: X

PROJECT NAME: 1992  
PROJECT NUMBER: 667  
CLAIM NUMBER:  
LOCATION: WEST LAKE ZONE

PLOTTING COORDS GRID: UTM  
NORTH: 41375.00N  
EAST: 29050.00E  
ELEV: 1320.00

ALTERNATE COORDS GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 1320.00

COLLAR DIP: -45° 0' 0"  
LENGTH OF THE HOLE: 76.80m  
START DEPTH: 0.00m  
FINAL DEPTH: 76.80m

COLLAR GRID AZIMUTH: 90° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 90° 0' 0"

DATE STARTED: August 18, 1992  
DATE COMPLETED: August 19, 1992  
DATE LOGGED: August 26, 1992

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

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

CONTRACTOR: FRONTIER DRILLING  
CASING: 10' LEFT IN HOLE  
CORE STORAGE: CAMP

PURPOSE: TO TEST IP ANOMALY AND VEINS FOUND IN TRENCH ALONG STRIKE TO SOUTH

DIRECTIONAL DATA:

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

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 25.90	«CASING»					
25.90 TO 28.00	«FAULT»	Oxide yellow iron stained fault gouge containing rounded sand to pebble sized heterolithic clasts. Some clasts silicified with veinlets visible, other clasts are grey chalcedony.	30	Strongly weathered and «MOD ARG» alt.	none	50% RECOVERY
28.00 TO 31.80	«SILICIFIED FAULT»	Oxide yellow, same fault but dominated by angular clasts of grey and/or pyritic chalcedony and white-yellow quartz. Partly resilicified but highly fractured and very porous.	10	«MOD SIL»	«1% PYRITE»	50% RECOVERY
31.80 TO 44.80	«GOUGE»	Pyritic quartz clasts, sand to pebble sized, in gouge matrix. Rare vein or breccia frag to 10cm		«INT ARG»	«1-2% PYRITE»	60% RECOVERY
44.80 TO 76.80	«FAULT»	Most fault gouge washed away leaving clasts of hydrothermal quartz vein and breccia, and strongly argillized feldspar crystal tuff. ↓52.7-58.2↓ «TRICONE» No recovery. ↓76.7↓ Pink orange mineral stain - orp? hem?		«ST ARG»		20% RECOVERY
76.80 TO 76.80	EOH					

HOLE NUMBER: CL-92-21

## ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
38084	26.00	32.60	6.60	2.6	152	324	14	2.02	11	18	11	197	1620	0.22		
38085	32.60	35.70	3.10	5	170	154	39	4.11	8	20	8	148	5070	5.19		
38086	35.70	40.20	4.50	3.8	484	179	25	2.66	5	24	6	136	1200	2.86		
38087	40.20	43.20	3.00	2.7	59	1088	13	2.17	2	8	35	28	715	2.37		
38088	43.20	52.70	9.50	11.9	151	429	14	0.84	5	13	12	104	505	0.66		
38089	58.20	67.70	9.50	7.8	264	1256	14	0.97	6	44	18	109	1230	0.08		
38090	67.70	76.80	9.10	2.4	125	202	6	0.59	7	19	12	58	300	0.03		

HOLE NUMBER: CL-92-21

ASSAY SHEET

PAGE: 3



HOLE NUMBER: CL-92-21

RQD ASSAY

DATE: 11-December-1992

From (m)	To (m)	Length (L)	Sum Of Length S <sub>&gt;= 0.00cm</sub>	RQD S/LX100	Number Of Fracturs	Fracturs Per Metres	Number Of Veins	Veins Per Metres	Angle	Comments
0.00	0.00	0.00	0.00	0	0	0	0	0	0	



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 27.40	«CASING»	Overburden.				
27.40 TO 33.50	«OXIDE ZONE -FXT»	Orange, strongly oxidized feldspar crystal tuff or ash flow. Looks tuffaceous but wavy banding in fg ash? layers suggest flowage. Textural variability suggests ash flow origin.	35	«PATCHY SIL, ST FE OX» Strongly oxidized, variable patchy silicification along some 2-3cm beds.	«TRACE PYRITE» preserved in silicified patches, otherwise oxidized.	
33.50 TO 43.50	«QUARTZ STOCKWORK-FXT»	Orange and grey, weak to moderate grey-black quartz stockwork. Black sulphidic veinlets to 2cm generally <1cm. Host rock is feldspar crystal rich ash flow tuff with irregular bedding or flow laminations and rare lapilli frags <1cm, 5%, feldspars 1-6mm, 30%.  33.5 - 34.2  «Black Sulphidic Quartz Vein» 2cm wide	10	«MOD-ST ARG, PATCHY ST SIL»	«1-5% PY» in grey to black quartz veins and stringers «TRACE BLACK (SILVER?) SULPHIDE» along vein selvages.  «5% pyrite»	Quartz stringers at low angle to core axis indicate drilling down dip.
43.50 TO 46.90	«FAULT ZONE -LAPILLI TUFF?»	Grey-green, cg heterolithic breccia of <1cm-10cm angular frags of feldspar crystal tuff, aphanitic clay altered frags and grey quartz vein material. Looks like a lapilli tuff but gouge zones indicate a tectonic origin of overprint.		«ST-INT ARG, PATCHY SIL» Weak black quartz stockwork throughout interval.	«3% PYRITE» in broken stringers.	
46.90 TO 49.20	«FELDSPAR CRYSTAL-ASH TUFF»	Pale grey, mg tuffaceous interbed of feldspar crystal ash tuff. Weak fabric at 90 to CA may be bedding or weak welding.	90	«MOD-ST ARG» Weak quartz-pyrite stringers. Increasing silicification to bottom of interval, accompanied by pervasive iron staining, feldspars clay altered.	«1-2% PYRITE» in quartz stringers.  ***RUBY SILVER*** noted at 47.7m	Host rock is continuous feldspar crystal tuff down to fault at 99.7m.
49.20 TO 52.00	«LITHIC LAPILLI TUFF»	Pale grey, cg, silicified heterolithic lapilli tuff of subrounded to angular frags of welded feldspar crystal tuff, ash tuff and rare perlitic rhyolite. 90% of frags <2cm, 10% up to 10cm, in a lithic crystal rich matrix.	35 20	«ST SIL» is pervasive but some frags remain strongly argillized. Weak to moderate stockworking increases down section	«1-3% PYRITE» mainly restricted to quartz stringers. Patches of matrix are grey and silicified but don't carry significant sulphide.	Upper contact is gradational, but fractured and shows iron oxide halo above and below contact.
52.00 TO 57.00	«BLACK QUARTZ BRECCIA»	Black and white, cg monolithic hydrothermal breccia of feldspar crystal ash tuff. Frags angular <1cm to 20cm, at least three phases of brecciation: frags of argillized wall rock, white to grey banded quartz vein and wall rock and rebrecciated frags of same, cemented by black sulphidic fg quartz. Stockwork stringers of latest black quartz cut peripheral wall rock. Minor local ashy interbeds 1-2cm		«MOD-ST ARG FRAGS, INT SIL MATRIX» Fragments strongly argillized, some overprinted by strong silicification. Feldspars gone to green clay. Three narrow zones (<10cm) of strong iron stained wall rock at 55.5, 56 and 56.5m.	«3-10% PYRITE» in black quartz matrix also «TRACE BLACK SULPHIDE» probably aca nthite, sparsely disseminated throughout, mainly visible in pre-sulphide banded white to grey quartz. Black sulphide at 55.8m and 53.2m.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		thick are well bedded at 25. bedding Upper contact appears conformable. Latest quartz phase is vuggy white and barren.	25			
57.00 TO 67.20	«QUARTZ STOCKWORK»	Grey patchy moderate to strong black quartz+pyrite stockwork stringers with local jigsaw breccias containing a second phase of fg grey quartz and less often a third phase of vuggy white crystalline quartz. Hosted by bedded weakly welded feldspar crystalline tuff. vitric shards welded into planes @ Feldspars 2-4mm 15-20% in vitric shard rich matrix  59.9-59.2  «Quartz Breccia» Stockwork blowout, jigsaw breccia as above.  61.4-62.1  «Quartz Breccia» as above.  64.0-64.5  «Oxide Zone-Quartz Vein» Fe stained hanging wall to 2cm qtz vn  66.0-66.5  «Quartz Breccia» as above.	30	«MOD ARG» alteration of wall rock. Strongly stockworked and brecciated areas are moderately silicified. feldspars altered to green clay.	«3-5% PYRITE» in mm black quartz stringers and as mm selvages and fragment rims in local breccias. Occurs only in first phase quartz, accompanied by. «TRACE BLACK SULPHIDE»	Veins at low angle to core axis.
67.20 TO 69.10	«QUARTZ BRECCIA»	Black to grey, cg monolithic hydrothermal breccia of same welded crystal ash tuff. Angular frags <1cm to 30cm, almost clast supported, locally jigsaw. Three phases evident: silicification and pyritization of wall rock fragments, intense brecciation and cementation by pyrite rich black quartz, then minor brecciation and vuggy cementation by barren grey quartz.		«ST ARG, ST SIL» wall rock frags have been strongly argillized, bleached, then overprinted by strong silicification and patchy pyrite.	«3-10% PYRITE» as mm selvages ripps and blebs within the matrix. Also occurs as sil-py replacement in altered frags.	Trace grey sulphides may occur with pyrite along vein selvages.
69.10 TO 78.20	«QUARTZ STOCKWORK»	Moderate grey to black quartz stockwork stringers with minor blowout jigsaw breccias. Both carry abundant fg pyrite, some frags are also pyritic. Paragenesis is: sil-py alteration and brecciation, cementation by pyrite rich grey quartz mixed with black sulphidic? quartz, lesser brecciation and cementation by vuggy grey barren quartz.  76.3-77.1  «Pyrite Breccia» black sulphidic? qtz		generally «MOD-ST ARG» alteration of wall rock, with patchy «MOD SIL» overprint, feldspars gone to pale green clay, some breccia frags are silicified and pyritic. Minor white clay in late vugs	«3-10% PYRITE» in black quartz stringers and blowout breccias. Opaque black quartz may carry black sulphide?	
78.20 TO 87.50	«OXIDE ZONE»	Orange-brown oxidation halo around fault, overprints weak bull quartz stockwork.  79.3-81.1  «Fault» Oxidized gouge.		«ST FE OX» Strong fe stained feldspars.	«TRACE GREY SULPHIDE» remains, all pyrite has been leached.	
87.50 TO 99.70	«QUARTZ STOCKWORK»	Orange to grey, weak to moderate quartz stockwork with patchy late fe oxide overprint. Minor blowout breccias carry abundant pyrite. Smokey quartz line s vein walls and appears to replace mm selvages within the wall rock. This is followed by grey pyrite rich quartz, then late white bull quartz. Oxid		generally «ST ARG, W SIL» alteration with late fracture controlled «PATCHY FE OX»  88.5-89.5  «Oxide Zone»  90.5-91.0  «oxide Zone»	«3-5% PYRITE» in quartz stringers and breccias. purple iridescent bladed sulphide noted at 89.4m, black opaque sulphidic? quartz at 92.0m	Smokey quartz and opaque black quartz are new observations.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		e zones are late fracture controlled. ‡89.5-90.5‡ «Pyritic Quartz Breccia»				
99.70 TO 108.90	«FAULT ZONE»	Wide zone of fracturing and brecciation, pale grey gouge 60%		«INT ARG»	«1% PYRITE» in disrupted qtz stringers	
108.90 TO 113.90	«RHYOLITE BRECCIA»	Mixed interval of green and red chloritic and hematitic flow breccia, perlite and minor gougy fracture zones.		«ST CHL, HEM, PATCHY ST ARG»	«TRACE PYRITE» in late clay filled fractures.	
113.90 TO 133.00	«FLOW BAND RHYOLITE»	Pale green relatively homogenous interval of flow banded rhyolite, banded accentuated by red hematite, late fractures filled by white clay and calcite banding @6 ‡132.0-132.1‡ «Quartz Breccia» drusy	80	«MOD HEM, CHL» hematite occurs as alteration of flow bandes, chlorite as halos around late fractures. «ST SIL»	«TRACE PYRITE» in late fractures. «3% PYRITE»	This breccia suggests that faulting is syn rather than post mineralization, allowing some leakage into footwall rhyo.
133.00 TO 137.30	«PERLITE - SPHERULITES»	Pale green fg perlitic rhyolite with scarce spherulites averaging 5cm.		«MOD SIL» minor late fractures coated with white clay.		
TO 157.60						
137.30 TO 157.60	«RHYOLITE» EOH	Very pale green, mixed interval of perlite, hematitic breccia and flow banded rhyolite. minor late fractures. flow bands @	70	«MOD ARG» minor clay in late fractures.	«TRACE PYRITE» with clay.	

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
38001	28.00	30.00	2.00	3.6	749	172	5	1.44	10	16	11	72	755			
38002	30.00	32.00	2.00	5.7	485	267	12	0.99	8	8	9	106	1085			
38003	32.00	33.50	1.50	11.4	1198	578	12	1.26	9	27	10	220	2445			
38004	33.50	35.50	2.00	5.9	538	433	28	1.28	11	21	8	216	2095			
38005	35.50	37.50	2.00	7.9	1091	718	13	1.71	7	25	11	385	2850			
38006	37.50	39.50	2.00	2.5	427	490	17	1.55	13	7	4	148	1585			
38007	39.50	41.50	2.00	5	890	690	22	1.66	7	32	6	198	1730			
38008	41.50	43.50	2.00	7.6	2492	560	51	1.97	14	85	4	399	1030			
38009	43.50	45.00	1.50	4.4	789	295	28	1.29	5	16	7	103	675			
38010	45.00	46.90	1.90	4	784	155	20	1.83	15	25	4	124	640			
38011	46.90	49.20	2.30	6.9	521	229	16	1.3	7	13	6	100	2230			
38012	49.20	51.00	1.80	22.4	424	342	10	1.25	5	11	6	59	845			
38013	51.00	52.00	1.00	3.8	215	559	18	1.32	8	14	2	47	705			
38014	52.00	53.00	1.00	8.3	605	767	29	1.81	9	31	3	136	2435			
38015	53.00	54.00	1.00	5.8	697	468	44	1.95	10	27	5	149	1045			
38016	54.00	55.00	1.00	7.6	895	532	39	1.98	5	52	3	226	2515			
38017	55.00	56.00	1.00	7.6	739	341	47	1.93	8	47	5	159	2450			
38018	56.00	57.00	1.00	14.6	1050	1074	43	1.96	9	61	7	248	3780			
38019	57.00	58.00	1.00	2.7	409	614	12	1.04	8	22	19	71	735			
38020	58.00	59.00	1.00	4.5	721	323	13	1.37	12	41	24	94	615			
38021	59.00	60.00	1.00	1.5	160	238	11	0.96	9	12	24	20	320	1.13		
38022	60.00	61.00	1.00	2.3	191	545	12	1.01	10	14	6	24	425	1.19		
38023	61.00	62.50	1.50	3.3	340	323	10	1.12	11	21	4	68	870	1.17		
38024	62.50	64.50	2.00	2.8	152	550	11	0.71	10	21	4	35	1555	0.54		
38025	64.50	66.00	1.50	3.9	344	463	34	1.14	11	21	23	52	1010	1.29		
38026	66.00	67.20	1.20	7.3	553	341	19	1.4	12	35	10	69	830	1.55		
38027	67.20	69.10	1.90	4.8	1271	514	13	1.85	13	51	20	160	1310	2.13		
38028	69.10	71.10	2.00	3.3	383	356	14	1.11	12	23	5	49	1000	1.26		
38029	71.10	73.10	2.00	3.7	388	408	15	1.4	13	24	4	50	845	1.64		
38030	73.10	75.10	2.00	2.3	204	462	15	1.05	10	13	3	35	430	1.18		
38031	75.10	76.30	1.20	4	299	1002	8	1.27	11	21	2	76	865	1.47		
38032	76.30	77.10	0.80	8.6	768	215	19	5.75	7	48	10	129	2160	6.28		
38033	77.10	78.20	1.10	3.5	484	1389	18	1.44	8	18	3	68	555	1.72		
38034	78.20	81.20	3.00	2.1	351	867	5	1.06	10	49	12	47	235	0.08		
38035	81.20	83.20	2.00	5.8	628	1290	5	1.54	13	32	16	41	495	0.05		
38036	83.20	85.20	2.00	3.1	359	207	3	1.03	8	19	12	13	215	0.03		
38037	85.20	87.50	2.30	7.8	446	1234	97	1.15	12	20	3	138	1450	1.24		
38038	87.50	88.50	1.00	3.3	641	905	4	1.8	9	46	17	45	155	0.05		

HOLE NUMBER: CL-92-22

ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	S %
38039	88.50	89.50	1.00	24	564	1526	5	1.5	12	44	14	104	1345	0.07
38040	89.50	90.50	1.00	7.5	385	374	84	1.26	11	17	3	49	935	1.33
38041	90.50	92.50	2.00	2.4	505	1101	21	1.01	10	39	6	78	610	0.75
38042	92.50	94.50	2.00	2.6	295	584	10	1.06	11	34	5	135	575	0.85
38043	94.50	96.50	2.00	2.3	397	552	26	0.59	7	18	4	118	395	0.54





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 30.50	«CASING»					
30.50 TO 30.80	«OVERBURDEN»	FB rhyolite				
30.80 TO 32.20	«WACKE»	Reworked, volcanically derived epiclastic, poorly bedded @	50 70			
32.20 TO 75.00	«STOCKWORK-FAULT ZONE»	<p>Strong qtz stockworking in wide fault and fracture zone. Host is exceptionally amygdaloidal andesite flow breccia (frags 2-20 cm). Dense amygdules mm-2 cm in size lined with drusy white qtz stockwork veins of grey to black qtz are moderately pyritic. Minor blow out breccias occur locally, stockwork veins disrupted by latest faulting. Interval is extensively sheared and gougy. Widest competent interval is approx. 2 m</p> <p>{34.1-34.6} «black qtz bx» -indistinct frags, barren white qtz argillic wall rock and minor blue opal frags in grey f.gr. qtz matrix, 2 or 3 phases of brecciation</p> <p>{36.0-37.2} «grey qtz bx vein» -2 phase, white qtz and w/r indistinct frags cemented by grey f.gr. qtz as above</p> <p>{37.9-38.2} «FAULT» -gouge zone</p> <p>{39.7-42.8} «FAULT» -gouge zone</p> <p>{43.7-44.8} «Amyg Ande» @ 30-40 deg. -competent interval of massive, weakly amygdaloidal andesite</p> <p>48.1-48.8 «black qtz bx vein», 2 phase, indistinct white qtz frags, minor pyrite</p> <p>56.1-56.8</p>	<p>30</p> <p>30</p>	<p>«ST-INT ARG» -interval is intensely argillically altered, approx. 40% is sheared and gougy  -intense argillization decreases down section</p> <p>{34.1-34.6} «int sil»</p> <p>{36.0-37.2} «int sil»</p> <p>{37.9-38.2} «int arg»</p> <p>{39.7-42.8} «int arg»</p> <p>{43.7-44.8} «mod arg»</p> <p>{48.1-48.8} «int sil»</p> <p>{56.1-56.8} «int sil»</p>	<p>«3-5% pyrite» -in black quartz stringer and breccia</p> <p>{34.1-34.6} «1-3% py»</p> <p>{48.1-48.8} «1% py»</p> <p>{56.1-56.8} «5% py»</p>	<p>Fault movement has been syn and post mineralization as demonstrated by broken stockwork veins in gougy zones and silicified gouge fragments within stockwork breccias</p>

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>«black qtz bx vein», single phase? "swirly" grey to black qtz bands, locally fibrous with green tinge</p> <p>64.5-66.1 -competent interval of weakly amygdaloidal andesite</p> <p>↓73.8-74.1↓ «FAULT» -gouge</p>	60	↓64.5-66.1↓ «mod arg»	-in black qtz and within amygdaloidal frags	
75.00 TO 89.70	«STOCKWORK-BRECCIA»	<p>Colour: black and grey Intensely silicified wall rock hosts strong black quartz stockwork and minor breccias veins, &lt;1 cm @ veins @ veins @ Host rock is intensely silicified, heterolithic lapilli tuff (or possibly fault breccia)</p> <p>This interval is cut by later grey to white chalcedonic quartz breccia veins carrying significant black (silver?) sulphide</p> <p>↓77.5-78.8↓ «QUARTZ BRECCIA» -white to grey chalcedonic quartz veins cut black quartz stockwork, white quartz shows minor banding and one instance of bladed calcite replacement</p> <p>↓83.4-84.0↓ «QUARTZ BRECCIA» -white vuggy, e.g. bull quartz</p> <p>↓86.0-86.5↓ «QUARTZ BRECCIA» -black quartz jigsaw breccia plus later 2 cm f.g. grey quartz vein lacking obvious sulphide</p> <p>↓89.1-89.7↓ «QUARTZ BRECCIA» -f.g. quartz cuts earlier black quartz stockwork</p>	15 50 90	<p>«int sil» -rare frags remain strongly argillized</p> <p>↓77.5-78.8↓ «int sil, ab. Fe oxide»</p> <p>↓83.4-84.0↓ «int sil» abundant Fe oxide</p> <p>↓86.0-86.5↓ «int sil»</p> <p>↓89.1-89.7↓ «int sil»</p>	<p>-1-3% visible pyrite in black quartz</p> <p>↓77.5-78.8↓ «tr black sulphide» -significant black (silver) sulphide in white quartz is distinctly post pyrite</p> <p>-none</p> <p>↓86.0-86.5↓ «1-3% py, tr black sulphide» -in black quartz matrix, trace black sulphide in early grey quartz frags</p> <p>-none</p>	<p>Heterolithic breccia frags suggest host is lapilli tuff, but apparent quartz vein frags suggest fault breccia</p> <p>-barren</p> <p>-very similar to CL-91-22</p> <p>Later f.g. grey quartz similar to previous interval, looks barren</p>
89.70 TO 99.70	«STOCKWORK»	<p>Moderate black quartz stockwork. veins &lt;1 cm. Minor blowout jigsaw breccias</p> <p>Host is apparently silicified fault gouge, very grungy, argillized, overprinted by silicification black quartz and stockwork</p>		<p>«st sil, st arg»</p> <p>-late 1-2 cm f.g. grey quartz veins</p>	«1-3% pyrite» in black quartz stringer	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		↓97.7-99.7↓ «QUARTZ BRECCIA» -f.gr. white to grey qtz "vein" is more like qtz flooded and replaced wall rock, fragments are washed out and indistinct. Quartz is moderately vuggy, grey patches, may be sulphidic		↓97.7-99.7↓ «int. sil»	↓97.7-99.7↓ «tr py + mc» -in patchy grey quartz	
99.70 TO 102.60	«FAULT»	-90% clay gouge shear fabric @ 50-70 deg to c.a.		«int. arg»	«trace py»	
102.60 TO 103.80	«SILICIFIED FAULT BRX»	Colour: grey to black Grain size: c.gr. Angular to rounded, intensely silicified wall rock and rebrecciated pyritic quartz frags in a coarse pyrite rich black quartz matrix. Lithology of fragments - indeterminate ↓103.3-103.6↓ «PYRITIC BRECCIA» -strongest concentration of pyrite in fault breccia		«int sil» ↓103.3-103.6↓ «int sil»	«3-5% pyrite» c.gr. euhedral cubes in quartz matrix and quartz frags ↓103.3-103.6↓ «10-15% py»	
103.80 TO 104.80	«SILICIFIED FAULT BRX»	Colour: pale green Grain Size: c.gr. Silicified fault gouge comprised of balliferous rhyolite, 1-2 cm balls actually form 50% of the fragments, the rest are subrounded <1 cm rhyolite clasts -contact (qtz vein) @ 40-60 deg		«st. sil» -rock was once intensely argillized and gougey, now overprinted by st. silicification	«1-3% py» in late qtz stringers	Upper and lower contacts are sharp and occupied by a banded qtz-py vein 1 cm wide in both cases
104.80 TO 108.80	«STOCKWORK»	Colour: buff Weak quartz stockwork stringers with banded pyrite Host rock is spherulitic flow banded rhyolite brx, probably still part of the upper fault breccia rather than depositional		«st. sil» overprints moderate argillic alteration	«1-3% pyrite» -in late <1 cm grey quartz stringers	Spherulite contact decreases downstream suggesting balls are an alteration feature in fault zone.
108.80 TO 139.20	«RHYOLITE»	Colour: pale green Strongly altered grungy non-descript looking rhyolite, locally perlitic or flow brecciated		«ST ARG, ST CHL» -obscures original textures	«1% pyrite» -in sporadic late vuggy qtz fracture fill	
139.20 TO 151.50	«RHYOLITE BRECCIA»	Colour: pale green Same grungy alteration but primary textures now evident as classic flow banded rhyolite breccia		«MOD ARG, ST. CHL»		

HOLE NUMBER: CL-92-23

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 11-December-1992

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
151.50 TO 185.00	«RHYOLITE BRECCIA»	Colour: green and red Hematitic matrix rhyolite breccia. Flow banded and perlitic frags. Minor late calcite fracture fill  E.O.H.		«W. ARG» «MOD CHL HEM» -classic, fizzy propylitic alteration	«trace diss. py»	

HOLE NUMBER: CL-92-23

DRILL HOLE RECORD

LOGGED BY: PETER THIRSCH

PAGE: 5

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS		
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb					
38059	0.00	0.00	0.00															
38060	32.00	34.10	2.10	1.9	212	115	27	3.77	12	17	82	58	1040	3.93				
38061	34.10	36.00	1.90	2.2	146	74	16	2.57	5	17	47	36	910	2.77				
38062	36.00	37.90	1.90	2.9	371	46	19	2.89	11	29	56	81	2500	3.35				
38063	37.90	39.70	1.80	2	214	54	21	3.14	10	25	52	82	1480	3.7				
38064	46.10	48.10	2.00	1.3	283	44	18	3.12	7	25	58	51	1685	3.38				
38065	48.10	48.80	0.70	0.8	143	38	10	1.55	5	11	28	26	700	1.55				
38066	48.80	50.30	1.50	1.9	447	48	18	3.44	7	28	63	42	1555	3.78				
38067	51.80	53.90	2.10	2.4	635	44	23	3.28	7	30	63	92	1780	3.74				
38068	53.90	56.10	2.20	2.4	1195	120	15	3.04	12	49	77	118	955	3.28				
38069	56.10	56.80	0.70	1	265	29	10	1.78	5	16	32	50	625	1.96				
38070	56.80	58.90	2.10	1.7	742	59	20	3.07	10	28	62	88	1075	3.34				
38071	60.00	62.00	2.00	1.5	482	59	16	3.68	11	15	48	83	525	4.11				
38072	62.00	64.50	2.50	1.6	278	67	15	2.77	10	9	41	116	345	3.15				
38073	64.50	66.10	1.60	0.9	466	61	21	2.92	12	14	65	87	410	3.07				
38074	66.10	68.10	2.00	1.8	718	52	24	3.09	11	17	61	97	335	2.93				
38044	68.10	70.00	1.90	1.6	695	42	26	2.89	11	13	60	84	285	2.24				
38045	75.00	77.50	2.50	1.5	102	50	13	0.46	6	5	22	61	325	0.31				
38046	77.50	78.80	1.30	1.7	94	98	10	0.58	8	6	14	36	395	0.3				
38047	78.80	80.80	2.00	2.1	252	108	13	0.81	12	10	16	33	755	0.65				
38048	80.80	82.70	1.90	1.2	195	85	11	0.74	8	6	21	25	650	0.61				
38049	82.70	83.40	0.70	1.2	132	94	9	0.64	9	3	32	24	185	0.49				
38050	83.40	84.00	0.60	2.4	45	57	8	0.39	5	2	9	38	65	0.14				
38051	84.00	86.50	2.50	1.2	156	85	10	0.69	9	4	18	28	435	0.34				
38052	86.50	87.50	1.00	1.8	164	83	21	0.97	9	6	17	37	450	0.41				
38053	87.50	89.10	1.60	1.9	87	87	19	0.93	7	6	23	24	185	0.17				
38054	89.10	89.70	0.60	1.2	114	34	6	0.63	6	4	20	38	200	0.23				
38055	89.70	91.70	2.00	1.6	178	65	11	0.92	13	4	30	30	215	0.72				
38056	91.70	93.70	2.00	1.7	150	52	12	0.69	9	3	25	16	125	0.64				
38057	93.70	95.70	2.00	0.9	154	43	7	0.73	13	3	29	19	90	0.65				
38058	95.70	97.70	2.00	1	56	46	21	0.43	6	2	34	10	45	0.3				
38075	97.70	99.70	2.00	1.7	116	84	27	0.87	6	6	21	5	40	0.59				
38081	102.60	103.80	1.20	19.6	189	69	86	2.32	13	7	50	82	25	2.42				
38082	103.80	104.80	1.00	1.4	100	57	22	1.04	10	5	31	27	110	1.18				
38083	104.80	106.80	2.00	1	137	68	18	1.56	11	5	44	30	85	1.88				
38083	106.80	108.80	2.00	2.3	231	65	31	1.08	12	10	61	124	95	1.25				



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 9.10	«CASING»					
9.10 TO 23.90	«FQXT»	Orange, coarse grained, moderately silicified, oxidized FQXT with recrystallization of qtz eyes.	45	Patchy mod-strong silicification and weak argillic alteration. «m-s Sil»	Trace of sulphides. Pyrite cubes <1mm.	
23.90 TO 24.40	«GOUGE»	White clay gouge with silicified clasts and minor broken vein material.		Strong arg alt. «s. arg»		
24.40 TO 27.70	«FQXT»	This interval is more silicified and fractured and grades into an aphanitic ash tuff.	30	Some druzy vugs, mod-strong silicifctn and mod arg alt. «m-s sil; m arg»	Trace of pyrite.«py tr»	
27.70 TO 28.50	«FAULT»	Oxidized gouge with silicified clasts. Pyritic stockworking.		«sil clasts»	«Py stwk - 1-2%»	
28.50 TO 32.30	«HYDROBRX»	Orange, grey, white, highly fractured, oxidized black matrix brx. Minor post brx druzy qtz veins. ‡29.4-29.7‡ intense silicification. ‡32.25-32.3‡«FAULT»		Strong silicification. «s.sil» «i.sil»	«1-2% py»	
32.30 TO 32.60	«ASH TUFF»	Grey fine grained ash tuff with some welding textures. The occasional subhedral qtz eye and 5% green clay altered feldspar frags <4mm. This unit grades into FQXT.	60	Silicification increases with depth. «m.sil»	Trace of pyrite as cubes <1mm. «Py tr»	This ash tuff unit seems to have hosted the mineralization.
32.60 TO 100.40	«FQXT»	Grey to orange xtal tuff. Silicified throughout with variable intensity. Patchy oxidized intervals in the more fractured zones. Grain size varies from aphanitic to feldspars 1.5cm long. Druzy fracture surfaces and partly healed fractures common with occasional qtz veinlet. Grades into ash tuff at bottom of this interval. ‡37.5-42.3‡ oxidized fracture zone. ‡66.2-74.0‡ oxidized fracture zone. ‡77.6-77.7‡ small fault. ‡83.0-83.5‡ «fault» ‡85.4-86.0‡ «silicified fault bx.» ‡92.0-95.4‡ «oxidized fracture zone.»		‡37.5-42.3‡ «Oxidized Fracture Zone» ‡66.2-74.0‡ «Oxidized Fault Zone» ‡85.4-86.0‡ «s.sil - Fault Bx» ‡92.0-95.4‡ «Oxidized Fault Zone»		

HOLE NUMBER: CL-92-24

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 11-December-1992

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
100.40 TO 100.80	«FAULT»	Top 20cm is silicified and flooded with fine grained pyrite. Bottom half is white and gougy and grades into FBR.	60	Strong arg alt. «s.arg»	«1-2% py»	FQXT/FBR contact.
100.80 TO 107.00	«FAULT ZONE»	Highly fractured perlitic and flow banded rhyolite with intermittent 10-30 cm gouge zones and local black qtz healed fault bx.				
107.00 TO 168.60	«RHYOLITE»	Green rhyolite with flow banding and perlitic textures. Flow breccias, hematitic matrix breccias and minor faults throughout. Mod arg alt.  116-118 «fault zone»  122-126 «fault zone»  153-155 «flow breccia»  159-165 «hematitic breccia»				
168.60 TO 168.60	«EOH»					

HOLE NUMBER: CL-92-24

DRILL HOLE RECORD

LOGGED BY: GREG DUSO/PETE THIERSCH

PAGE: 3



HOLE NUMBER: CL-92-24

ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
38076	23.70	25.70	2.00	0.2	43	95	6	0.67	7	3	19	22	70	0.01		
38077	25.70	27.70	2.00	0.7	77	101	6	0.97	13	2	18	33	85	0.59		
38078	27.70	29.70	2.00	1.8	174	206	19	2.36	7	5	50	79	110	0.76		
38079	29.70	32.30	2.60	1	62	587	14	0.92	5	2	21	39	135	0.16		
38080	32.30	34.30	2.00	0.5	66	82	10	1.09	18	1	25	26	55	0.47		



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 46.30	«CASING»					
46.30 TO 56.30	«STOCKWORK FAULT ZONE»	<p>Colour: yellow and grey Amygdaloidal andesite fault zone, 40% gouge. Mod. white to grey qtz stockwork with abundant pyrite</p> <p>Paragenesis difficult to see but appears that white qtz is later, and vague bladed textures suggest calcite replacement</p> <p>veins @</p> <p>Post mineral faulting has disrupted more than one half of the stockwork stringers</p>	45	«INT. ARG» abundant yellow-green clay in amygdules and late fractures	«1-5% PY» -in late stringers and in earlier broken qtz stringers	Syn and post mineralization. Fault movement
56.30 TO 57.00	«SILICIFIED FAULT BRECCIA»	<p>Colour: grey -&lt;2 cm angular argillic wall rock frags cemented by grey f.gr. qtz</p>		«ST ARG, MOD SIL» -alteration of wall rock	«1-3% PY» -mainly replacing wall rock frags	
57.00 TO 59.80	«QUARTZ VEIN»	<p>Colour: light grey Grain Size: f.gr. Broken interval of what looks like massive f.gr. white qtz vein. On closer inspection several different textures become apparent. At least half of the interval is totally silica replaced wall rock, which might have been a bedded crystal tuff or wacke. Half of the "vein" has a fibrous texture, suggesting replacement of calcite blades, breccia textures of white sil wall rock/qtz in black qtz matrix are minor and rather washed out. Smokey brown calcite disseminated locally.</p> <p>Banded, black sulphidic quartz @ 58.4 m is most interesting feature, black bands are visibly sulphidic and separate fibrous white qtz from apparent silicified wall rock breccia</p>		«Int sil» -of wall rock, possible replacement of bladed calcite	«tr black sulphide» -barren of pyrite, but trace black sulphide in banded sutures @ 58.4 m	
59.80 TO 61.50	«SILICIFIED FAULT BRECCIA»	<p>Colour: dark grey Grain Size: c.gr. Intensely silicified and pyritic fault breccia frags, 22 cm of sil rock and qtz vein material. Rare white banded qtz vein frags differs from above interval in sulphide and wall rock content</p>		«int sil»	«5-10% py» -in grey qtz bx matrix	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
61.50 TO 62.30	«FAULT»	-90% clay gouge	45	«int arg»	-trace pyrite»	
62.30 TO 70.40	«RHYOLITE BRECCIA»	Colour: grey green Grungy interval of fracture gougey breccia consisting of perlitic and flow banded rhyolite ‡63.8-65.0‡ «hematitic breccia» ‡65.0-65.2‡ «fault»		«str. int. arg» «mod chl» -locally gougy		
70.40 TO 73.50	«SIL ZONE»	Silicified perlitic rhyolite. Interval hosts 2x 2cm black qtz healed wall rock microbreccia @ ‡71.3-71.6‡ «black qtz vein» and ‡72.6-72.9‡ «wht. qtz bx» -white c.gr. bull qtz heals a wall rock breccia of 1-2 cm angular frags matrix supported	60	«mod sil» ‡71.3-71.6‡ «int sil»	«tr py» ‡71.3-71.6‡ «1-2% sulphide»	
73.50 TO 101.20	«RHYOLITE BRECCIA»  E.O.H.	Colour: grey green Mixed highly fractured locally gougy interval of perlitic and flow banded rhyolite. Minor feldspar phytic interval between 74-77m ‡80.0-85.6‡ «Fault» Gouge		«st.- int arg» -mod chl	«tr py»	

HOLE NUMBER: CL-92-25

## ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
	0.00	0.00	0.00	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPB	PPB	%		
	0.00	0.00	0.00													
38091	46.30	47.90	1.60	1.9	533	124	50	2.45	4	14	60	41	690	2.75		
38092	47.90	49.90	2.00	1.5	361	170	40	2.36	4	4	38	30	520	2.2		
38093	49.90	52.00	2.10	1.4	457	157	44	2.96	7	9	73	36	610	2.51		
38094	52.00	54.00	2.00	2.7	691	188	46	2.88	6	13	123	51	1130	2.44		
38095	54.00	56.00	2.00	2.6	635	130	27	2.85	5	10	102	81	870	2.27		
38096	56.00	57.00	1.00	1.9	289	99	16	1.34	2	3	57	35	400	1.13		
38097	57.00	59.80	2.80	24.7	34	22	11	0.29	3	4	8	32	25	0.09		
38098	59.80	61.50	1.70	4	270	45	17	1.27	6	13	20	56	110	1.3		
38099	61.50	62.30	0.80	1	187	73	14	1.6	7	7	46	9	75	1.71		
38100	62.30	64.20	1.90	0.8	283	173	20	1.39	27	6	78	50	60	0.92		
38101	71.30	73.30	2.00	0.6	326	150	27	1.13	3	2	41	41	50	0.34		

HOLE NUMBER: CL-92-25

ASSAY SHEET

PAGE: 4



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 15.20	«CASING»					
15.20 TO 62.20	«FQXT»	Classic feldspar-quartz crystal tuff. Quartz eyes 4-6mm, 5%, feldspars 3-8mm 30%, fairly homogenous, interval is strongly fractured and oxidized, moderately leached and vuggy.  22.1-23.2  «Red Ochre» on late fractures.  32.8-33.0  «Fault»  39.7-40.0  «Fault»  53.5-53.6  «Fault»  60.3-62.2  «FAULT ZONE» 80% Gouge.		«MOD ARG, WEAK SIL» Rock is uniformly argillized throughout locally weakly silicified, some fractures are partially healed by quartz.  «INT ARG»	none	Sample taken for XRD.
62.20 TO 109.20	«RHYOLITE BRECCIA»	Grungy green interval of mixed flow banded and perlitic rhyolite frags and hematitic breccias, strongly fractured and locally gougey.  62.2-64.5  «FAULT BRECCIA» 80% Gouge matrix to rhyolite clasts.		«ST-INT ARG» 30% gouge.  «INT ARG»	none	

HOLE NUMBER: CL-92-26

ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL										S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb		





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 39.60	«CASING»					
39.60 TO 46.00	«FQXT»	Colour: orange Grain Size: m.gr. Classic FQXT, 5% rounded qtz eyes, 30% fsp, moderately fractured and oxidized		«ST FE OX» «MOD ARG» Strongly oxidized ?? only slightly bleached	none	
46.00 TO 58.80	«FAULT»	Wide zone of extreme shearing and gouge, 95% clay gouge. Rare preserved clasts of strongly argillized FQXT and fsp ash tuff. Veins and shearing pretty much perpendicular to c.a.	90	«INT-EXT ARG»	«1-3% PY» in broken sheared qtz-py stringers	
58.80 TO 60.00	«SILICIFIED FAULT ZONE»	Intensely silicified wall rock and fault breccia with possible hydrothermal brecciation component Massive f.gr. grey to black qtz cements silicified wall rock. (fsp crystal ash tuff) and less f.gr. white bull qtz fragments  Interval is approx 50% sil w/r 50% bx. Single later qtz stringer <1 cm wide cuts bx and has black vein selvages which might carry black sulphide		«INT SIL»	«1-5% py» in black qtz bx matrix «tr black sulphide»	
60.00 TO 60.40	«FAULT»	95% clay gouge		«EXT ARG»	none	
60.40 TO 62.20	«STOCKWORK BRECCIA»	Colour: grey and black Grain Size: c.gr. Strong stockwork to jigsaw breccia of black sulphidic qtz cementing angular clasts of silicified wall rock (fault gouge/breccia) and rare white to grey qtz vein material. Interval is moderately fractured, minor gouge @ 62.0 m -bx veins @	10	«ST INT SIL»	«3-5% py» in black quartz breccia matrix «trace black sulphide» occurs sporadically along vein selvages	2 phase brecciation to produce clasts of qtz vein and wall rock
62.20 TO 63.90	«BLACK QTZ BRECCIA»	Colour: grey to black Grain Size: Intensely silicified multiphase hydrothermal-fault breccia. Clasts of silicified fault gouge wall rock, f.gr. grey quartz with abundant pyrite. 50% of matrix is black quartz, maybe 20% is later		«INT SIL»	«1-3% py» as irregular clots and disseminations in grey qtz and silicified wall rock «1-2% black sulphide» in late vuggy crystalline qtz vein @ 62.8	Paragenesis  -wall rock silicification and barren f.gr. grey qtz, brecciation and cementation by sulphidic f.gr. grey qtz. Rebrecciation and cementation

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		white vuggy quartz that is generally barren, but locally carried significant black sulphide.				by grey/clear qtz, evolving to white/clear crystalline qtz carrying no pyrite but locally 1-2% black sulphide
63.90 TO 70.70	«STOCKWORK FAULT ZONE»	Wide zone of faulting with 50% gougy zones overprints moderate black qtz stockwork carrying minor pyrite †63.9-64.2† «GOUGE» 50% broken qtz vn frag †67.1-67.6† «GOUGE» -90% clay	40	«ST INT ARG» «PATCHY MOD SIL» generally strongly argillized wall rock with local fault gouge and patchy silicification assoc. with stockwork veinlets	«1-3% py» in black quartz stringers and breccias. Pyrite is f.gr., sporadic and occurs as vein selvages and rimming fragments	
70.70 TO 75.60	«BLACK QTZ BRECCIA»	Colour: black and white Multiphase hydrothermal breccia overprints tectonic breccia. Hydrothermal breccia consists of black f.gr. almost opaque sulphidic qtz cementing angular frags (<1 cm to 20 cm) of earlier white f.gr. banded qtz-ccd-adularia and silicified wall rock fragment. Tectonic bx consists of extremely altered host rock fault gouge/breccia, probably a fsp crystal/ash tuff. Now silicified, this fault gouge forms the host rock for the hydrothermal breccia. Breccia varies from jigsaw, clast supported to matrix supported. 80% of clasts are silicified fault gouge. 20% white qtz frags †72.7-73.3† «black qtz vein» -massive fragment poor section of black qtz breccia		«INT SIL» overprints previously intensely argillized wall rock fault gouge †72.7-73.3† «Int sil»	«1-2% py» is visible as local vein selvages and fragment rims. Black qtz probably contains finely disseminated pyrite «tr grey sulphides» observed only in white quartz †72.7-73.3† «1% py» visible	Paragenesis Tectonic brecciation, st. argillic alteration of FXT fault gouge, silicification of same to form competent rock. Hydrothermal brecciation and cementation by banded white qtz-ccd-adularia. Rebrecciation and cementation by black sulphidic qtz. Black sulphide only visible in white qtz (early and late) so difficult to nail down its timing 75.5 sample for KD also 81.6 for sulphide ID, adularia ID and fluid inclusions
75.60 TO 84.40	«STOCKWORK FB RHYO»	Colour: pale grey Weak to moderate stockwork of black sulphidic qtz. Stringers generally <1 cm with minor micro blowouts <3 cm. Host rock is flow banded feldspar phyric rhyolite (classic FB Latite). All fsp gone to clay, flow bands commonly silicified FB @ Vns @ 70-80 deg	25 70	«MOD-ST ARG» overprinted by «PATCHY SIL» †82.9-84.4† «bleached zone. str. arg»	«1-3% py» easily visible in grey qtz stringers as vein selvages and irregular "swirls", locally up to 5%	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
84.40 TO 84.70	«FAULT»	Gougy FB rhyolite		«INT ARG»		
84.70 TO 94.00	«STOCKWORK FB RHYO»	Colour: grey Grain Size: f.gr. Weak to moderate stockwork as above but increased silicification of host rhyolite. Black qtz stringers carry slightly more pyrite than above interval Fb's @ 20-30 deg Vns @  Two hydrobreccias @  85.1-85.4  «black qtz bx»  93.4-93.6  «black qtz bx»	20 80	    85.1-85.4  «INT SIL»  93.4-93.6  «INT SIL»	    85.1-85.4  «5% py»  93.4-93.6  «5% py»	
94.00 TO 101.20	«FAULT ZONE STWK»	Strongly altered locally gougy hanging wall fracture zone to fault below. Minor broken qtz-py stockwork stringers		«ST INT ARG»	«1-2% py» in broken qtz stringers	
101.20 TO 107.60	«FAULT»	Colour: grey Major gouge zone with 20% intensely argillized fb rhyo frags		«EXT ARG»	«trace py»	
107.60 TO 111.00	«RHYOLITE BX»	Colour: grey Strongly argillized autoclastic flow bx, frags strongly perlitized		«INT ARG»	none	
111.00 TO 121.00	«PERLITIC» E.O.H.	Strongly argillized perlitic rhyolite		«ST ARG»	«tr pyrite»	

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
38102	44.00	46.00	2.00	0.1	220	427	3	0.73	1	4	6	49	165	0.03		
38103	46.00	48.00	2.00	0.7	264	208	107	6.34	3	10	11	65	4000	5.46		
38104	48.00	50.00	2.00	4.1	45	879	156	1.6	7	53	12	57	2275	1.81		
38105	50.00	53.00	3.00	0.5	24	201	161	5.45	2	33	15	53	4485	5.38		
38106	53.00	55.00	2.00	0.3	576	252	60	5.84	3	28	16	135	18375	5.53		
38107	55.00	57.00	2.00	1.3	56	236	18	4.11	1	1	7	30	2670	4.38		
38108	57.00	58.80	1.80	1.6	9	130	15	3.93	1	1	5	26	1165	4.1		
38109	58.80	60.00	1.20	6.3	249	66	10	1.29	5	5	36	92	55	1.36		
38110	60.00	62.20	2.20	5.1	154	64	12	1.51	8	5	30	55	1295	1.53		
38111	62.20	63.90	1.70	13.7	70	32	12	0.47	7	4	23	80	45	0.39		
38112	63.90	64.90	1.00	1.9	134	42	9	0.56	8	5	21	56	190	0.52		
38113	64.90	67.10	2.20	3.5	288	41	12	1.02	9	19	23	75	625	1		
38114	67.10	69.10	2.00	2.8	117	74	15	0.76	5	3	22	39	505	0.67		
38115	69.10	70.70	1.60	1.6	183	58	10	0.61	10	8	45	39	380	0.6		
38116	70.70	72.70	2.00	5	183	42	15	0.73	7	11	25	42	600	0.72		
38117	72.70	73.60	0.90	2.9	119	22	7	0.6	5	6	25	23	275	0.52		
38118	73.60	75.60	2.00	4.4	150	34	7	0.74	4	10	61	28	805	0.59		
38119	75.60	77.60	2.00	10.4	228	67	9	0.87	97	12	108	32	1400	0.83		
38120	77.60	79.60	2.00	2.5	220	87	13	0.75	99	7	140	24	755	0.64		
38121	79.60	81.40	1.80	1.8	213	87	7	0.8	11	10	36	22	1025	0.75		
38122	81.40	82.90	1.50	7.5	451	554	10	1.59	10	25	34	64	2235	1.59		
38123	82.90	84.70	1.80	1.6	240	47	7	0.91	8	7	41	27	765	1		
38124	84.70	86.70	2.00	5.1	427	73	9	1.69	14	19	37	53	1655	1.75		
38125	86.70	88.70	2.00	3.2	206	135	9	0.96	13	7	37	26	835	0.94		
38126	88.70	90.70	2.00	3	147	163	9	0.77	9	4	30	14	680	0.8		
38127	90.70	92.50	1.80	1.7	126	57	7	0.67	9	2	25	17	365	0.6		
38128	92.50	94.00	1.50	1.7	210	58	7	0.76	10	7	32	22	1045	0.93		

HOLE NUMBER: CL-92-27

GEOCHEM. SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppb	Au ppb	Hg ppb	S %
	0.00	0.00	0.00											



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 42.70	«CASING»					
42.70 TO 57.00	«QUARTZ STOCKWORK»	Moderate to strong stockwork of pyritic quartz. Stringers generally <1cm, about 30% of interval is tight jigsaw breccia. 2 phases of quartz: early pyritic grey quartz, later white to blue quartz is barren. 1st phase stringers have .5cm sil halo in wall rock. Host is sparsely amygdaloidal andesite, with only 5-10% <5mm amygs filled by clay, chlorite or qtz.		«MOD-ST ARG» alteration of wall rock. Narrow .5cm envelopes of silicification around quartz stringers.  42.7-46.3  «ST-INT ARG»	«1-3%PY» in grey quartz stringers, no black sulphides observed.	Small amounts of smokey brown calcite also noted, occurs between 1st and 2nd phase of quartz @ 51.1m, 51.3m, 51.6m.
57.00 TO 58.00	«FAULT»	Grey gougy highly fractured interval, with abundant broken quartz vein and sil wall rock clasts.	40	«ST-INT ARG»	«TRACE PY»	
58.00 TO 69.30	«BLACK QUARTZ BRECCIA»	A wide zone of intense silicification. 3 types of breccia are recognized: Upper 3rd is hydrothermal breccia of amygdaloidal andesite, grading down into tectonic fault breccia. Fault was intensely argillized and gougy at one time, but is now intensely silicified and rebrecciated. Lower 3rd of interval is obvious pyroclastic breccia, silicified and hydrothermally rebrecciated. Overprinting hydrothermal breccia consists of a chaotic jumble of grey to black banded aphanitic quartz or chalcedony, pyritic quartz and silicified wall rock, and white crystalline quartz. Aprox. 50% of interval is sil w/r, 30% grey to black pyritic quartz, 10% late vuggy quartz.		«INT SIL»	«1-3% PY» irregularly distributed in grey quartz breccia matrix, as pyritic quartz clasts and in rare qtz stringers	3 breccia types: fault breccia at contact between andesite flow and pyroclastic breccia, all silicified and overprinted by hydrothermal brecciation. This demonstrates relationships btwn fault conduits for hydrothermal silicification for ground preparation for hydrothermal brecciation and mineralization. Paragenesis is confusing but seems to be: grey-black banded chalcedony, cut by pyritic grey quartz, cut by white vuggy crystalline quartz. This is similar to most other breccias intersected elsewhere on the property.
69.30 TO 71.20	«TUFF BRECCIA»	Polymictic pyroclastic breccia. Frags angular to subrounded aphanitic ash tuff, perlite, flow band rhyolite feldspar phyric rhyolite, rare quartz vein frags. Green  69.3-69.5  «FAULT BRECCIA» Abundant quartz vein frags suggest tectonic origin although clay rich gouge is lacking.		«INT SIL»  «INT SIL»	trace pyrite	
71.20 TO 72.00	«SIL FAULT»	Grey, intensely silicified pyritic fault zone. Intensely argillized wall rock frags composed of fault gouge and perlitic rhyolite. Interval includes 2cm grey ccd vein with black mm selvages and minor pyrite. Late white vuggy quartz veinlets are barren.		«INT SIL»	«1% PYRITE»	



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
72.00 TO 75.60	«RHYOLITE»	Green, weakly stockworked perlitic rhyolite. Grey quartz stringers plus late vuggy white barren qtz.		«MOD ARG, WEAK SIL»	«TRACE PY» in weak grey quartz veinlets	
75.60 TO 79.00	«QUARTZ STOCKWORK»	Grey green, moderately stockworked perlitic rhyolite. Strongly fractured, sheared and locally gougy, with patchy quartz flooding.		«MOD-ST ARG, PATCHY SIL» ↓76.0-76.7↓ «30% GOUGE»	«1-2% PYRITE» in early grey quartz.	Interval represents hangingwall fracture zone associated with fault below.
79.00 TO 81.80	«STOCKWORK BRECCIA»	Strongly stockworked and brecciated partially healed fault zone. Strongly fractured and locally gougy. Early pyritic quartz, minor black quartz, and abundant barren white vuggy quartz.		«MOD-ST ARG, PATCHY SIL» 20% gougy patches ↓80.5-81.8↓ «50% Gouge»	«1-3% PYRITE» in early grey quartz stringers and breccia fillings.	
81.80 TO 92.70	«TUFF BRECCIA»	Green and brown relatively fresh rhyolite tuff breccia, with 5-30cm frags of FB rhyolite and lesser perlite. Sparse late calcite fracture fill. Gradational lower contact.		«WEAK ARG»		Pyroclastic block tuff breccia.
92.70 TO 93.40	«LAPILLI TUFF BRECCIA»	Interbed of tuff breccia with heterolithic frags 1-5cm, FB rhyolite, perlite, ash tuff. Gradational upper contact.		«WEAK ARG» variable degree of alteration of clasts.	none	
93.40 TO 96.30	«FELDSPAR PORPHYRY»	Classic feldspar porphyry rhyolite, with 20% plag ghosts in vaguely banded aphanitic matrix. Mafics not obvious. Contacts @	80	«MOD SIL»	None	Interbreccia lava flow?
96.30 TO 100.90	«TUFF BRECCIA»	Similar to previous intervals, gradational from lapilli dominant frgas in upper metre to block sized frags below.		«WEAK ARG»	trace py	
100.90 TO 136.20	«RHYOLITE FLOW»	Green and red, aphanitic, a discrete rhyolite flow with minor autoclastic breccia at upper contact. Interval shows some pretty wild flow banding and perlitic textures, with hematitic and chloritic matrices producing vivid red and green coloration.		«MOD PROP» Moderate propylitic alt. Weak calcite stringers throughout. Generally pretty fresh, almost glassy locally.	Trace pyrite disseminated throughout.	
136.20 TO 154.50	«TUFF BRECCIA»	Green, mixed pyroclastic interval of interbedded crystal ash tuffs, lapilli tuffs and block breccias. Generally fining upwards to laminated sandy crystal ash tuffs. Cobbles of FB rhyolite dominate in lower 1/2 of interval.		«WEAK ARG»	Trace pyrite.	

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	S %		
38137	44.70	46.70	2.00	0.1	67	347	20	3.53	7	1	62	7	565	2.36		
38138	48.70	50.70	2.00	1.7	610	192	20	3.84	8	11	61	25	1670	3.96		
38139	50.70	52.70	2.00	1.3	407	161	21	3.9	2	9	74	40	1710	3.76		
38140	52.70	54.70	2.00	1.7	457	102	17	4.05	2	2	70	57	2445	3.41		
38141	54.70	57.00	2.30	1	266	103	19	3.7	3	1	71	54	755	3.21		
38142	57.00	58.00	1.00	10.5	354	377	19	2.74	8	34	64	49	2720	3.05		
38143	58.00	60.00	2.00	2.4	232	146	14	2.75	5	22	46	80	680	2.97		
38144	60.00	62.00	2.00	2.2	238	114	12	2.26	4	16	38	93	495	2.43		
38145	62.00	63.00	1.00	3.7	233	100	13	1.86	5	17	37	189	545	1.76		
38146	63.00	64.00	1.00	2.4	211	80	12	2.02	6	17	24	114	535	2.05		
38147	64.00	65.00	1.00	1.9	191	148	11	1.67	1	24	29	78	800	1.8		
38148	65.00	66.00	1.00	1.2	213	61	11	1.27	2	7	25	79	190	1		
38149	66.00	67.00	1.00	1.1	187	76	9	1.11	4	6	30	54	145	0.73		
38150	67.00	68.00	1.00	1.9	325	78	13	1.68	4	8	40	163	125	1.57		
38151	68.00	69.30	1.30	2.2	330	75	12	1.98	2	7	27	294	300	1.74		
38152	69.30	71.20	1.90	1.5	104	165	27	1.44	2	1	41	61	130	0.75		
38153	71.20	72.00	0.80	2.5	204	108	25	1.53	18	3	68	65	100	1.2		
38154	72.00	74.00	2.00	0.3	38	158	60	2.11	1	1	52	17	75	0.56		
38155	74.00	75.60	1.60	0.3	4	197	65	1.76	1	1	43	9	60	0.17		
38156	75.60	77.10	1.50	0.5	61	228	28	2.01	3	1	59	18	180	1.06		
38157	77.10	79.00	1.90													
38158	79.00	79.90	0.90	3.7	168	277	30	1.07	8	5	31	40	300	0.72		
38159	79.90	81.80	1.90	3.1	332	237	15	1.17	9	10	28	42	235	0.82		
38160	81.80	83.80	2.00	0.6	43	204	48	1.25	15	1	40	14	60	0.48		



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 33.50	«CASING»					
33.50 TO 40.50	«AMYG ANDE»	Grey, fg, sparsely to moderately amygdaloidal andesite, amygs filled by quartz and clay. Sparse grey to white quartz stockwork veinlets to 2cm, 1st phase grey sulphidic quartz with 1-2mm bands of fg py along selvages; then 2nd phase banded white quartz and adularia? with no visible sulphides. veins @ 39.4-39.9f «FAULT»	45 55	«MOD-ST ARG» 33.5-33.8f «INT ARG»  «INT ARG»	«1-3% PYRITE» overall, in grey to white quartz stringers, locally to 5% as fg wavy bands along vein selvages and rimming frags.	
40.50 TO 44.20	«QUARTZ-PY BRECCIA»	Grey, cg, highly sulphidic quartz healed wall rock breccia. Wall rock is amygdaloidal andesite, comprising clasts <1cm-25cm in size, all strongly argillized, generally NOT silicified. Looks to be only a 2 phase breccia, mainly tectonic with silica healing. 1st phase grey quartz with very abundant pyrite forming bands along vein selvages up to 1cm thick; then after minor re-brecciation, healing by blue-white relatively barren quartz.		Wall rock and frags are generally «ST ARG» and only locally weakly silicified.	«10-20% PYRITE» overall, locally semi-massive (50%) as botroidal 1cm bands along vein walls or rimming frags. Interval LACKS any trace of black qtz or black sulphide.	1st phase pyrite and 2nd phase quartz both show 2-4mm bands suggesting that conduits in clast supported breccia were open and system was quiescent.
44.20 TO 47.50	«AMYG ANDE»	Grey weakly stockworked, strongly argillized interval of amygdaloidal andesite. Stockwork stringers <1cm carry abundant pyrite in fg grey quartz, while later blue-white quartz is barren. veins @	90	«ST-INT ARG»	«1% PY» in early grey quartz.	Similar paragenesis to previous interval.
47.50 TO 50.90	«BLACK QUARTZ BRECCIA»	More typical of the pyritic black quartz breccias seen in other holes, this interval is nearly 80% massive black quartz, obviously pyritic, with 10% late vuggy white bull quartz and a single banded grey ccd vein or fragment @ 50.7m. Rare blue quartz noted @48.0m.		«INT SIL»	«3-5% PYRITE» fg, disseminated in black quartz breccia matrix also less frequently as mm blebs and blades.	No obvious black sulphide.
50.90 TO 51.90	«FAULT»	Grey intensely argillized, gougy, sheared, rhyolite breccia, 60% clay gouge.	40	«INT ARG»	«TRACE PY»	
51.90 TO 78.30	«RHYOLITE BRECCIA»	Grey-green, fg, mixed interval of FB rhyolite, and perlite fragments in a mainly hematitic matrix, generally strongly fractured, and locally gougy. 53.9-57.6f «Fault Zone» 60% clay gouge.		«ST-INT ARG»  «INT ARG»		

HOLE NUMBER: CL-92-29

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 11-December-1992

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		69.2-69.5  «Fault» Gouge.  64.0-64.3  «Fault» Gouge.  72.3-72.7  «Fault» Gouge.  EOH.				

HOLE NUMBER: CL-92-29

DRILL HOLE RECORD

LOGGED BY: PETER THIERSCH

PAGE: 3

HOLE NUMBER: CL-92-29

ASSAY SHEET

DATE: 11-December-1992

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb			
38129	38.50	40.50	2.00	0.1	89	176	22	5.17	1	1	97	12	720	3.35		
38130	40.50	42.50	2.00	2.6	442	101	21	12.16	1	49	59	51	7500	13.7		
38131	42.50	44.20	1.70	4	835	60	23	8.4	2	45	75	164	5120	10		
38132	44.20	45.70	1.50	0.6	307	57	20	4.29	2	6	97	40	490	3.79		
38133	45.70	47.50	1.80	1.2	459	61	19	4.56	2	8	91	32	650	4.37		
38134	47.50	48.80	1.30	3.1	591	68	14	4.03	7	44	262	67	1275	4.38		
38135	48.80	50.90	2.10	3.9	291	62	14	2.09	4	30	62	63	640	2		
38136	50.90	52.90	2.00	0.5	102	58	33	1.83	7	1	68	28	185	0.74		



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 18.30	«CASING»					
18.30 TO 24.70	«AMYG ANDE»	Locally gougy, densely amygdaloidal andesite flow breccia. grey green.		«ST-INT ARG, MOD CHL-CAL»	None	Autoclastic flow breccia.
24.70 TO 28.00	«QUARTZ STOCKWORK»	Intensely argillized gougy wall rock hosts broken fg grey quartz stockwork. Quartz is multibanded grey, brown, and blue-white. Occurs as hydrothermal and fault breccia matrix, mainly as rounded chunks in gouge of recent faulting.		«ST-INT ARG»	«1% PYRITE» in grey quartz breccia.	Fault zone.
28.00 TO 28.60	«FAULT»	90% clay gouge.				
28.60 TO 40.50	«ANDESITE BRECCIA»	Grey-green, strongly argillized amygdaloidal andesite breccia, looks auto or pyroclastic, but is healed by dull grey pyritic quartz. Frags variably amygdaloidal, interval is strongly fractured and locally gougy.		«ST ARG, MOD CHL, CAL» «PATCHY SIL» Frag are strongly argillized, amyg filled by chl+cal, matrix preferentialy silicified.	«1% PYRITE» in sil breccia matrix.	
40.50 TO 42.50	«FAULT»	70% clay gouge. Minor broken qtz vein frags.		«INT ARG»		
42.50 TO 46.40	«QTZ-CAL STOCKWORK»	Relatively competent interval of fg grey quartz and white cg calcite filling hydro jigsaw breccias		«ST ARG»	Early quartz carries «1-2% PYRITE» Later calcite is barren.	Minor brown calcite noted.
46.40 TO 46.90	«FAULT»	70% clay gouge.				
46.90 TO 57.20	«ANDESITE BRECCIA»	Grungy interval of strongly argillized andesite breccia, with minor silicified zones preserved. Typical fault halo.		«ST-INT ARG, PATCHY SIL» Silicification increases down section, mainly as amyg filling and healing breccia matrices.	Trace py.	Hanging wall to fault.
57.20 TO 58.30	«FAULT»	80% clay gouge.		«INT ARG»		



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
58.30 TO 62.40	«QTZ-PY STOCKWORK»	Strong stockworking of intensely silicified primary breccia of amygdaloidal andesite. Grey quartz stringers <1cm carry abundant pyrite. Late vuggy quartz veinlets are barren. Andesite is extremely amygdaloidal, most <1cm long, flattened at 1:4. veins @	20 40 70	Wall rock was first strongly argillized amygs filled by clay, then overprinted by strong silicification. «ST SIL»	«2-5% PYRITE» in grey quartz stringers.	Suspected adularia at 60m, ppt with late vuggy crystalline quartz.
62.40 TO 70.20	«SILICIFIED BRECCIA»	Intensely silicified fault breccia. Contact btwn amyg andesite and underlying perlitic rhyolite. Major multiphase hydrothermal overprint as re-brecciation of sil fault gouge, deposition of fg grey to black locally pyritic quartz and after repeated brecciation, final healing by vuggy cg crystalline white to clear quartz. Clasts include silicified pyritic wall rock, pyritic grey or black quartz and massive white to brown qtz.   63.3-66.2  «Quartz Vein» Massive white quartz breccia vein, not distinctly separate or even crosscutting, but rather just white quartz dominant, with patches of smokey brown calcite, similar to hydrocarbon rich brown qtz at McLaughlin.   69.7-70.2  «BANDED VEIN» Beautiful multi-banded quartz-chalcedony-adularia vein. See original field log for sketch. Interval actually consists of 3 such veinlets 2-4 cm wide, showing the same paragenetic sequence: pyritic qtz, grey qtz, adul, grey ccd, microbreccia, comb qtz, pyritic qtz.		«INT SIL» Intensely silicified hydrothermally overprinted fault breccia.  «INT SIL»  «INT SIL»	«1-2% PYRITE» irregularly distributed in early fg quartz stringers or replacing silicified wall rock frags or as frags of above in late white quartz matrix.  «Trace Black Sulphide» noted as irregular disseminations in white quartz. May also be present in black quartz but is not visibly obvious. No significant pyrite.  «Trace Pyrite» in grey ccd.	Some late vuggy quartz veins show drip textures indicating vertical dip of vns  Smokey brown calcite @ 64.0m, 65.6m.  Sawn sample to K. Dunne.
70.20 TO 76.60	«QUARTZ STOCKWORK»	Strong quartz stockwork, weak pyrite, with patchy quartz flooded fault breccias and/or stwk blowouts. Veinlets are dominantly late vuggy white quartz. Early quartz is only weakly sulphidic.		«ST ARG» overprinted by «PATCHY SIL»	«1% PYRITE» in grey quartz stringers. Possible black sulphide in black quartz -adularia 1cm banded vein @76.3m	Another example of hydrothermal brecciation overprinting fault brecciation.
76.60 TO 100.10	«RHYOLITE BRECCIA»	Rhyolite flow breccia with mixed angular frags, rather washed out and indistinct, 1-30cm, of perlite, FB rhyolite, and minor hematitic (black) microbreccias. Interval is shot through with qtz and later calcite microstringers, both barren.		«ST ARG» is pervasive. «PATCHY SIL» accompanies quartz healing of faults and fractures.	«Trace pyrite»	

HOLE NUMBER: CL-92-30

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 11-December-1992

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
100.10 TO 102.70	«FAULT»	Partially quartz healed fault contact btwn rhyo breccia and underlying porphyry. Fault gouge and b breccia has been 80% resilicified, leaving only 20% clay gouge. Lower contact is occupied by a fg black quartz healed breccia.		«INT ARG» is progressively silicified toward the lower contact where «INT SIL» dominates.	«1% PYRITE» euhedra disseminated in fault gouge.	
102.70 TO 107.00	«FELDSPAR PORPHYRY»	Classic feldspar porphyry rhyolite flow with aphanitic groundmass hosting 20-30% 2-4mm plagioclase phenos.		«MOD SIL»	«Trace Pyrite» disseminated euhedra.	obvious flow rock, probably andesitic b chemistry, WR sample taken, 2PCLW056

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL											S %	COMMENTS	
				Ag ppm	As ppm	Ba ppm	Cu ppm	Fe %	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb				
38176	24.70	27.70	3.00														
38177	29.60	31.70	2.10														
38178	42.50	44.40	1.90														
38179	44.40	46.40	2.00														
38180	47.50	49.50	2.00														
38161	56.50	58.30	1.80	2.8	424	71	30	3.37	9	11	79	69	590	3.41			
38162	58.30	60.30	2.00	4	764	133	20	3.84	10	19	59	228	1130	3.7			
38163	60.30	62.40	2.10	4.4	600	212	20	3.62	10	19	59	100	610	3.5			
38164	62.40	63.30	0.90	4.7	626	132	23	2.84	10	47	36	134	2100	2.96			
38165	63.30	64.30	1.00	1.2	112	275	7	0.96	3	17	17	16	1290	0.86			
38166	64.30	65.30	1.00	1.2	96	37	6	0.97	5	6	13	40	285	0.58			
38167	65.30	66.20	0.90	0.9	71	34	6	0.68	3	6	11	35	275	0.31			
38168	66.20	67.20	1.00	0.6	88	18	6	0.69	3	7	14	23	245	0.34			
38169	67.20	68.20	1.00	1.4	143	51	8	0.94	1	5	36	79	155	0.5			
38170	68.20	69.20	1.00	1.4	278	78	10	1.11	6	9	39	114	75	0.87			
38171	69.20	70.20	1.00	1.3	204	217	14	0.97	4	6	28	84	70	0.6			
38172	70.20	72.20	2.00	0.5	95	63	35	1.2	4	1	42	28	65	0.34			
38173	72.20	74.20	2.00	0.5	95	70	13	1.36	9	1	52	20	45	0.51			
38174	74.20	76.60	2.40	1.2	146	67	57	1.63	5	1	48	39	85	0.81			
38175	76.60	78.60	2.00	0.4	14	140	124	2.13	2	1	43	10	65	0.41			