



CLEVELAND TIN N.L.

CATEGORY

HOLE No.: C659

Ex.

GENERAL DATA

Objective: HALLS LENS SYSTEM - RT5m.

Area of Operation: Location: SURFACE, T SECTION.

Collar R.L.: 488.0 Co-ordinates: 15400.0 N, 11290.0 E.

Bearing of Hole: 312° Angle of Hole: - Final Depth: 571.80 metres

Drilling Commenced: Completed: Logged by: J.S. Palmer.

DRILLING DATA

Drilled by: LONGYEAR. Non Coring:

Drilling Rig: Coring:

Driller(s):

Core Recovery:

HOLE SURVEYS

TROPARI
ACID
CAMERA SURVEY

HOLE No.:

ABMINCO N.L. - Cleveland Mine

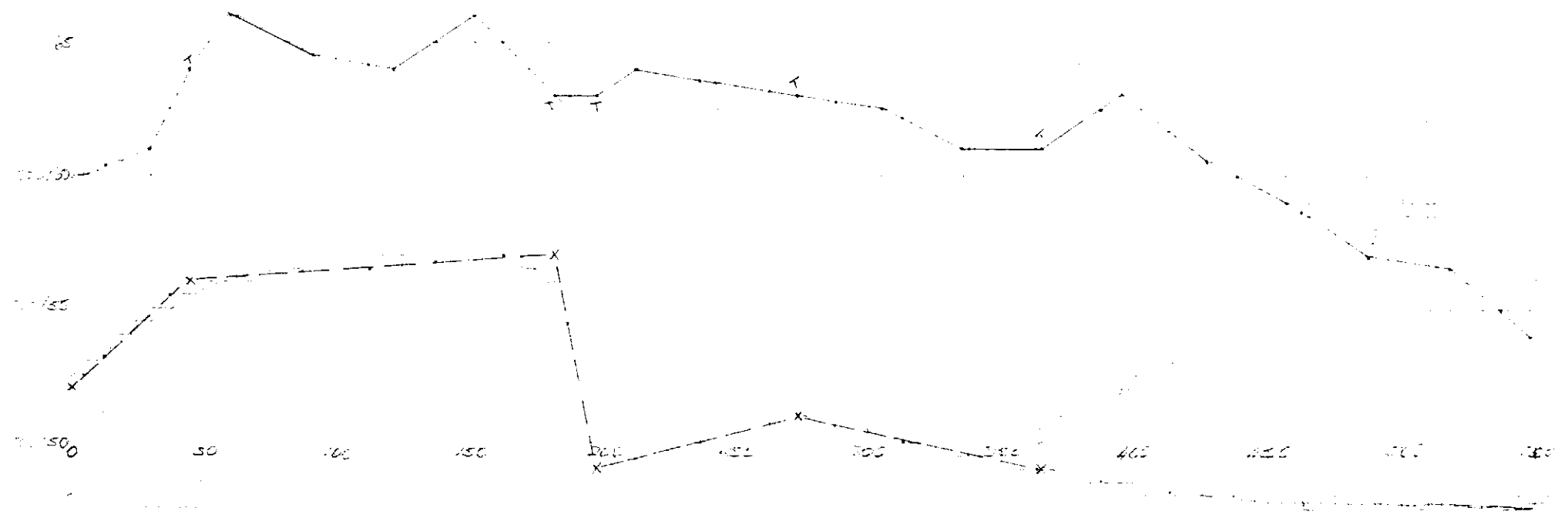
Hole No. C 659

DIAMOND DRILL HOLE DATA

Sheet No. 1

<u>PROGRAM DATA</u>				<u>SURVEY DATA</u>				<u>INTERPOLATED DATA</u>		
				Instrument Type	Depth	Dip	Azimuth	Depth	Dip	Azimuth
1	Attitude	CHS	(+) (-)		0		312	0		312
				ACID	30.48	61		12.5	60.3	313.1
2	Hole No.	659		TROPARI	45.72	64	316	37.5	62.5	315.5
				ACID	60.96	66		62.5	66	316.2
3	Down Hole Interval	25		"	91.44	64.5		87.5	64.7	316.4
				"	121.92	64		112.5	64.1	316.5
4	Collar	15400	N	"	152.40	66		137.5	65	316.7
				TROPARI	182.88	63	317	162.5	65	317.5
5	Co-ords.	11290	E	"	198.12	63	309	137.5	63	317.5
				ACID	213.36	64		212.5	64	318.4
6	Collar R.L.	488		"	243.84	63.5		287.5	63.5	310
				TROPARI	274.32	63	311	262.5	63.1	310.7
7	Halls Sect.	15675.73	N	ACID	304.80	62.5		287.5	62.8	310.7
				"	335.28	61		312.5	62.1	310
8	Intersect Point	10982.94	E	TROPARI	365.76	61	309	337.5	61	309.5
				ACID	395.24	63		362.5	61	309
9	Battery Sect.		N	"	426.72	60.5		387.5	62.5	308.5
				"	457.20	59		412.5	61.7	308
10	Intersect. Point		E	"	487.68	57		437.5	60	308
				"	518.16	56		462.5	58.7	308
11	Start Plot (Depth)	0	ϕ = Collar		548.64	54		487.5	55.7	308
								512.5	56.6	308
								537.5	55	308
								562.5	53.5	308

C 502



HOLE No. C659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL			BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length				% Snt	% Sns	% Cu
0	26										
26	31										
31	33										
33	34										
34	36	0'10"									
36	37	NIL									
37	46	2'6"	0	32'0"							
46	51	3'0"					Chocolate Slate	Mostly rubble but 90% of it is massive Chocolate to purplish coloured shale.			
51	52	0'6"									
52	53	1'0"	32'0"	36'0"			Chert	Grey to white massive and cherty chert. Stylolites at 33'			
53	58	2'6"									
58	60'0"	1'8"	36'0"	109'5"			BASALT	Massive dark green horn volcanics. Fine grained.			
60	63'6"	2'10"									
63'6"	66'0"	2'10"									
66'0"	67'0"	0'9"									
67'0"	70'0"	3'9"	109'5"	159'11"		50°	TUFF.	Generally dark green horn tuff. Variable - from fine to coarse grained - from fine bedded to massive - often within tuff.			
70'0"	74'6"	2'9"									
74'6"	75'6"	0'6"									
75'6"	76'0"	0'3"									

HOLE No. C 659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL			BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length				% Snt	% Sns	% Cu
76'0"	79'0"	2'10"				40°		Mostly massive to 127. Then fine grained and fine bedded to 132.			
79'0"	81'0"	1'4"						Massive to 139. Fine bedded to			
81'0"	85'6"	4'2"						Coarse bedding at 156 indicates bottom of sequence in down the hole.			
85'6"	86'6"	0'3"									
86'6"	89'0"	1'11"									
89'0"	92'6"	3'5"	159'11"	250'11"			BASALT	Fine grained massive dark green chloritic basic volcanics.			
92'6"	93'6"	0'4"						Common amygdaloides of chlorite.			
93'6"	95'0"	0'7"									
95'0"	102'0"	5'7"									
102'0"	104'0"	2'7"	250'11"	255'2"			TUFF	Fine to very fine grained massive greenish grey tuff.			
104'0"	114'0"	8'6"									
114'0"	124'0"	6'5"	255'2"	557'0"			BASALT	Massive dark green fine grained basic volcanics. Chlorite is extensive but appears largely confined to partings and fractures.			
121'0"	124'0"	1'11"									
124'0"	129'0"	5'2"									
129'0"	133'0"	3'0"									
133'0"	139'0"	6'0"									
139'0"	142'0"	2'3"									
142'0"	151'0"	8'7"									
151'0"	154'0"	3'0"									

HOLE No. C659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
154'0"	157'0"	3'5"	557'0"	565'6"			TUFF	Fine grained light greyish green fine bedded chaotic tuff. Top contact is micro faulted.			
157'0"	163'0"	5'8"		172-36							
163'0"	166'0"	2'10"									
166'0"	176'0"	9'3"									
176'0"	186'0"	9'5"									
186'0"	196'0"	9'8"									
196'0"	201'0"	5'1"									
201'0"	206'0"	4'11"									
206'0"	216'0"	10'2"		178-16							
216'0"	226'0"	9'7"	565'6"	584'6"			BASALT.	Fine grained dark green chaotic basaltic. Includes some short sections of fine grained pale greyish green v.f.g. tuff.			
226'0"	236'0"	10'2"									
236'0"	243'0"	6'3"									
243'0"	253'0"	10'0"									
253'0"	257'0"	3'0"		175-32							
257'0"	267'0"	10'3"	584'6"	588'4"			Tuff.	Fine grained light greyish green chaotic tuff including minor sections of basalt. This may be a chaotic zone or basaltic sections could be bombs.			
267'0"	276'0"	8'6"									
276'0"	280'0"	5'6"									
280'0"	291'0"	9'8"									
291'0"	301'0"	9'9"									

HOLE No. 2659

GEOLOGICAL LOG

SHEET No.

From.....To.....

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length				Angle to Core Axis	% Snt	% Sns
301'0"	306'0"	4'0"	588'4"	675'9"			BASALT.	As before			
306'0"	312'0"	6'1"		205.87							
312'0"	317'0"	5'3"	675'9"	679'6"		35°	TUFF.	Fine bedded fine grained tuff.			
317'0"	322'0"	7'11"		207.11				Interbedded reddish brown and green beds. Somewhat cherty.			
326'0"	332'0"	9'11"									
336'0"	346'0"	9'11"	679'6"	689'6"			LITHIC LAPILLI TUFF.	Reddish brown and rocky granitic tuff, very rocky bedded, with common fragments of multiple rock types including green horn volcanics, white chert, red sand etc.			
346'0"	352'0"	9'9"		210.16							
356'0"	362'0"	9'10"									
366'0"	376'0"	9'9"									
376'0"	381'0"	4'3"									
381'0"	383'6"	1'7"	689'6"	741'6"			Tuff.	Coarser fine grained finely interbedded reddish brown and green tuff. Bedding is commonly sub parallel to core axis, occasionally at right angles and sometimes minor folded and faulted.			
383'6"	393'6"	9'6"		226.01				Less red brown tuff and more grey and green towards the bottom.			
393'6"	404'0"	10'4"									
404'0"	414'0"	9'11"									
414'0"	419'0"	4'3"									
419'0"	427'0"	8'10"									
427'0"	437'0"	9'6"									
437'0"	444'0"	6'4"									
444'0"	454'0"	10'1"									

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL			BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length				% Snt	% Sns	% Cu
454'0"	464'0"	10'2"	741'6"	810'3"			Basalt	Fine grained dark green basaltic volcanic massive. Common chloritic partings.			
464'0"	471'0"	7'4"		256-56.							
471'0"	480'0"	7'4"						Common barren quartz veins. Rare veins with pyrite, sphalerite, chalcopyrite.			
480'0"	486'0"	6'9"									
486'0"	496'0"	9'10"		256-57.							
496'0"	506'0"	9'5"	810'3"	841'9"			Tuff.	Highly cherty fine to very fine grained pale greyish green and dark green fine bedded tuff. Commonly chloritic. Occasionally cherty.			
506'0"	516'0"	10'4"									
516'0"	526'0"	10'2"									
526'0"	532'0"	5'11"									
532'0"	535'0"	3'0"									
535'0"	539'0"	4'3"									
539'0"	539'6"	0'4"		313-20.							
539'6"	546'0"	5'9"	841'9"	1027'7"			BASALT	Fine to very fine grained massive basaltic volcanic. Common barren quartz veins, rarely has veins with sphalerite pyrite and chalcopyrite.			
546'0"	556'0"	10'1"									
556'0"	566'0"	10'4"									
566'0"	576'0"	9'11"									
576'0"	586'0"	10'1"									
586'0"	590'0"	4'2"									
590'0"	600'0"	9'11"									
								Basalt has common chloritic partings and is rarely yellowish green probably due to epidote.			

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SHEET No.

From To

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
600'0"	606'0"	2'6"	1027'7"	1028'9"			TUFF	Pale greyish green fine grained			
606'0"	615'0"	5'5"		313-34.				quartzed massive tuff.			
615'	622'0"	WEDGE									
622'0"	628'0"	6'2"		350.32			*				
628'0"	631'0"	2'5"	1028'8"	1149'2"			BASALT	As before.			
631'0"	636'0"	5'3"						Large vein at 1105 feet with Sphalerite,			
636'0"	641'0"	4'11"						Chalcopyrite, pyrite, pyrophosphate and			
641'0"	645'0"	3'6"						considerable arsenite.			
645'0"	650'0"	5'3"									
650'0"	660'0"	9'7"									
660'0"	670'0"	10'2"		351.13.							
670'0"	673'0"	2'9"	1149'4"	1152'0"			TUFF	Light greyish green chaotic and			
673'0"	679'0"	5'10"						fractured tuff. Fractures are filled			
679'0"	681'0"	1'10"						with chlorite. Normally massive			
681'0"	683'0"	1'1"						but early section shows distorted fine			
683'0"	685'0"	0'5"						bedding.			
685'0"	690'0"	6'7"									
690'0"	692'0"	1'7"									
692'0"	693'0"	0'6"									

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From To

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
693'0"	695'0"	2'10"	1152'0"	1233'0"			Basalt.	Fine to very fine grained dark green, brownish and greyish green massive basaltic tuff. Pure sand			
695'0"	696'0"	1'2"		375.82.							
696'0"	698'0"	1'10"									
698'0"	704'0"	5'4"									
704'0"	707'0"	2'1"									
707'0"	716'0"	8'4"									
716'0"	717'0"	1'0"									
717'0"	720'6"	3'4"									
720'6"	726'0"	4'9"		377.54.							
726'0"	731'0"	6'0"	1233'0"	1238'8"		36°	TUFF.	Cherty tuff. Pale greyish green and brownish green, cherty, sometimes fine bedded.			
731'0"	734'0"	2'7"									
734'0"	736'0"	1'6"									
736'0"	744'0"	8'1"		396.99.							
744'0"	754'0"	9'11"	1238'8"	1302'5"			Basalt	As before. Cherty. Pure veins with pyrite, sphalerite, pyrrhotite.			
754'0"	764'6"	10'3"									
764'6"	775'0"	10'1"									
775'0"	785'0"	10'2"									
785'0"	794'0"	8'10"									
794'0"	804'0"	9'4"									

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
804'0"	814'0"	9'7"	1302'5"	1309'6"		55°	TUFF	Fine bedded, fine to very fine grained brownish grey to greyish green tuff. Relatively undistorted.			
814'0"	819'0"	4'8"		399'4"							
819'0"	823'0"	3'10"									
823'0"	825'0"	1'10"									
825'0"	827'0"	1'3"									
827'0"	829'0"	1'7"									
829'0"	832'0"	2'4"	1309'6"	1346'9"			BASALT.	As before. One small patch with much epidote			
832'0"	836'0"	2'2"		410'49"							
836'0"	838'0"	1'7"									
838'0"	840'0"	1'10"		211'01"							
840'0"	846'0"	5'7"	1346'9"	1348'5"	1'8"	68°	TUFF	Fine bedded tuff as above.			
846'0"	856'0"	9'8"		412'41"							
856'0"	866'0"	9'11"	1348'5"	1353'1"		56°	LAPILL. TUFF.	Pinkish groundmass, green horn volcanic fragments. Interbedded fine grained tuff			
866'0"	876'0"	9'11"									
876'0"	886'0"	9'10"		419'41"							
886'0"	896'0"	9'10"	1353'1"	1377'8"		51° @ 1361	TUFF	Fine bedded fine grained tuff as above.			
896'0"	906'0"	9'10"				56° @ 1370					
906'0"	916'0"	10'3"									
916'0"	926'0"	9'11"									

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To					% Snt	% Sns	% Cu
926'0"	936'0"	9'0"	1377'8"	1415'6"			BASALT	Fine grained massive dark green basalt. Common epidote alteration, common chlorite.			
936'0"	946'0"	9'11"		439.29							
946'0"	955'0"	8'5"									
955'0"	964'0"	8'1"									
964'0"	973'0"	7'11"						Veins or ore but include pyrite chalcopyrite and sphalerite.			
973'0"	983'0"	10'3"		447.68							
983'0"	993'6"	10'3"	1415'0"	1468'9"			Shale.	Mid grey massive (probably chaotic) shale. First 6" is cherty and sulfurous. Remainder has little variation.			
993'6"	1004'0"	9'11"									
1004'0"	1014'0"	9'10"									
1014'0"	1019'0"	4'9"		447.53							
1019'0"	1026'0"	7'7"	1468'9"	1469'3"			Sandstone.	Light grey medium grained massive sandstone.			
1026'0"	1036'0"	9'10"		448.10							
1036'0"	1046'0"	10'1"	1469'3"	1470'2"			Shale	As above.			
1046'0"	1056'0"	9'6"		448.50							
1056'0"	1066'0"	9'9"	1470'2"	1471'5"			Sandstone	As above.			
1066'0"	1076'0"	9'8"	1471'5"	1473'1"			MINOR CHERT.	Chaotic section of chert shale and minor sandstone with chalcopyrite sphalerite and possibly pyrite as well as chlorite.			
1076'0"	1086'0"	10'3"		448.99							
1086'0"	1096'0"	9'8"									
1096'0"	1106'0"	9'8"									

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GEOLOGICAL LOG

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From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
1106'0"	1108'0"	1'10"	1473'1"	1482'7"			Shale.	Mid grey massive spotted shale.			
1108'0"	1109'0"	0'4"		251'68				Minor sandy sections. Chert.			
1109'0"	1112'0"	3'2"									
1112'0"	1122'0"	9'11"	1482'7"	1483'5"			Sandstone.	Medium grained light grey clean, massive sandstone.			
1122'0"	1132'0"	9'1"		452'16							
1132'0"	1141'0"	8'10"									
1141'0"	1150'0"	9'5"	1483'5"	1505'4"			Shale.	As above.			
1150'0"	1160'0"	9'10"		458'92				Vein at 1500' with pyrrhotite, chalcocite, quartz and coesite.			
1160'0"	1166'0"	5'0"									
1166'0"	1176'0"	10'2"									
1176'0"	1186'0"	9'9"									
1186'0"	1196'0"	9'0"									
1196'0"	1206'0"	10'1"									
1206'0"	1216'0"	9'9"									
1216'0"	1226'0"	9'6"									
1226'0"	1230'0"	4'1"									
1230'0"	1236'0"	5'5"									
1236'0"	1243'0"	7'3"									
1243'0"	1253'0"	9'5"									

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From To

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
1253	1263'0"	10'2"									
1263'0"	1270'0"	7'0"									
1270'0"	1280'0"	10'2"									
1280'0"	1290'0"	9'10"									
1290'0"	1300'0"	9'11"									
1300'0"	1310'0"	9'9"									
1310'0"	1320'0"	9'10"									
1320'0"	1330'0"	9'11"									
1330'0"	1340'0"	10'2"									
1340'0"	1350'6"	10'1"									
1350'6"	1361'0"	10'0"									
1361'0"	1369'0"	7'7"									
1369'0"	1379'0"	10'1"									
1379'0"	1389'0"	10'1"									
1389'0"	1399'6"	10'2"									
1399'6"	1410'0"	10'2"									
1410'0"	1416'0"	6'2"									
1416'0"	1422'0"	6'0"									
1422'0"	1429'0"	5'6"									

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From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
1509'0"	1516'0"	3'2"	1505'4"	1522'2"			Sandstone.	Light grey medium grained massive sandstone.			
1516'0"	1522'0"	6'5"		164 06							
1522'0"	1530'0"	8'0"	1522'2"	1522'6"			Chert	Greenish white chloritic massive chert.			
1530'0"	1540'0"	9'7"	1522'6"	1524'8"	2'2"		Mineralized Chert.	Pyrite, Chalcopyrite, rare pyrrhotite and sphalerite with chlorite in greenish white chert. Some very fine banding.			
1540'0"	1541'0"	0'10"									
1541'0"	1550'0"	9'3"		060 44							
			1524'8"	1531'11"			Chert.	Grey to greenish white massive chert. Minor mineralization, pyrrhotite, quartz carbonate chlorite at low angle to core axis. Possibly some siderite.			
				467 2A				Chert is cherty and rocky chloritic.			
			1531'21"	1532'11"			LODE	Pyrrhotite, pyrite, minor sphalerite and chalcopyrite with quartz carbonate and chlorite. Possibly rare siderite.			
				465 45							
			1532'11"	1537'8"			Shale.	Massive mid grey shale. Rocky cherty.			
			1537'8"	1542'11"			Chert.	Mid grey to pale greyish white cherty massive chert.			
				476 25							
			1542'11"	1562'6"			LODE	Pyrrhotite, chalcopyrite, minor sphalerite and arsenopyrite and patches with extensive			

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From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
	1560	10'4"						consistence. Variable amounts of chlorite, quartz and carbonate.			
	1570	9'9"									
	1573'6"	3'3"									
	1584'0"	10'4"						Chlorite is prominent in early part of core only.			
	1588'0"	4'7"	1562'6"	1563'1"	476.42		Chert.				
			1563'1"	1564'8"	236.01		LODE	Greenish grey massive chloritic chert. As above but no obvious consistence.			
								Note the unusual development of clusters of chlorite or amphibole.			
					377.11						
			1564'8"	1565'4"			Chert.	Chloritic greenish grey chert. Fine banding in chert and nearby zone indicates possible distorted but sub parallel bedding to core axis.			
					477.93						
			1565'4"	1568'0"			LODE	As above. Early section is sulphide root.			
					479.10						
			1568'0"	1571'0"			Chert.	Mid grey shaly chert. Massive.			
			1571'10"	1579'11"	281.57		LODE	Pyrrhotite, chalcopyrite, minor sphalerite			
					452.51			chlorite, quartz, carbonate			
			1579'11"	1583'1"			Chert.	Chloritic, greenish grey chert. Some fine banding - chert.			

INSTR. COCKINGTON PRINT

HOLE No. C 659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
1588'0"	1598	4'3"	1583'1"	1587'9"			LODE	Pyrrhotite chalcopyrite, minor sphalerite			
	1603	4'10"						chlorite quartz carbonate, rare visible			
	1610	5'9"		464-16				carbonate. Actinolite			
	1618	8'0"	1587'9"	1588'5"			Chert.	Greenish grey chert as before.			
	1628	9'11"	1588'5"	1599'3"			LODE	Pyrrhotite, chalcopyrite, quartz carbonate			
				487-76				chlorite, actinolite.			
			1599'3"	1600'3"			Chert.	Pale to mid grey fine bedded chert.			
				488-79				Bedding through chert indicates a low			
								angle to core axis. Chloritic			
			1600'3"	1601'8"			LODE	Pyrrhotite, chalcopyrite, chlorite, quartz carb.			
				488-90				Sulphide poss.			
			1601'8"	1604'0"			Chert.	Pale grey massive chert. Contact			
								at 1604 is fine bedded and indicates			
				491-23				low angle to core axis			
			1604'0"	1611'8"			LODE	Pyrrhotite, chalcopyrite, chlorite			
								actinolite, several patches of sulphide			
				491-56				poor material.			
			1611'8"	1612'8"			CHERT	Greyish to greenish white massive			
								chert.			

N W P S COCKINGTON PRINT

GEOLOGICAL LOG

 HOLE No. c 659

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
1628	1638'0"	10'0"	1612'8"	1617'4"			LODE	Pyrrhotite, chalcopyrite, chlorite, actinolite,			
1638	1644'0"	6'2"						quartz, carbonate.			
1644'0"	1651'0"	6'3"	1617'4"	1618'2"			Chert	Greenish grey chloritic massive chert.			
1651'0"	1658'0"	6'10"	1618'2"	1618'9"			LODE	Pyrrhotite chalcopyrite chlorite quartz			
1658'0"	1667'0"	8'3"						carbonate.			
1667'0"	1670'6"	3'1"	1618'9"	1619'3"			Chert	As above.			
1670'6"	1676'0"	5'6"	1619'3"	1626'6"			LODE	Pyrrhotite, chalcopyrite, chlorite, quartz			
1676'0"	1680'0"	3'5"						carbonate. Somewhat lesser chlorite			
1680'0"	1686'0"	5'7"						and more chalcopyrite			
1686'0"	1696'0"	10'1"	1626'6"	1632'3"			Shale	Mild to dark grey shale. Very finely			
1696'0"	1704'0"	8'3"						spotted, rarely cherty.			
1704'0"	1708'6"	3'3"						Minor mineralization at 1630'6". Chalcopyrite			
1708'6"	1712'0"	3'2"						pyrrhotite (rare) chlorite quartz.			
1712'0"	1722'0"	9'10"	1632'3"	1633'0"	0'9"		LODE	Chalcopyrite, pyrite, pyrrhotite (very rare)			
1722'0"	1725'0"	1'9"						chlorite quartz.			
1725'0"	1734'0"	8'2"	1633'0"	1658'9"		~ 50°	Shale	As above possibly some bedding			
1734'0"	1743'0"	9'7"				35°		and appears to be some alignment			
1743'0"	1752'0"	9'1"						of spots // to bedding? Bottom part of			
1752'0"	1762'0"	9'8"						section has definite bedding but is disturbed			

HOLE No. C659

GEOLOGICAL LOG

SHEET No.

From.....To.....

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
1762'0"	1769'0"	6'2"	1688'9"	1712'0"			Sandstone	Massive pale grey to creamy grey			
1769'0"	1779'0"	10'4"		521-82				'clean' sandstone Medium grained.			
1779'0"	1787'6"	7'11"									
1787'6"	1790'0"	1'9"	1712'0"	1716'0"			Shale	Mid grey massive shale.			
1790'0"	1794'0"	4'3"		523-04							
1794'0"	1799'0"	3'10"	1716'0"	1719'3"			Sandstone	As above.			
1799'0"	1801'0"	2'4"		524-03							
1801'0"	1809'0"	6'9"	1719'3"	1720'11"			Shale	As above.			
1809'0"	1812'0"	2'5"		524-55- 525-03							
			1720'11"	1722'7"			Sandstone	As above.			
				521-57							
			1722'7"	1730'8"			Shale	Mid grey massive shale.			
			1730'8"	1736'3"			Sandstone	Massive medium grained light greenish grey sandstone.			
				529-21							
			1736'3"	1784'3"			Shale	Mid grey massive shale. Very rough sandy. Always spotted with very fine white spots. At times looks dolomitic. White spots are probably carbonate.			
				543-84.							

N W P S COCKINGTON PRINT

HOLE No. ~~1754~~ 3" C. 659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To					% Snt	% Sns	% Cu
1812'0"	1816'6"	4'7"	1784'3"	1810'3"			Sandstone.	Medium grained massive sandstone			
1816'6"	1824'0"	7'6"		551.76				Grey to green in color. Commonly			
1824'0"	1832'0"	8'0"						contains barren quartz veins but no			
1832'0"	1841'0"	8'2"						evidence of sulphides.			
1841'0"	1851'0"	10'1"									
1851'0"	1857'0"	5'2"	1810'3"	1821'0"			Shale.	Mid grey to brownish grey shale.			
1857'0"	1858'0"	1'1"		555.04				Cherty in patches and final 3 feet			
1858'0"	1868'6"	10'2"						is buffaceous with some lopilli			
1868'6"	1876'0"	7'7"						sized buff fragments in one small patch.			
			1821'0"	1835'8"			Basalt.	Dark green to brown and pale greyish			
				559.51				green basalt volcanic. Appears to have			
								been thoroughly altered and some sections			
								are nearly completely chlorite. There is			
								a zone which is probably vein type			
								alteration from 1832'2" to 1833 where			
								quartz, chloroquartzite, coesite and			
								a black mineral (v.f.g. disseminated) occurs.			

HOLE No. C659

GEOLOGICAL LOG

SHEET No.

From To

LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
			1835'8"	1843'1" 581.76			Shale.	Chert in mid grey and brownish grey shale with mixed in minor amounts of chert in lathy sections			
			1843'1"	1846'4" 562.76			Chert.	Chert dark pinkish grey massive chert. Minor lathy sections.			
			1846'4"	1872'1" 570.60			Shale.	Grey massive shale, rarely chert. Some blebbing around very narrow nodules.			
			1872'1"	1876'0" 571.50			Sandstone.	Medium grained massive mid grey sandstone.			
							END OF HOLE.				

N.Y.P.S. COCHRAN PAPER

DOWN HOLE PLOT

Hole No: C 659

Sheet No: 1

DEPTH	PLAN			CROSS SECTION		LONG SECTION				Depth	PLAN			CROSS SECTION		LONG SECTION		
	N	E	RL	Dist. from H.R.P.	Dist. from B.R.P.	Dist. from Halls	Sect. T	Dist from Batt.	Sect.		N	E	RL	Dist. from H.R.P.	Dist. from B.R.P.	Dist from Halls	Sect.	Dist from Batt.
0	15400	11290	488	412.76		2.59												
25	15408.46	11280.96	466.28	400.37		2.77												
50	15416.70	11272.86	444.11	388.85		3.42												
75	15424.04	11265.83	421.27	378.70		4.12												
100	15431.77	11258.46	398.67	368.04		4.89												
125	15439.69	11250.94	376.18	357.15		5.69												
150	15447.38	11243.70	353.52	346.62		6.51												
175	15455.11	11236.49	330.86	336.09		7.38												
200	15463.07	11228.40	308.59	324.75		7.82												
225	15470.02	11219.93	286.12	313.80		7.27												
250	15477.19	11211.38	263.75	302.66		6.83												
275	15484.57	11202.81	241.45	291.35		6.52												
300	15492.02	11194.14	219.22	279.93		6.20												
325	15499.54	11185.18	197.12	268.24		5.74												
350	15507.25	11175.83	175.26	256.13		5.15												
375	15514.88	11166.41	153.39	244.03		4.46												
400	15522.06	11157.38	131.21	232.51		3.70												
425	15529.36	11148.04	109.20	220.69		2.82												
450	15537.06	11138.19	87.55	208.23		1.89												
475	15545.05	11127.95	66.19	195.28		0.92												
500	15553.43	11117.22	45.22	181.70		-0.10												
525	15561.91	11106.38	24.35	167.98		-1.12												
550	15570.74	11095.08	3.87	153.68		-2.19												
575	15579.89	11083.36	-16.22	138.85		-3.30												

HOLE No. : C 659

SAMPLE DATA

SHEET No. : 1

LENS	SAMPLE No.	ROCK TYPE	Σ	INTERVAL		Length (L)	Assays (A)			Product (A x L)		
				From	To		% Snt	% Sns	% Cu	P. Snt	P. Sns	P. Cu
	113886	Mixed Chert		464.06 1522'6"	464.52 1524'8"		0.52	0.08	3.70			
	113887	LODE		466.93 1531'11"	467.23 1532'11"		0.35	0.08	0.17			
	113888	Lode		470.22 1542'11"	1545'11"	0.91 3'0" 36"	0.99	0.08	0.17			
	113889	"		1545'11"	1549'8"	1.14 3'9" 48"	1.98	0.07	0.26			
	113890	"		1549'8"	1552'5"	0.84 33"	0.78	0.09	0.23			
	91	"		1552'5"	1556'0"	1.09 3'7" 43"	0.28	0.06	0.26			
	92	"		1556'0"	1559'5"	1.04 41"	0.79	0.08	0.60			
	93	LODE		1559'5"	1562'6"	0.94 37"	0.66	0.09	0.52			
		Chert		1562'6"	1563'1"	0.18 0'7"						
	113894	Lode		1563'1"	1564'8"	0.45 1'7" *19"	0.62	0.07	0.48			
				1564'8"	1565'4"	0'8"						
	113895	LODE		1565'4"	1568'0"	0.71 32"	0.32	0.06	0.30			
			Σ	476.94 1542'11"	477.93 1568'0"	25'1" 301"	0.80	0.07	0.40			
			Σ	1542'11"	1564'8"	21'9" 261"	0.89	0.07	0.43			

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HOLE No. : C659

SAMPLE DATA

SHEET No. : 2

LENS	SAMPLE No.	ROCK TYPE	Σ	INTERVAL		Length (L)	Assays (A)			Product (A x L)		
				From	To		% Snt	% Sns	% Cu	P. Snt	P. Sns	P. Cu
	113896	LODE		478.8' 1571'10"	480.4' 1576'3"	53' 1.55	0.23	0.06	0.55			
	113897	LODE		480.4' 1576'3"	481.3' 1579'11"	1.12 3'8" 44"	1.12	0.07	0.10			
		Chert.		481.3' 1579'11"	482.5' 1583'1"	3'2" 38"						
	113898	LODE		482.5' 1583'1"	483.9' 1587'9"	1.42 56"	1.91	0.07	1.03			
		Chert.		483.9' 1587'9"	485.0' 1588'5"	0'8"						
	113899	LODE		485.0' 1588'5"	486.1' 1591'3"	0.86 2'10" 34"	0.88	0.08	1.48			
	113900	LODE		486.1' 1591'3"	487.4' 1595'11"	1.42 56"	0.38	0.10	1.31			
	113901	LODE		487.4' 1595'11"	488.2' 1599'3"	1.02 40"	1.24	0.09	0.44			
		Chert.		488.2' 1599'3"	490.0' 1600'3"	12"						
	113902	LODE		488.2' 1600'3"	490.0' 1601'8"	0.43 17"	0.35	0.10	0.19			
		Chert.		490.0' 1601'8"	490.9' 1604'							
	113903	LODE		488.8' 1604'0"	490.0' 1607'9"	1.14 3'9" 45"	0.50	0.08	0.27			
	113904	LODE		490.9' 1607'9"	491.2' 1611'8"	1.19 47"	0.66	0.07	0.37			
		CHERT		491.2' 1611'8"	492.98' 1612'8"	1'0" 12"						
	113905	LODE		491.5' 1612'8"	492.98' 1617'4"	1.42 56"	0.81	0.07	0.65			
		CHERT		492.98' 1617'4"	493.2' 1618'2"							
	113906	LODE		493.2' 1618'2"	493.4' 1618'9"	0.18 0'7"	0.22	0.06	0.07			
		CHERT		493.4' 1618'9"	493.5' 1619'3"							
	113907	LODE		493.5' 1619'3"	494.4' 1622'10"	1.09 43"	0.72	0.08	1.07			

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HOLE No.: C 659 .

SAMPLE DATA

SHEET No.: 3

LENS	SAMPLE No.	ROCK TYPE	Σ	INTERVAL		Length (L)	Assays (A)			Product (A x L)		
				From	To		% Snt	% Sns	% Cu	P. Snt	P. Sns	P. Cu
	Code	113908		^{494.4} 1622'10"	^{495.7} 1626'6"	3'8" 44"	0.53	0.09	2.40			
			Σ	1571'10"	^{1577.1} 1626'6"	54'8" 66"	0.66	0.06	0.67			
							0.67		0.57			
	Code	113909		1632'2"	1632'11"	0'9"	0.19	0.09	1.16			
			Σ	^{1577.10} 1571'10"	^{1587.19} 1601'8"	29'10" 35"	0.77	0.07	0.66			
			Σ	1571'10"	^{1597.45} 1599'3"	336	0.82	0.07	0.69			
			Σ	^{1501.24} 1576'3"	1599'3"	276	0.93	0.08	0.74			
			Σ	1542'11"	1599'8"	56'4" 67"	0.81	0.07	0.55			
		113910 (MINED) CHERT		448.50 1411'5"	448.99 1473'1"	0.49	0.10	0.04	2.76			

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