

Richter
824792

HOLE NUMBER: TL-1

MINNOVA INC.
DRILL HOLE RECORD

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 Anastomosing phyllitic horizons Foliae are mm apart Some pygmatically 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 18.0-18.5m Increasing fracture density Either quartz vn or quartzite horizon Vuggy	20	80% silicification Fe carb (ank)<-----	Pyritic foliae 2-3% Occasional pyrite stringer perpendicular to foliation 18.0-18.5m Increasing pyritic frags 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 ‡19.9-20.1‡«QVN» Subvertical, 5% fractured 21.5-21.9m Foliation Small shear fabric perpendicular to foliation <between = 30 deg 22.6 - 22.7m Quartz carbonate vein 24.9 - 27.4m Extremely well developed foliation Extremely competent Calcareous phyllite 30.1 - 31.0m Massive unfoliated quartzite	25 45 25 45 25	Clay alt Fe rich calcite Fe dol Fractures have Fe staining Carbonate banding Carbonate alt of matrix Banding is Fe rich calcite Matrix is dolomite Calcareous fractures, extremely silicified	1-2% pyritic foliae «py along frags» semi massive in areas ‡21.5-21.9‡«3-4% py comp band along foliae» 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 P HYLL» 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 QTZT E»	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 fract	
38.60 TO 48.60	«CHL PHYLL» CHLORITIC PHYLLITE	Colour: Light green, grey green Grain Size: Fine grained Description: See 31.0-34.0m Transitional in interbeds of calcareous phyllite with quartz carbonate 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 Descripton: See 38.6-48.6m Also quartz carb compositional banding and veining Extremely competent 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	35	Black quartz banding	Fracture and foliation controlled mineralization to 1% py, cpy, po	
		58.7m Lower contact, foliation becomes swirled			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 competent		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
				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 Descripton: See 38.6-48.6m Also quartz carb compositional banding and veining Extremely competent foliation 57.5-57.9m Interbed of foliated qtzite foliation/contact 58.7m Lower contact, foliation becomes swirled	25 35	Chloritic 51.7-52.9m qtz-carb vning and compositional banding Weak silicification Black quartz banding	52.0-52.9m Very fg stratiform sx bands assoc with qtz carb banding to 5% py, cpy, sp? 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 competent		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 P HYLL» 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 hblnd and feldspar porphyritic dyke Phenocrysts are ~1mm dimension	90	10-15% calcite Hematite in fine trace amounts		
66.50 TO 71.50	«CHL CALC P HYLL» 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 83.2-83.4m Phyllitic interbed folded into and out of core axis 83.6-84.1m extremely folded/foliated quartzite with foliations every 5mm Main foliation 2nd folding perpendicular Lower contact	 35 20 45	Graphitic, chloritic foliae Fe staining along fractures Fe staining Carbonate altered phyllite Fe staining Fe staining	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 82.5-83.0m 15% pyritic foliae up to 1cm width; vuggy quartzite 83.2-83.4m «15-20% py» diss in phyll and 15% py in foliations of quartzite 15% vuggy pyritic foliae	 almost ptymaticly folded
84.14 TO 92.10	«CHL CALC P HYLL» CHLORITIC CALCAREOUS PHYLLITE	Colour: Grey/green Grain Size: Fine grained Well Foliated chloritic calcareous phyllite foliation 87.7m Possibly fault gouge 89.7-89.8m Minor «fault» 90.8-91.2m Quartz carbonate boudins to 3cm along foliation	 30 16	Pervasive calcite alteration (60%) mm scale calcite laths/rhombs	Trace py Fe staining occasionally on fractured surfaces	
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 P HYLL» 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 CA LC 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	«GUGE» 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 competent unfoliated equant intermediate intrusion 1-3% quartz eyes 30-40% mafics 60-70% plagioclase 119.3-119.4m Small quartzite band Lower contact definitely intrusive 122.25m Clay gouge material	90	Calcareous Fe staining on fractures 120.9m py vnlt at 10 deg to CA 121.9m 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, competent 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 competent 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 QTZITE» FOLIATED TO MASSIVE QUARTZITE	Colour: White to grey Grain Size: Very fine grained Sugary textured folded/foliated quartzite Foliations subparallels core axis Extremely hard		Limonic staining Talc, sericite, chlorite along foliations Stockwork quartz veining Quartz flooding	Tr py as fracture filling vnlt and along foliae «tr gn»	

HOLE NUMBER: TL-1

MINNOVA INC.
DRILL HOLE RECORD

DATE: 18-October-1990

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS	
		151.7-153.0m Silicified massive quartzite	25		Trace py		
		157.0m foliation					
		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					

Sample	From (m)	To (m)	Length (m)	COMMENTS

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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HOLE NUMBER: TL-2

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) 7.3m 1cm wide quartz vein -vuggy vn selvages 10.67-12.0m Buff to white highly fractured blocky core with strong Fe and hematite along fractures 12.6m Pyrite vein -somewhat vuggy 16.7m Quartz/albite/pyrite vein, vuggy 25.5m Fault contact	10 15 10 30	Extreme almost complete albitization Some fractures are chlorite filled Fe staining along fractures Trace calcite along some fractures Hematite along some fractures Fe staining -weathered py «kspar» filling occasional voids	7.3m trace py along selvages - weathered out «py vn 1cm wide» «qz/alb/py vn»	18.6m becoming more chloritic with depth, possibly less albitic
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 P HYLL» 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 38.7-41.4m Quartz carbonate veining and flooding 43.1-43.4m Massive quartzite -weakly foliated 50.2m Contact	35 25 30 35	Pervasive quartz carbonate alteration Calcite is Fe poor Occasional stockwork quartz carb vning 38.7-41.4m Quartz carb veining and flooding 46.0-47.9m More abundant Fe staining along fractures and foliae; calcite is Fe rich with ankerite	Trace fine grained py occuring along foliations 38.7-41.4 «1% py, po» foliae	Core is very competent
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 51.8-51.9 «qz vn» END OF HOLE	35 45	Fe staining along fractures Chlorite	Tr pyritic foliae	

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 ‡3.4-3.5‡«qz vn» 3.5-15.7m High density stockwork fracturing and quartz pyrite veining; Some vuggy zones ‡11.4‡«qz py vn» 12.0-12.2m Extremely vuggy fractured segment 15.7m Brecciated and fractured contact Shear fabric ‡15.7‡«flt»	10 20 30 60	Fe Mn staining along fractures Silicification 3.0-10.5m Surface weathering giving a rusty gossanous appearance 3.4-3.5m Fe staining, chlorite Albite, chloritic fractures Chloritic fractures, Fe staining, silicified, possibly quartz vein	3.4-3.5m Tr-1% py ‡3.5-15.7‡«1% py» occurring along fractures and with quartz veinlets 5% pyrite tr pyrite Tr pyrite	
15.70 TO 16.90	«PHYLL QTZ E» Phyllitic Quartzite	Colour: Grey white Grain Size: Fine grained Fine grained, well foliated phyllitic quartzite with chloritic foliae 16.9m Developing mylonitic fabric	60	Chloritic foliae Fe staining	Tr py	
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	65 to 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 to 45		Tr py	
		49.4-49.7m foliated quartzite			Tr py, cpy	
		54.7-55.1m Mafic dyke, fine grained green with carb veins	75 to 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 competent Weak foliation	60	Fe staining along fractures Strong carb along fractures and foliae Occasional 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 69.4-69.5m 1cm wide quartz vein 72.6-72.8m Silicified calcareous fault breccia; angular various sizes	42 55	Fe staining; carb along vugs and fracs 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 Fine grained alternating lighter and darker coloured crenulated bands Foliae ~1mm apart and parallel to contact 73.3m Lower contact	55 50	Extremely silicified	Trace py in occasional quartz veinlet	
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 75.9-78.8m Primarily silicification; no chloritization	73.3-75.9 «2-5% py vnltts», void, fracture fillings 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 80.8-81.0 «flt gouge»	55	Chloritic foliae Minor Fe staining, ank, ser along fractures		

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 91.2m 2cm wide quartz veins END OF HOLE	40 50	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	

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»	<p>Colour: Dark grey Grain size: Fine grained</p> <p>Dark grey to black well foliated phyllitic quartzite with anastomosing graphitic (?) foliae Quartz carbonate lensoidal bands</p> <p>9.2-9.7m quartz veining</p> <p>10.6-11.3m More strongly foliated; foliae every 1-3mm</p>	<p>30</p> <p>30</p> <p>45</p>	<p>Very weak carbonate Graphitic(?) foliae Silicification Minor Fe staining along fractures</p> <p>Minor sericite</p> <p>Graphitic foliae Occasional quartz veining</p>	<p>Interfolial pyrite -occurs with graphitic foliae and in some instances as fracture fillings in trace amounts</p> <p>Interfolial pyrite to 15% in particular foliae Occasionally massive along foliae</p>	
13.70 TO 32.00	«CHL CALC P HYLL» Chloritic Calcareous Phyllite	<p>Colour: Green grey Grain size: Fine grained</p> <p>Green grey well foliated fine grained chloritic calcareous phyllite Quartz carbonate lenses and composition banding paralleling foliation</p> <p>13.7m Foliation</p> <p>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</p> <p>24.4-25.3 «Flt gouge» and blocky core Angle to core axis parallels foliation</p> <p>26.5m Foliation 32.0m Contact (parallel to foliation)</p>	<p>20</p> <p>28</p> <p>90</p> <p>24</p> <p>28</p> <p>14</p>	<p>Chloritic foliae Quartz carb compositional banding and lenses Carbonate alteration of matrix (wk to strong)</p> <p>22.2m Calcareous and chloritic alt increasing with depth</p>		

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 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 P HYLL»	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
		49.3m contact	38	veins 48.4-48.8m Extreme silicification	47.2-48.2m fg diss pyrite to 10% 1-2% fracture filling py and veinlets	
49.30 TO 50.70	«SIL PHYL» 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 PHYL» 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 dykellets	
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 frags. 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, chlritic 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 alteration	«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, competent unfoliated fine grained equant subhedral feldspars unoriented 80.8m Contact	20	Calcareous Chloritic	Trace disseminated py throughout	
80.80 TO 81.40	«PHYLL + DIOR» 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 pyrrotite occur as strongers 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 & G OUGE» Fault bx & gouge	Colour: Grey to black Grain Size: Fine grained Grey to black brecciated and gouged quartzite 97.56-97.7m Breccia with graphitic and py between bx clasts 100.5-100.8m Stockwork fractured	55	Extremely graphitic Graphitic Graphitic	Pyrite stringers to 2% Tr pyrite 100.5-100.8m «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 109.5-110.0m Quartzite and quartz veining	50	 Extremely graphitic	 2% py with graphite, tr-1% in quartz Up to 10% py assoc with graphitic foliae and occasionally within quartz	Core is very broken
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 113.8-114.2m Small interbed of quartzite	45	Chlorite Weak carbonate		
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 -----> 121.2m contact	45 40	Weakly chloritic calcareous alteration		

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 Fine 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 Extremely 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		

Sample	From (m)	To (m)	Length (m)	COMMENTS