823517

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: TL-1
IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: RICHTER
PROJECT NUMBER: 656
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID: TESTALINDEN
NORTH: 920.00N
EAST: -885.00W
ELEV: 1410.00

ALTERNATE COORDS GRID: TESTALIND
NORTH: 9+20N
EAST: -8+85W
ELEV: 1410.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 165.80m
START DEPTH: 0.00m
FINAL DEPTH: 165.80m

COLLAR GRID AZIMUTH: 270° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 240° 0' 0"

DATE STARTED: September 19, 1990
DATE COMPLETED: September 22, 1990
DATE LOGGED: September 19, 1990

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

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

CONTRACTOR: LONE RANGER
CASING: RECOVERED
CORE STORAGE: GREENWOOD

PURPOSE: To test albite zn at depth ~60m below trench RTA.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
27.40	-	-46° 0'	ACID	OK		-	-	-	-	-	
61.00	-	-45° 0'	ACID	OK		-	-	-	-	-	
92.40	-	-48° 0'	ACID	OK		-	-	-	-	-	
118.90	-	-47° 0'	ACID	OK		-	-	-	-	-	
145.40	-	-48° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 7.00	«CSG»					
7.00 TO 8.54	«FOL QTZTE» FOLIATED QUARTZITE	Colour: Light grey to white Grain Size: Fine grained Fine grained quartzite with folded foliation defined by clay rich/graphitic partings Tight isoclinal folds Fold axial plane strikes ~34/214 and is vertical Partings roughly 2cm apart	15	Fe oxide staining on fractures Chloritic (?) partings	Trace py along fracture surfaces	
8.54 TO 9.90	«PHYLL» PHYLLITE	Colour: Grey Grain size: Fine grained Fine grained clay rich phyllite Phyllitic foliation Foliation on mm scale 9.9m contact at	20 25	30-50% clay alt Fe oxidation of foliations	«30% weath py blebs» Mottled appearance Blebs have rusty weathered selvages Also small py stringers and stockworks	Pyritic alt appears controlled by foliation
9.90 TO 11.60	«FOL QTZTE» FOLIATED QUARTZITE	Colour: Light grey to white Grain Size: Fine to medium grained Description: See 7.0-8.54m		Fe oxide staining along fractures Chloritic graphitic partings Weak carbonate alteration	Tr py along fracture surfaces	
11.60 TO 13.00	«SIL PHYLL» SILICEOUS PHYLLITE	Colour: Brown grey Grain size: Fine grained Fine grained brown grey phyllitic foliated material with compositionally banded qtz horizons Anastomosing phyllite around quartzose horizons 12.8-13.0m Fault gouge?	25	50% clay, possible sericitic Compositional qtz bands become carbonate at 13.0m, here fault Ankerite 25%		
13.00 TO 16.50	«PHYLL QTZTE» PHYLLITIC QUARTZITE	Colour: Light grey Grain Size: Medium grained Well foliated and compositionally banded phyllitic quartzite Anastomosins phyllitic horizons Foliae are mm apart Some ptygmatically folded compositional bands	20	Weak carbonate	Pyritic stringers along foliae Fe staining of vein selvages <1mm wide Some stringers perpendicular to CA	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		16.5m Contact at	20			
16.50 TO 18.90	«SIL PHYLL» SILICIFIED PHYLLITE	Colour: Grey green Grain Size: Medium Grained Medium grained greenish grey well foliated extremely hard (silicified) phyllite Foliation at	 20	80% silicification	Pyritic foliae 2-3% Occasional pyrite stringer perpendicular to foliation	
		18.0-18.5m Increasing fracture density Either quartz vn or quartzite horizon Vuggy		 Fe carb (ank)<-----	18.0-18.5m Increasing pyritic fracs Near lower contact, Fe staining along foliation	
18.90 TO 31.00	«SIL PHYLL/ PHYLL QTZTE » SILICEOUS PHYLLITE/ PHYLLITIC QUARTZITE	Colour: Light grey greenish grey Grain Size: Medium grained Description: See 13.0-16.5m Compositional banding is combination qtz, Fe rich calcite, Fe dol	25	Clay alt Fe rich calcite Fe dol	1-2% pyritic foliae	
		19.9-20.1«QVN» Subvertical, 5% fractured	45	Fractures have Fe staining	«py along fracs» semi massive in areas	
		21.5-21.9m Foliation Small shear fabric ~perpendicular to foliation <between = 30 deg	25 45		21.5-21.9«3-4% py comp band along foliae»	
		22.6 - 22.7m Quartz carbonate vein	25			
		24.9 - 27.4m Extremely well developed foliation Extremely competent Calcareous phyllite		Carbonate banding Carbonate alt of matrix Banding is Fe rich calcite Matrix is dolomite		
		30.1 - 31.0m Massive unfoliated quartzite		Calcareous fractures, extremely silicified	Trace fine grained py along fractures	Almost quartz vein in appearance
31.00 TO 34.00	«CHL PHYLL»	Colour: Greyish green Grain Size: fine grained Very fine grained well foliated alternation bands of light and dark green with little to no quartz carbonate composition/bands		Chloritic		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		foliation at Crenulation/shear fabric ~ parallel to CA	20			
34.00 TO 35.90	«SIL PHYLL/ FOL QTZTE»	Colour: Greyish green to white Grain Size: Medium grained Medium grained massive to weakly foliated quartzite with interbeds of chloritic calcareous phyllite Foliations parallel to CA	05 to 10	Chloritic along fractures Pervasive calcite alteration Fe staining along fractures	Trace pyrite along fractures	Gradational interbeds
35.90 TO 38.00	«CHL CALC PHYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Greyish Green Grain Size: Fine grained Fine grained well foliated alternating bands of light and dark green foliation at Crosscutting crenulation strikes 206 degrees	15	Chloritic Pervasive calcite	Fe staining on fractures	
38.00 TO 38.60	«MSSVE QTZTE»	Colour: Grey/green grey Grain Size: Medium grained Massive Wavy weakly foliated quartzite with calcareous fractures		Chloritic calcareous fractures 38.4-38.5m Rusty iron staining	 38.4-38.5m py, possibly cpy in fracts	
38.60 TO 48.60	«CHL PHYLL» CHLORITIC PHYLLITE	Colour: Light green, grey green Grain Size: Fine grained Descripiton: See 31.0-34.0m Transitional in interbeds of calcareous phyllite with quartz carbonabe compositional bands foliation at	20	Chloritic 41.3-42.1m Qtz carb bands 42.6-43.1m As above 44.5-46m As above Calcite is extremely Fe rich	 Vfg stratiform pyritic bands up to 3% and up to 1cm thick Vfg stratiform pyritic bands up to 3% and up to 1cm thick	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				47.3-47.9m As above	Vfg stratiform pyritic bands up to 3% and up to 1cm thick	
48.60 TO 50.00	«MAF INT» MAFIC INTRUSIVE	Colour: Brown green Grain size: Fine grained 5-10% euhedral to subhedral 2mm feldspar phenos in vfg mafic matrix		Wk calcite Silicified Fe staining Bleached locally	Tr py along fractures	
50.00 TO 58.70	«CHL PHYLL» CHLORITIC PHYLLITE	Colour: Light green, grey green Grain Size: Fine grained Descripiton: See 38.6-48.6m Also quartz carb compositional banding and veining Extremely competant foliation	25	Chloritic 51.7-52.9m qtz-carb vning and compositional banding Weak silicification	52.0-52.9m Very fg stratiform sx bands assoc with qtz carb banding to 5% py, cpy, sp?	
		57.5-57.9m Interbed of foliated qtzite foliation/contact 58.7m Lower contact, foliation becomes swirled	35	Black quartz banding	Fracture and foliation controlled mineralization to 1% py, cpy, po 2% mineralization follows foliation po?	
58.70 TO 59.10	«QVN» QUARTZ VEIN	Colour: white Grain Size: Fine grained Massive, fractured, in some places vuggy	30	Carbonate 20-30%	Occur as vug fillings, fracture gillings «10-15% py,tr cp,po»	
59.10 TO 62.20	«MAF INT» MAFIC INTRUSIVE?	Colour: Green Grain Size: Medium grained Medium grained very weakly foliated possible mafic intrusive Extremely competant		clay (chl) alt Occasional qtz carb veinlet 59.1-59.9m Strongly bleached	Trace py as fracture fillings Tr to 1% fg py diss in matrix	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
62.20 TO 65.70	«CHL CALC PHYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Green grey Grain Size: Fine grained Fine grained weakly foliated/crenulated phyllite foliation 64.6-64.8m Interbed of quartzite	 30 30	Pervasive chloritic and calcareous alt Fe staining along fracture surfaces Moderate silicification 50% calcite Fe staining	 |64.6-64.8|«10-15% sx, py po cp»	
65.70 TO 66.50	«MAF DYKE» MAFIC DYKE	Colour: Dark greyish green Grain Size: Fine grained Dark greyish green hbld and feldspar porphyritic dyke Phenocrysts are ~1mm dimension	90	10-15% calcite Hematite in fine trace amounts		
66.50 TO 71.50	«CHL CALC PHYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Green grey Grain Size: Fine grained Fine grained moderately foliated phyllite foliation Occasional quartz carbonate veining parallel to foliation and perpendicular to foliation 71.5m Contact	 25 20	Chloritic foliae Quartz carbonate veining (1%) and carb alt of matrix Fe staining on fractures	70.5-70.7m pyritic foliae (2%)	
71.50 TO 75.90	«FOL QTZTE» FOLIATED QUARTZITE	Colour: white grey white Grain Size: Very fine grained Light grey white to dark grey white very fine grained foliated quartzite Sugary |74.0-75.3|«vuggy»	 20	Sericitic foliae |74.0-75.3|«graphitic foliae» Quartz veinlets and pyritic veinlets along foliae Fe staining	 |74.0-75.3|«SM py, to 15%» Vnlts and foliation	
75.90 TO 77.50	«CALC PHYLL» CALCAREOUS PHYLLITE	Colour: Grey Grain Size: Fine grained Calcareous phyllite with compositional bands near upper contact	 35	Calcite along foliae Carbonate pervasive 20%	1% pyritic, pyrrhotite foliae	Vuggy near lower contact

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
77.50 TO 84.14	«FOL QTZTE» FOLIATED QUARTZITE	Colour: White Description: See 71.5-75.9m		Graphitic, chloritic foliae Fe staining along fractures	77.5-78.11m 5-10% pyritic, graphitic foliae up to 1cm wide spaced every 2-5cm; vuggy 78.3-80.7m 1-2% pyritic, graphitic foliae 80.6-81.3m Fe stained quartzite, not fractures Fe staining 82.5-83.0m 15% pyritic foliae up to 1cm width; vuggy quartzite	
		83.2-83.4m Phyllitic interbed folded into and out of core axis	35	Carbonate altered phyllite Fe staining	┤83.2-83.4├«15-20% py» diss in phyll and 15% py in foliations of quartzite	
		83.6-84.1m extremely folded/foliated quartzite with foliations every 5mm Main foliation 2nd folding perpendicular	20	Fe staining	15% vuggy pyritic foliae	almost ptygmaticly folded
		Lower contact	45			
84.14 TO 92.10	«CHL CALC PHYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Grey/green Grain Size: Fine grained Well Foliated chloritic calcareous phyllite foliation	30	Pervasive calcite alteration (60%) mm scale calcite laths/rhombs	Trace py Fe staining occasionally on fractured surfaces	
		87.7m Possibly fault gouge				
		┤89.7-89.8├ Minor«fault»	16			
		90.8-91.2m Quartz carbonate boudins to 3cm along foliation				
92.10 TO 92.50	«FOL QTZTE» FOLIATED QUARTZITE	Colour: White grey Grain Size: Fine Grained Foliated fine grained white/grey quartzite				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
92.50 TO 93.60	«PHYLL» PHYLLITE	Colour: Brownish grey Grain Size: Fine grained Alternating thin light and dark bands	 10	Weak carbonate		Quartz carbonate boudins along foliation
93.60 TO 98.00	«CALC PHYLL» CALCAREOUS PHYLLITE	Colour: Green grey Grain Size: Medium grained Green grey unbanded but foliated calcareous phyllite foliation 93.6m Upper contact 98.0m Lower contact	 25 20 30	Moderately silicified Moderately calcareous Calcite pods/laths/rhombs to 1mm dimension		
98.00 TO 101.50	«CHL CALC PHYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Beige grey green Grain size: Fine grained Occasional thin alternating dark and lighter coloured bands with chloritic partings	 30	Pervasive carbonate and chlorite Bleached appearance Fe staining on fractures		
101.50 TO 102.30	«FOL QTZTE» FOLIATED QUARTZITE	Colour: Grey white Grain size: Fine grained		Fe staining		
102.30 TO 107.90	«MYL SIL CALC PHYLL» MYLONITIC SILICEOUS CALCAREOUS PHYLLITE	Colour: Green grey to brown grey Grain Size: Fine grained 102.3-104.3m Brownish grey strongly foliated/ laminated with quartz/carbonate compositional banding 104.3m foliation 104.3-107.9m Greenish grey well foliated/ compositionally banded mylonitic phyllite Thicker compositional bands (quartz carb) as well as boudins with pressure shadows 107.9m Foliation	 00 10 00 20	 Fe staining on fracture surfaces Calcareous 104.4m Qtz vn with tr-1% diss py Calcareous bands Fe staining	 Laminations on mm scale and mm apart Textures appear increasingly mylonitic towards lower contact 105.1-107.9m Brownish compositional bands that may be pyritic	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
107.90 TO 108.00	«FLT BX» FAULT BRECCIA	Colour: White Grain Size: Fine to coarse grained Blocky fault breccia 10cm wide with margins blockier than core	40	Trace carbonate		Fault cross cuts foliation at low angle
108.00 TO 112.80	«FOL QTZTE» FOLIATED QUARTZITE	Colour: Grey white Grain Size: Fine grained Fractured Occasional interbeds of siliceous phyllite material foliation 110.1m Clay fault gouge	25	Chloritic, calcareous fractures	Tr pyrite along fractures	
112.80 TO 114.30	«FLT BX & G	Colour: Varies	40	Chl, ser, caly		
TO 114.90	OUGE» FAULT BRECCIA AND GOUGE	Grain Size: Varies Faulted sheared gouged		Possibly K-spar alt Graphitic		
114.30 TO 122.25	«INTERMED I NT» INTERMEDIAT INTRUSIVE	Colour: Grey Grain Size: Fine grained Massive, very competant unfoliated equant intermediate intrusion 1-3% quartz eyes 30-40% mafics 60-70& plagioclase 119.3-119.4m Small quartzite band Lower contact definintely intrusive 122.25m Clay gouge material	90	Calcareous Fe staining on fractures 120.9m py vnlt at 10 deg to CA [121.9] 4-«5% py» in carb vn at 25 deg to CA		Texturally, this resembles albite zone material but is not as altered as at surface; may be intermediate intrusive heat source for albite zone alteration
122.25 TO 123.10	«FOL QTZTE» FOLIATED QUARTZITE	Colour: Light grey Grain Size: Fine grained Grey white fine grained foliated and folded quartzite Fractured, moderate density			Pyritic veining along fractures	Possibly faulted in

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
123.10 TO 125.60	«INTERMED/FELS INT» INTERMEDIAT TO FELSIC INTRUSION	Colour: Grey Grain Size: Fine grained Equigranular mafic and felsic grains Dioritic in appearance Biotite, hnbld Unfoliated, competant unaltered			Tr py?	
125.60 TO 130.48	«QTZ EYE PORPH» INTERMED QUARTZ AND PLAG PHYRIC INTRUSION	Colour: Dark grey Grain Size: Varies Inequant quartz eyes to 3mm dimension in finer grained equant matrix Massive competant though core is blocky		Silicified, calcareous		Has appearance of flow
130.48 TO 142.40	«INTERMED TO MAF INT» INTERMEDIAT TO MAFIC INTRUSIVE	Colour: Dark grey to black Grain size: Fine grained Fine grained equant dark grey to black Competant, unfoliated Unfractured Occasional quartz eyes 142.4m Contact	 10	Weak clay Calcareous, weakly chloritic Weak to moderate silicification 140.9-142.4m Pale green, bleached very strong chloritic alt, ser, wk carb Weak dol	Tr py 0.5mm wide py stringers at various angles to core Small qtz vns with tr-1% py, gn Diss py to 5% in core	
142.40 TO 147.80	«QZ VN» QUARTZ VEIN	Colour: White Grain Size: Fine grained Massive bull quartz vn with fracturing and vugs, possibly crosscutting foliated quartzitic zone 147.7-147.8m Brecciated silicified vuggy contact	 10 20	Sericitic, chloritic	142.4-146.4 «loc, to 10% py, gn» occurring as fractures and vug fillings, tr cpy	Grades into foliated quartzite so may be qtz vned quartzite or remobilized quartzite Core is broken and blocky near lower contact
147.80 TO 165.80	«FOL/MSSVE QTZTE» FOLIATED TO MASSIVE QUARTZITE	Colour: White to grey Grain Size: Very fine grained Sugary textured folded/foliated quartzite Foliations subparallels core axis Extremely hard		Limonitic staining Talc, sericite, chlorite along foliations Stockwork quartz veining Quartz flooding	Tr py as fracture filling vnlts and along foliae «tr gn»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		151.7-153.0m Silicified massive quartzite			Trace py	
		157.0m foliation	25			
		157.3-158.8m Extremely silicified massive qtzte		Minor chlorite sericite along fractures	Trace py	
		161.0-161.9m Foliated fractured quartzite		Sericite, chlorite	Trace py	
		164.6-165.8m Foliated stockwork veined quartzite		Sericite, chlorite, Fe staining	Trace py	
		END OF HOLE				

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm: T Ag	gm: T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21051	7.4	8.3																					
BCD21052	8.6	9.45																					
BCD21053	11.0	11.54																					
BCD21054	15.0	15.8																					
BCD21055	16.63	17.0																					
BCD21056	17.9	18.45																					
BCD21057	19.0	19.25																					
BCD21058	19.4	19.75																					
BCD21059	19.9	20.12																					
BCD21060	21.45	21.8																					
BCD21061	23.3	23.7																					
BCD21063	30.43	31.1																					
BCD21064	34.73	35.17																					
BCD21065	37.7	38.3																					
BCD21066	41.46	42.9																					
BCD21067	43.6	43.9																					
BCD21068	44.45	46.8																					
BCD21069	47.3	47.9																					
BCD21070	48.1	48.2																					
BCD21072	49.9	50.5																					

HOLE NO TL-1

PAGE 1

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm: T Ag	gm: T Au	% S_1O_2	% T_1O_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21073	51.72	53.1																					
BCD21074	57.5	57.9																					
BCD21075	58.0	58.5																					
BCD21076	58.67	58.97																					
BCD21078	60.05	60.45																					
BCD21081	64.8	65.0																					
BCD21085	73.8	75.7																					
BCD21086	76.1	77.4																					
BCD21087	77.5	78.1																					
BCD21088	78.23	80.23																					
BCD21089	80.6	81.45																					
BCD21090	82.44	83.17																					
BCD21091	83.25	83.6																					
BCD21092	83.66	84.1																					
BCD21093	85.5	86.63																					
BCD21094	94.35	95.0																					
BCD21095	104.2	104.4																					
BCD21096	105.3	106.7																					
BCD21097	107.1	107.86																					
BCD21098	107.86	107.98																					

HOLE NO TL-1

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm: T Ag	gm: T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21099	107.98	108.53																					
BCD21100	109.75	110.2																					
BCD21101	141.0	142.3																					
BCD21102	142.3	145.75																					
BCD21103	145.75	148.6																					
BCD21104	148.9	151.6																					
BCD21105	112.75	114.85																					
BCD21108	120.95	121.17																					
BCD21109	121.75	121.9																					
BCD21110	122.32	122.92																					
BCD21116	151.7	153.04																					
BCD21117	157.3	159.0																					
BCD21118	160.97	162.0																					
BCD21119	164.7	165.85																					

HOLE NO TL-1

PAGE 3

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM ( )	TO ( )	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	TRACE ELEMENTS ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	
BCD21062	24.39	27.44																				
phyll Qtzite																						
BCD21071	47.45	49.9																				
chlor phyll																						
BCD21077	59.1	59.94																				
mafic Intrusive																						
BCD21079	60.45	62.25																				
mafic Intrusive																						
BCD21080	63.1	64.68																				
chlor, calc, phyll																						
BCD21082	65.7	66.5																				
mafic dyke																						
BCD21083	66.5	67.63																				
chlor, calc, phyll																						
BCD2108H	71.6	72.56																				
Fol Qtzite																						
BCD21106	115.0	115.8																				
Intermediate Intrusive																						
BCD21107	119.71	120.95																				
Intermediate Intrusive																						

Hole No. TL-1 Entered by R. Young Logged by C. Clayton Page No. 1

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM ( )	TO ( )	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	TRACE ELEMENTS ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	
BCD21111	123.75	125.55																				
Intermediate Intrusive																						
BCD21112	125.65	126.7																				
Intermediate Intrusive																						
BCD21113	129.05	131.5																				
Intermediate Intrusive																						
BCD21114	132.05	134.0																				
Intermediate Intrusive																						
BCD21115	139.3	140.85																				
Intermediate Intrusive																						

Hole No. TL-1 Entered by R. Young Logged by C. Clayton Page No. 2

HOLE NUMBER: TL-2

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: RICHTER
PROJECT NUMBER: 656
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID: Testalinden
NORTH: 940.00N
EAST: -935.00W
ELEV: 1420.00

ALTERNATE COORDS GRID: Testalind.
NORTH: 9+40N
EAST: -9+35W
ELEV: 1420.00

COLLAR DIP: -60° 0' 0"
LENGTH OF THE HOLE: 53.66m
START DEPTH: 0.00m
FINAL DEPTH: 53.66m

COLLAR GRID AZIMUTH: 270° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 240° 0' 0"

DATE STARTED: September 23, 1990
DATE COMPLETED: September 24, 1990
DATE LOGGED: September 23, 1990

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

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

CONTRACTOR: LONE RANGER
CASING: RECOVERED
CORE STORAGE: GREENWOOD

PURPOSE: To test depth extent of Albite Zn 7 to attempt to intersect QVN in TL1. Setup on Albite Zn.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
36.58	-	-59° 0'	ACID	ok		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.60	«CASING»					
4.60 TO 25.50	«ALBITE ZN» Albitized mafic intrusions "Albite Zone"	Colour: Buff (beige) to greyish green Grain size: fine grained Fine grained unfoliated highly fractured (stock-work) and veined intermediate to mafic intrusive (dioritic)		Extreme almost complete albitization Some fractures are chlorite filled Fe staining along fractures Trace calcite along some fractures Hematite along some fractures		
		7.3m 1cm wide quartz vein -vuggy vn selvages	10		7.3m trace py along selvages - weathered out	
		10.67-12.0m Buff to white highly fractured blocky core with strong Fe and hematite along fractures				
		12.6m Pyrite vein -somewhat vuggy	15		⌈12.6⌉«py vn 1cm wide»	
		16.7m Quartz/albite/pyrite vein, vuggy	10	Fe staining -weathered py	⌈16.7⌉«qz/alb/py vn»	18.6m becoming more chloritic with depth, possibly less albitic
				⌈23.17-23.5⌉«kspar» filling occassional voids		
		25.5m Fault contact	30			
25.50 TO 28.50	«SIL FLT BX & MYL» Silicified Fault bx & Mylonite	Colour: Grey Grain Size: Variable Varying silicified shear fabrics and brecciated zones with mylonitic appearing core with c=s	30	Silicified Calcareous in mylonitic zones		Core is very blocky and fragmented
28.50 TO 29.50	«SIL QTZTE QVN» Silicified Quartzite/ Quartz Vein	Colour: Grey white Grain Size: Fine grained Foliated to massive quartzite that has undergone quartz veining and silicification Foliation Bottom contact is vuggy	25	Weak carbonate along fractures Possibly some Kspar alteration	«tr py, gn»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
29.50 TO 31.60	«DIOR INT» Dioritic Intrusion	Colour: Greenish grey Grain Size: Fine grained to medium grained Massive unfoliated to weakly foliated fine grained to medium grained dioritic intrusion		Quartz carbonate veining Chloritic fractures	Trace py	
31.60 TO 50.20	«CALC CHL PHYLL» Calcareous Chloritic Phyllite	Colour: Grey Grain Size: Fine grained to medium grained Well foliated calcareous chloritic phyllite with closely spaced (5mm) compositional bands and boudins of quartz carbonate defining foliation	35	Pervasive quartz carbonate alteration Calcite is Fe poor Occasional stockwork quartz carb vning	Trace fine grained py occuring along foliations	Core is very competant
		38.7-41.4m Quartz carbonate veining and flooding	25	38.7-41.4m Quartz carb veining and flooding	┤38.7-41.4├«1% py, po» foliae	
		43.1-43.4m Massive quartzite -weakly foliated	30	46.0-47.9m More abundant Fe staining along fractures and foliae; calcite is Fe rich with ankerite		
		50.2m Contact	35			
50.20 TO 53.66	«CHL PHYLL» Chloritic Phyllite	Colour: Greenish grey Grain Size: Fine grained Fine grained alternating light and dark chloritic bands Little to no quartz carbonate compositional bands	35	Fe staining along fractures Chlorite	Tr pyritic foliae	
		┤51.8-51.9├«qz vn»	45			
		END OF HOLE				

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21120	4.57	7.5																					
BCD21121	7.55	10.67																					
BCD21122	10.7	13.65																					
BCD21123	13.65	16.65																					
BCD21124	16.7	19.4																					
BCD21125	19.5	22.6																					
BCD21126	22.65	25.0																					
BCD21127	25.1	28.4																					
BCD21128	28.5	29.4																					
BCD21129	29.5	31.4																					
BCD21130	31.75	33.6																					
BCD21131	38.7	41.6																					
BCD21132	43.0	43.32																					
BCD21133	46.1	47.86																					
BCD21134	51.9	52.0																					

HOLE NO TL-2

HOLE NUMBER: TL-3 MINNOVA INC. DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: RICHTER
PROJECT NUMBER: 656
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID: TESTALINDEN
NORTH: 940.00N
EAST: -935.00W
ELEV: 1420.00

ALTERNATE COORDS GRID: TESTALIND.
NORTH: 9+40N
EAST: -9+35W
ELEV: 1420.00

COLLAR DIP: -90° 0' 0"
LENGTH OF THE HOLE: 93.00m
START DEPTH: 0.00m
FINAL DEPTH: 93.00m

COLLAR GRID AZIMUTH: 270° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: ° ' "

DATE STARTED: September 24, 1990
DATE COMPLETED: September 25, 1990
DATE LOGGED: September 24, 1990

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

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

CONTRACTOR: LONE RANGER
CASING: RECOVERED
CORE STORAGE: GREENWOOD

PURPOSE: To test depth extent of albite 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
56.40	-	-89° 0'	ACID	ok		-	-	-	-	-	
92.99	-	-88° 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»					
3.00 TO 15.70	«ALBITE ZN» "Albite Zone" Albitized mafic intrusion	Colour: Grey white Grain Size: fine grained Fine grained albitized mafic intrusion with high fracture density Diorite		Fe Mn staining along fractures Silicification 3.0-10.5m Surface weathering giving a rusty gossanous appearance		
		⌈3.4-3.5⌋«qz vn»	10	3.4-3.5m Fe staining, chlorite	3.4-3.5m Tr-1% py	
		3.5-15.7m High density stockwork fracturing and quartz pyrite veining; Some vuggy zones		Albite, chloritic fractures	⌈3.5-15.7⌋«1% py» occuring along fractures and with quartz veinlets	
		⌈11.4⌋«qz py vn»	20		5% pyrite	
		12.0-12.2m Extremely vuggy fractured segment	30		tr pyrite	
		15.7m Brecciated and fractured contact Shear Fabric	60	Chloritic fractures, Fe staining, silicified, possibly quartz vein	Tr pyrite	
		⌈15.7⌋«flt»				
15.70 TO 16.90	«PHYLL QTZTE» Phyllitic Quartzite	Colour: Grey white Grain Size: Fine grained Fine grained, well foliated phyllitic quartzitle with chloritic foliae	60	Chloritic foliae Fe staining	Tr py	
		16.9m Developing mylonitic fabric				
16.90 TO 19.20	«FLT GOUGE & BX» Fault gouge and breccia	Colour: Reddish Brown Grain Size: Variable Reddish brown highly fractured and gouged quartzite		Fe oxidation Mn staining		
19.20 TO 59.30	«SIL CHL CA LC PHYLL» Siliceous chloritic calcareous phyllite	Colour: Grey Grain Size: fine grained Well foliated, compositionally banded (quartz carb comp bands) Foliae mm apart Crenulation cleavage 290/50	60	Weak carb (Fe poor) to Fe rich Chlorite	Trace to 1% fg py (diss) along foliae ie. banded	Quartz carb compositional bands increase in thickness with depth in hole

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		28.4-28.6m Quartz vein	65	Fe free to Fe rich + dolomite	Tr py, cpy	
		31.9-34.5m Well foliated and quartz carbonate veined		FE rich calcite	Tr-1% fg pyrite along foliae	
		34.5-36.1m Mafic intrusion; Fine grained, unfoliated		Fe rich carb veining and matrix alt	3% fg diss pyrite	
		41.7-42.7m Foliation to	65 70	carb, chl	1% py along foliae tr py,cpy	
		42.7-42.9m Quartz vein	25	Fe staining and discoloration; Fe free calcite to Fe rich calcite and Fe dol		42.7m Silicification increasing
		49.1-49.2m Quartz vein	80		Tr py	
		foliation	45			
		49.4-49.7m foliated quartzite			Tr py, cpy	
		54.7-55.1m Mafic dyke, fine grained green with carb veins to	75 80	Fe rich calcite, Fe dol, chlorite	⟨54.7-55.1⟩«12% py,po,tr cp,gn» (10-15%)	
		⟨54.7-55.1⟩«Maf dyke»				
		⟨56.4-56.6⟩«qvn»; massive white, fine grained	80	Sericite	56.4-56.6m Weathered pyritic vein with quartz vein at 25 deg to CA	
		59.3m Contact		56.6-59.3m Increasing carbonate alt		
59.30 TO 72.90	«MSSV-WKLY FOL QTZTE» Massive to weakly foliated Quartzite	Colour: White Grain Size: Fine grained Very competant Weak foliation	60	Fe staining along fractures Strong carb along fractures and foliae Occasiohnal quartz carb veinlets	In trace amounts assoc with quartz carbonate veinlets	
		63.8m Unit becomes more massive with increasing quartz veining		63.8m Silica flooding from quartz veining		
		67.1-67.4m 5cm wide quartz veins with trace py along selvages	30		⟨67.1-67.4⟩«tr py in qz vn» 5cm wide quartz vein with tr pyrite along selvages	
		67.7-68.4m Well foliated quartzite	55	Chlorite foliae		
		68.4-68.7m Chloritic phyllite with quartz compositional bands				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		68.7-68.9m Vuggy quartz vein		Fe staining; carb along vugs and fracs		
		69.4-69.5m 1cm wide quartz vein	42			
		72.6-72.8m Silicified calcareous fault breccia; angular various sizes	55	72.6-72.8m Sil, carb alteration		
72.90 TO 73.30	«SIL PHYLL» Siliceous Phyllite	Colour: Grey green Grain Size: fine grained				
		72.9m Upper contact	55			
		Fine grained alternating lighter and darker coloured crenulated bands Foliae ~1mm apart and parallel to contact		Extremely silicified	Trace py in occasional quartz veinlet	
		73.3m Lower contact	50			
73.30 TO 78.80	«QZ VN STKW RK» Quartz Vein Stockwork	Colour: White grey with green tint Grain Size: Fine grained Randomly oriented quartz stockwork veining and fracture fillings		73.3-75.9m Silica flooding and chloritic alteration of host rock	┤73.3-75.9├«2-5% py vnlts», void, fracture fillings	
				75.9-78.8m Primarily silicification; no chloritization	┤75.9-77.3├«po,cp zone» 2-5% po as veinlets, fracture fillings and void fillings assoc with tr amount of cpy and py Po euhedral to 1cm cubes locally	
78.80 TO 83.30	«FOL QTZTE» Foliated Quartzite	Colour: Grey white Grain Size: Fine grained Fine grained well foliated quartzite with chloritic foliae	55	Chloritic foliae Minor Fe staining, ank, ser along fractures		
		┤80.8-81.0├«flt gouge»				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
83.30 TO 93.00	«CALC CHL P HYLL»	colour: Grey Grain Size: Fine grained Fine grained well foliated calcareous chloritic phyllite Alternation while quartz carbonate compositional bands with phyllitic bands	40	Foliae are chloritic Carbonate alteration of matrix Some talc and clay alteration	Some bands are very fine grained diss py up to 2cm thick Foliae are pyritic near these bands Occasional pyritic veinlets Pyrite in some quartz carb bands up to 3% 90.85-91.1m Interfolial po and cp Po tr-1% cp tr	
		91.2m 2cm wide quartz veins	50			
		END OF HOLE				

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm:T Ag	gm:T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21135	3.05	6.0																					
BCD21136	6.0	8.65																					
BCD21137	10.82	12.0																					
BCD21138	12.3	15.37																					
BCD21139	15.4	15.65																					
BCD21140	15.65	16.0																					
BCD21141	2.85	3.05																					
BCD21142	12.0	12.3																					
BCD21143	16.0	17.0																					
BCD21144	17.2	19.21																					
BCD21145	19.3	22.0																					
BCD21146	25.91	26.5																					
BCD21147	26.5	29.0																					
BCD21148	31.8	35.2																					
BCD21150	36.15	38.11																					
BCD21201	41.77	43.0																					
BCD21202	43.0	43.25																					
BCD21203	43.3	44.21																					
BCD21204	49.1	49.25																					
BCD21205	49.5	49.94																					

HOLE NO TL-3

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm: T Ag	gm: T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21206	53.4	54.65																					
BCD21208	55.1	56.15																					
BCD21209	53.35	53.65																					
BCD21210	59.35	62.0																					
BCD21211	67.0	67.35																					
BCD21212	68.85	69.05																					
BCD21213	69.6	69.8																					
BCD21214	76.6	76.9																					
BCD21215	76.65	74.05																					
BCD21216	74.1	75.8																					
BCD21217	75.9	78.9																					
BCD21218	80.73	81.17																					
BCD21219	83.6	84.35																					
BCD21220	86.0	86.58																					
BCD21221	87.45	88.1																					
BCD21222	90.85	91.45																					

HOLE NO TL-3

LITHOGEOCHEMISTRY

			MAJOR OXIDES										TRACE ELEMENTS									
SAMPLE NUMBER	FROM ( )	TO ( )	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	
BCD 21149	35.25	36.1																				
Mafic Intrusive																						
BCD 21207	54.65	55.1																				
Mafic Dyke																						

Logged by

Page No. 1

HOLE NUMBER: TL-4

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: RICHTER
PROJECT NUMBER: 656
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID: TESTALINDEN
NORTH: 600.00N
EAST: 120.00W
ELEV: 1215.00

ALTERNATE COORDS GRID: TESTALIND.
NORTH: 6+ 0N
EAST: 1+20W
ELEV: 1215.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 150.00m
START DEPTH: 0.00m
FINAL DEPTH: 150.00m

COLLAR GRID AZIMUTH: 270° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 270° 0' 0"

DATE STARTED: September 26, 1990
DATE COMPLETED: September 28, 1990
DATE LOGGED: September 26, 1990

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

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

CONTRACTOR: LONE RANGER
CASING: RECOVERED
CORE STORAGE: GREENWOOD

PURPOSE: To test IP anomaly B at a depth of ~50m below surface.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
26.21	-	-46° 0'	ACID	ok		-	-	-	-	-	
61.28	-	-46° 0'	ACID	OK		-	-	-	-	-	
96.01	-	-45° 0'	ACID	OK		-	-	-	-	-	
114.33	-	-46° 0'	ACID	OK		-	-	-	-	-	
150.00	-	-46° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: C.J. Clayton

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.10	«CASING»					
6.10 TO 13.70	«PHYLL QTZT E/FOL QTZT»	Colour: Dark grey Grain size: Fine grained Dark grey to black well foliated phyllitic quartzite with anastomosing graphitic (?) foliae Quartz carbonate lensoidal bands 9.2-9.7m quartz veining 10.6-11.3m More strongly foliated; foliae every 1-3mm	30 30 45	Very weak carbonate Graphitic(?) foliae Silicification Minor Fe staining along fractures Minor sericite Graphitic Foliae Occasional quartz veining	Interfolial pyrite -occurs with graphitic foliae and in some instances as fracture fillings in trace amounts Interfolial pyrite to 15% in particular foliae Occasionally massive along foliae	
13.70 TO 32.00	«CHL CALC PHYLL» Chloritic Calcareous Phyllite	Colour: Green grey Grain size: Fine grained Green grey well foliated fine grained chloritic calcareous phyllite Quartz carbonate lenses and compoisition banding paralleling foliation 13.7m Foliation 16.3-16.5m Quart vein 16.61m Foliation 16.9-17.61m Small, fine grained mafic intrusion 17.6m foliation 17.7-17.9m Fault gouge 21.8-22.2m Fault gouge 24.4-25.3 «Flt gouge» and blocky core Angle to core axis parallels foliation 26.5m Foliation 32.0m Contact (parallel to foliation)	 20 28 90 24 28 14	Chloritic foliae Quartz carb compositional banding and lenses Carbonate alteration of matrix (wk to strong) 22.2m Calcareous and chloritic alt increasing with depth		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
32.00 TO 32.60	«ALT PHYLL» Altered Phyllite	colour: Buff Grain Size: Fine grained Fine grained foliated buff to greyish brown alt. phyllite Foliation Foliation defined by chloritic laminae and aligned lenses	18	30% dolomitic alteration Weak calcite Quartz carbonate stockwork veining Clay alteration 32.5-32.6m alteration intensifies near contact and is dark brown in colour	Foliae are pyritic to 25% within individual foliae (massive) Very fine grained pyrite in matrix	Possibly foliated altered intrusive??
32.60 TO 32.80	«DIOR» Mafic Intrusion (Diorite)	Colour: Grey green Grain Size: Medium grained Medium grained greyish green euhedral to subhedral equant dioritic intrusion		Weak dolomitic alteration	«20-30% py,po» diss	Moderately magnetic
32.80 TO 36.70	«ALT PHYLL» Altered Phyllite	Colour: Buff Grain size: Fine grained Description: See 32.0-32.6m Increasing stockwork quartz carbonate veining 33.7-34.1m quartz vein 36.0m Foliation 35.6-35.8m Quartz vein 36.7m contact	 20 10 14	30% dolomitic alteration Weak calcite Quartz carb stockwork Clay alteration Weak ser, chl	 Tr py, gn? Tr py	Possibly foliated altered intrusive? This contact does not show any truncation of foliation so this is assumed to be altered phyllite
36.70 TO 49.30	«CHL CALC PHYLL»	Colour: Grey green Grain size: Fine grained Well foliated greyish green chloritic, weakly to moderately calcareous phyllite 37.0-38.4m Dolomitized phyllite Alternating chloritic bands with quartz carbonate bands 38.8-41.6m Dolomitic phyllite 47.2-49.2m Very fine grained chloritic phyllite	 45	Carbonate tr to 15% Chloritic foliae 25% Clay alteration Chlorite 30%, occasional quartz carb	Tr to 2% rg diss pyrite in matrix	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				veins	47.2-48.2m fg diss pyrite to 10%	
				48.4-48.8m Extreme silicification	1-2% fracture filling py and veinlets	
		49.3m contact	38			
49.30 TO 50.70	«SIL PHYLL» Siliceous/ silicified Phyllite	Colour: Grey Grain Size: Fine grained Fine grained well foliated alternating dark grey and greenish grey bands Very hard Foliation 50.7m Contact	 38 32	505 silicification chlorite graphitic bands	1-2% py as stringer veinlets and along foliae	
50.70 TO 58.60	«CHL CALC P HYLL» Chloritic Calcareous Phyllite	Colour: Grey Grain Size: Fine grained Description: See 36.7-49.3m Quartz carbonate compositional bands Foliation	 25	Chlorite (weak) Carb (mod) Clay (mod) Graphitic	Tr py	
58.60 TO 60.80	«FOL QTZTE» Foliated Quartzite	Colour: Grey Grain Size: Fine grained Moderately foliated with graphitic foliae	 28	Graphitic foliae Weak carbonate alteration along frac's and foliae		
60.80 TO 64.60	«GRPH CALC PHYLL» Graphitic Calcareous Phyllite	Colour: Grey to black Grain Size: Fine grained Alternating lighter and darker bands of fine grained foliated laminae Foliation 64.0-64.4m 1cm wide quartz vein, pyrite bands replacing quartz carb	 26	Carbonate 10-20% Quartz carb comp bands Graphitic foliae	«interfolial py to 35%» along individual foliae Pyrite bands replacing quartz carb bands near contact	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
64.60 TO 68.40	«FOL QTZTE» Foliated Quartzite	Colour: Dark grey Grain Size: Fine grained 64.6-64.7m Broken core, slightly gouged, possibly fault Dark grey fine grained foliated quartzite	26	Graphitic foliae Weak carbonate alteration	Pyritic foliae assoc with graphitic foliae	Missing core at base
68.40 TO 69.50	«ALT PHYLL» Altered Phyllite	Colour: Brown grey Grain size: Very fine grained Very fine grained weakly foliated brownish grey phyllite Crosscut by dioritic dykelets 69.5m Graphitic fault gouge		10% dolomitic Graphitic foliae	1% fine grained pyrite and po with dioritic dykeltets	
69.50 TO 69.90	«GRPH FLT» Graphitic Fault	Colour: Black to grey Grain Size: Fine grained Black, extremely graphitic fault gouge followed by silicified brecciated quartzite 69.9m Contact	35	Strong carbonate alteration of fracs. Graphitic Tr fuchsite in brecciated quartzite	Tr py	
69.90 TO 71.40	«FOL QTZTE» Foliated Quartzite	Colour: Grey Grain size: Fine grained Fine grained grey well foliated quartzite	35	Graphitic, chllritic foliae	Tr to 1% pyrite in fractures Pyritic veinlets	
71.40 TO 73.90	«CHL PHYLL» Chloritic Phyllite	Colour: Dark grey/green Grain Size: Very fine grained Very fine grained competent foliated chloritic phyllite foliation	35	Clay alteration Chloritic foliae Quartz carb compositional bands Pervasive dolomitic altertion	«2-3% py,po» diss and veinlets	
73.90 TO 75.00	«MAF INT» Mafic Intrusion	Colour: Grey green Grain Size: Fine grained 1-3mm euhedral to anhedral fsp phenocrysts in fg matrix Unfoliated		Weak to moderate dolomitic Weak Fe rich calcite Weak silicification	Trace pyrite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		75.0m Lower contact	05			
75.00 TO 78.70	«CHL PHYLL» Chloritic Phyllite	Colour: Dark grey/green to brownish localaly Grain Size: Fine grained to very fine grained Fine grained to very fine grained foliated chloritic phyllite with quartz carb compositional bands		Moderate dolomitic Calcareous bands Fractures calcareous Possibly feldspar alteration	2-3% pyrite occurring along foliae and in fractures	
78.70 TO 80.80	«DIOR INT» Dioritic Intrusion	Colour: Grey green Grain Size: Fine grained Massive, competant unfoliated fine grained equant subhedral feldspars unoriented 80.8m Contact	 20	Calcareous Chloritic	Trace disseminated py throughout	
80.80 TO 81.40	«PHYLL + DI OR» Phyllite/ Diorite	colour: Grey green Grain Size: Fine grained to very fine grained Very fine grained to fine grained alternating phyllite and diorite		Talc bands Calcareous Chloritic	Tr diss py	Chilled margin
81.40 TO 95.10	«SIL PHYLL» siliceous Phyllite	Colour: Grey Grain Size: Very fine grained Very fine grained cherty appearing well foliated siliceous/silicified phyllite with interbeds of fine grained calcareous phyllite 87.4m Foliation 95.1m Contact	 28 25	Silica 10% Dolomite 10% quartz carb veinlets and compositional bands	1-2% fg dis py and po throughout matrix Along fractures is radiating sand dollar py (marcasite) up to 10% of individual fractures	Gunmetal grey oxidation on fractures
95.10 TO 97.56	«FOL QTZTE» Foliated Quartzite	Colour: Grey, white grey Grain size: Fine grained Fine grained well foliated, graphitic foliae Foliae anastomose around lensoidal quartzite 97.56m Fault contact Fine high density stockwork quartz veining at contact	 55	Graphitic foliae Graphite increasing down towards fault contact	Pyrite and pyrrhotite occur as stromgers along foliae and in fractures 96.0-96.3 «2% py,po strngers» occur with graphitic foliae	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
97.56 TO 100.80	«FLT BX & GOUGE» Fault bx & gouge	Colour: Grey to black Grain Size: Fine grained Grey to black brecciated and gouged quartzite		Extremely graphitic	Pyrite stringers to 2%	
		97.56-97.7m Breccia with graphitic and py between bx clasts	55	Graphitic	Tr pyrite	
		100.5-100.8m Stockwork fractured		Graphitic	100.5-100.8 «15-20% py,po» fg, diss along fractures	
100.80 TO 110.10	«SIL PHYLL & QTZTE» Siliceous Phyllite & Quartzite	Colour: Grey Grain Size: Fine grained Fine grained grey to black alternating siliceous phyllite and foliated to massive quartzite				
		102.5-102.6m Silicified graphitic brecciated core 102.8-103.1m Interbed of vfg phyllite 104.4-105.2m Massive to weak foliated quartzite with graphitic foliae and fractures 107.0-107.3m Broken core -minor gouge 108.6-108.7m Graphitic fault gouge	50		2% py with graphite, tr-1% in quartz	Core is very broken
		109.5-110.0m Quartzite and quartz veining		Extremely graphitic	Up to 10% py assoc with graphitic foliae and occasionallu within quartz	
110.10 TO 114.70	«CHL PHYLL» Weakly Calcareous Chloritic Phyllite	Colour: Grey green Grain size: Fine grained Fine grained weakly foliated chloritic weakly calcareous phyllite	45	Chlorite Weak carbonate		
		113.8-114.2m Small interbed of quartzite				
114.70 TO 121.20	«FOL QTZTE/ SIL PHYLL» Foliated Quartzite/ Siliceous Phyllite	Colour: Dark grey with green tint Grain Size: Fine grained Weakly chloritic and calcareous foliated quartzite /siliceous phyllite Foliation varies to very low angle with core but on average ---------->	45	Weakly chloritic calcareous alteration		
		121.2m contact	40			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
121.20 TO 124.70	«CHL PHYLL» Chloritic Phyllite	Colour: Light grey/green Grain Size: Fine grained Foliated (MInor graphitic) silicified chloritic phyllite Foliation	 45	Silicified Occasional quartz carbonate bands Graphitic fractures		
124.70 TO 148.50	«FOL QTZTE» Foliated Quartzite	Colour: Light to dark grey Grain Size: Fine grained Foliated quartzite with interbeds of fine grained chloritic phyllite containing quartz carbonate compositional bands and fractures Phyllitic horizons are brownish foliation 127.7-128.5m Fine grained light brown chloritic phyllite 129.7-130.2m Fractures core 130.3-131.2m Finge grained chloritic phyllite 131.2-132.0m Stockwork quartz carb veins 134.7m Fault gouge 134.9-135.1m Small mafic intrusion 134.6-136.8m Extremely broken core 136.7m Fault gouge 138.2m Fault gouge 141.7-144.5m Interbed of greenish grey fine grained weakly calcareous phyllite 144.9-145.3 «flt gouge» Fractured brecciated quartzite	45	Quartzite foliae are graphitic quartz carb veining Chloritic, clay altered Extremely graphitic 137.3-137.7m Extremley graphitic	Pyritic, pyrrhotitic foliae to 5% 129.7-130.2 «mm scale py vns» Graphitic/pyritic foliae to 15% 131.2-132.0m po vnlts 134.6-136.8 «py to 20%» 137.3-137.7 «py to 15%»	
148.50 TO 150.00	«CHL CALC P HYLL» Chloritic Calcareous Phyllite	Colour: Grey green Grain Size: Fine grained Grey green fine grained chloritic calcareous phyllite with quartz carbonate compositional bands Foliation/banding END OF HOLE	40	Quartz carbonate compositional bands		

ASSAY SHEET

Sample Number	From ( )	To ( )	Estimate Cu	Estimate Zn	Length ( )	% Cu	% Zn	% Pb	gm: T Ag	gm: T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD21223	9.15	9.7																					
BCD21224	10.6	11.88																					
BCD21225	16.3	16.55																					
BCD21227	17.5	17.75																					
BCD21228	21.95	22.3																					

HOLE NO TL-4

PAGE 1

			MAJOR OXIDES										TRACE ELEMENTS									
SAMPLE NUMBER	FROM ( )	TO ( )	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	P_2O_5	ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	
BCD21226	16.9	17.4																				

Hole No. TL-4 Entered by R. Young Logged by C. Clayton Page No. 1