



**ABMINCO N.L.**  
**CLEVELAND MINE**

CATEGORY

HOLE No. : C1165.

**GENERAL DATA**

Objective : Deep. B Stk. Test.

Area of Operation : Cleveland Tim TAS. Location : Surface Ai section.

Collar R.L. : 418.30 Co-ordinates : 15011.962 N, 10939.925 E.

Bearing of Hole : 290° 38' 21" Angle of Hole : -52° 32' 31" Final Depth : 625

Drilling Commenced : \_\_\_\_\_ Completed : \_\_\_\_\_ Logged by : T. Tulp.

**DRILLING DATA**

Drilled by : LONGYEAR. Non Coring : \_\_\_\_\_

Drilling Rig : 38. Coring : \_\_\_\_\_

Driller(s) : \_\_\_\_\_

Core Recovery : \_\_\_\_\_

**HOLE SURVEYS**

See Camera Survey Book.

HOLE No. : .....

HOLE No. C.1165

# GEOLOGICAL LOG

SHEET No. 1

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

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
0	18 m	TRI CONE	18.00	22.60	4.60	30°	Bedded Argillites.	mid grey and dark grey well bedded argillites with minor arenite units			
18.	21.00	0.25						(core highly broken and recoveries extremely poor)			
21.00	21.50	0.20									
21.50	22.60	0.40									
22.60	23.10	0.20						mid grey fine grained generally finely bedded argillites dominantly clays			
23.10	23.80	0.40						Dark grey argillites similar to light grey one small fragment contained fine micas and fine pyrite.			
23.80	24.70	0.25						Faint plains covered with limonite			
24.70	27.50	0.40									
27.50	29.20	0.30									
29.20	30.20	0.20									
30.20	31.00	0.20	22.60	34.00			chert argillite	light grey to off white highly craggy cherts interbedded with mid grey to fawn-bkahi argillites generally massive but displaying some fine bedding			
31.00	31.30	0.15									
31.30	32.50	0.40									
32.50	34.00	0.15									
34.00	35.50	0.30									
35.50	36.70	0.20						31.00 Quartz Vein			
36.70	37.90	0.85						Note 29.20 - 30.20 pseudo breccia due to cementing of fragments in hole			
37.90	38.50	0.40									
38.50	40.00	0.15									

HOLE No. C1165

# 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
40.00	40.80	0.40	34.00	49.00	15.00	40-50	Bedded Argillite.	Dark grey (minor) and mid-light grey to khaki argillites interbedded			
40.80	42.70	0.80									
42.70	43.60	0.10						Dark grey argillites contain fine laminae of pyrite. Khaki argillites massive or very faint bedding.			
43.60	46.00	1.15						argillites fine silt with some silt clays			
46.00	47.10	0.25						limonite still present on joints			
47.10	48.10	0.70						occasionally unit <del>contains</del> contains fine sand.			
48.10	48.50	0.30						44m bedding parallel to core axis.			
48.50	49.00	0.15						as far above unit plus.			
49.00	51.50	1.15						off white to light grey highly crazed cherts inter bedded			
51.50	52.50	0.85	49.00	51.80	2.80		Chert + Argillite	Joints clean or with minor carbonate on them a few local areas show minor slickensides			
52.50	54.00	1.15									
54.00	55.00	1.00									
55.00	56.10	1.10									
56.10	58.00	1.75									
			51.80	54.00	2.20		Chert	Off white to light grey chert well bedded and highly crazed with fine fractures			

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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
58.00	59.10	1.00	54.00				? fault.	fractured chert with open quartz			
59.10	59.20	0.10						vein and quartz intergrowths. + shichenshalis			
59.20	59.70	0.25	54.00	57.15	3.15		grey bedded argillite.	mid-light grey well bedded argillite			
59.70	60.30	0.35						beds vary from less than 1cm			
60.30	61.00	0.70						to 5m. subedral coarse pyrite			
61.00	61.60	0.30						cubes present in lower units.			
61.60	61.85	0.15						56.65m quartz carbonate sphalerite			
61.85	63.70	1.50						chalcopyrite vein.			
63.70	64.30	0.40						Lower contact <del>marked</del> marked by			
64.30	67.00	2.55						sharp sediment interface and fine			
67.00	68.40	1.40						quartz veinlets.			
			57.15	64.80	7.65	45°	Khaki shales.	Interbedded. Khaki to light			
								green and mid red-brown			
								chocolate shales well bedded and			
								fine grained some coloration			
								change from red-brown to grey			
								khaki due to alteration around			
								veinlets			
								Joint carbonate or geothite filled			

N.W.P.S.

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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
68.40	71.20	2.75	64.80	85.50	20.70		choe. shales	Red-brown chocolate coloured fine grained massive or very faintly laminated shales grey colouration deep to alteration around veinlets which consist of carbonate quartz chalcocyanite pyrite.			
71.20	72.70	1.45									
72.70	73.30	0.60									
73.30	74.50	1.10									
74.50	77.00	2.40									
77.00	79.00	2.00									
79.00	81.40	2.40		69.40			? fault	Quartz vein + siderite			
81.40	84.50	3.00						73.40 Quartz Pyrite carbonate vein			
84.50	87.60	3.05						73.45 Quartz carbonate chlorite			
87.60	89.80	1.20						80 m min <del>sediment</del> disturbance - stamping floor			
								82.20 Rounded cherry red pebbles within chock shales			
			85.50	89.60	4.10		tuff shales	Dominant cherry red colour at start of unit becoming light green grey towards base. Bedding very fine in shale sequence. Lappili tuff fragments from 85.75 to 86.30.			

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HOLE No. 01165

# 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	% Cu	
89.80	90.80	0.90						Bedding within shales (tuffs) highly contorted			
90.80	91.80	0.60									
91.80	94.00	2.20		89.60				Fault highly fracture core with slickensides + clay quartz fill.			
94.00	97.00	3.00									
97.00	100.00	2.95	89.60	121	31.40		Vb.	mid grey green. amygdalal fine grained basalt. Unit Bleached and argillized to 90.50.			
100.00	103.00	3.00									
103.00	106.00	3.00									
106.00	109.00	3.00						92.60 ? Fault Broken + veined material.			
109.00	112.00	2.95						92.90 Quartz chlorite Sphalerite fine carbonate veins common throughout unit.			
112.00	115.00	2.95									
115.00	118.00	3.00									
118.00	120.00	1.85						94.40 ? Fault? Quartz Carbonate Vein Sheared.			
BQ Commence.											
120	121.00	1.10?						Amygdalal chlorite ore more rarely pyrrhotite filled.			
121.00	122.60	1.20									
122.60	124.00	1.30						105 Massive vein Quartz. Sphalerite Galena arsenopyrite Pyrite chalcopyrite.			

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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
								106.95 - 107.40 Veins abundant.			
								Epidote alteration of vb.			
								Quartz sphalerite pyrrhotite veins			
								with trace arsenopyrite & chalcopyrite.			
								108.30 Quartz chlorite sphalerite			
								chalcopyrite			
								114.15 Calcite chlorite fill between			
								vb. (R flow top)			
								114.55 Quartz chlorite sphalerite			
								galena.			
								116 onward vb becoming increasingly			
								finer grained.			
			121.00	124	3.00		Altered.	cream coloured fine grained argillaceous			
								unit. Possibly a bleached			
								argillized basalt faint fine			
								amygdalae present.			
				123.30		30°	Fault.	highly sheared unit rocks present			
								with quartz infilling.			

HOLE No. C 1165

# 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	% Cu
124.00	126.80	2.50	124	186.95	62.95		Vb.	mid green grey fine grained			
126.80	129.90	3.10						amygdaloidal basalt amygdaloides			
129.90	132.30	2.20						chlorite or rarely pyrrhotite filled			
132.30	135.40	3.10						chloritic <del>sh</del> shreds common			
135.40	137.70	2.10						throughout as are thin			
137.70	139.00	1.30						calcareous veinlets			
139.00	142.00	3.00				45°	Fault	124.40 massive pyrrhotite sphalerite vein 132.30 Sheared Quartz chlorite vein			
142.00	145.00	2.90						134.80-135.00 massive Quartz			
145.00	148.00	2.90						Carbonate fill in flow to structure			
148	150.50	2.50				30°	Fault	137.70 Sheared & fractured core			
150.50	152.50	1.95						with sheared Quartz carbonate			
152.50	154.00	1.45						chlorite vein			
154.00	157.00	3.00						141.55 Quartz carbonate sphalerite			
157.00	160.00	2.95						pyrrhotite galena vein			
160.00	163.00	2.95					Fault	149.30 Quartz sphalerite pyrite sheared			
163.00	166.00	3.00						along one side			
166.00	168.20	2.20					Shear	157.45 Quartz carbonate sphalerite			
168.20	170.30	2.00						Note (most natural fractures appear to have some movement as shown by			

N.W.P.S.

HOLE No. 1165

# 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	% Cu
170.30	172.00	1.70						well developed chloritic plane with			
172.00	175.00	3.00						some slickensides)			
175.00	178.00	2.95						Basalt very dense and fine grained			
178.00	181.00	3.00						with minor calcite veinlets			
181.00	183.00	1.60					Steep	170.20 Broken core with slickensides			
183.00	183.50	0.20						171.95 sheared / Qtz Carb Vein			
183.50	184.30	0.75						177.35 Quartz Sphalerite			
184.30	187.00	2.40						183.10 " "			
187.00	190.00	2.95		183.50			Fault	sheared quartz chlorite vein open structure.			
			186.95	190.00	2.05		H/Vb.	light green-grey fine grained fragmented (40cm intervals) with light green tuffaceous unit. Tends to be a chaotic sequence of broken lava flows with tuffaceous infill of voids			
				190			45° fault.	Massive quartz chlorite vein (minor carbonate with slickensides			

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LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
190.00	193.00	3.00	190.	196.55	6.55		Vb.	mid green grey fine grained matrix			
193.00	196.00	2.95						amygdaloidal basalt amygdalae chlorite			
196.00	199.00	2.95						filled fine carbonate & chlorite			
199.00	202.00	2.95						veinlets present. chlorite.			
202.00	205.00	3.00						190.15 Quartz carbonate ? Pyrochalcite			
205.00	208.00	2.60						Sphalerite vein.			
208.00	208.60	0.35	196.55	206.20	9.65	20-30	Vt.	light grey-green tending to red			
208.60	211.00	2.30						pink ground 200m well bedded			
211.00	214.00	3.00						fine to medium grained tuffs.			
								upper 35cm chaotic with basalt			
								infilling fragments of vt			
								Graded bedding indicate up of sequence			
								up hole.			
								fine pyrite veinlets occur sporadically			
								Dominant Red colouring below 205			
			206.20	206.85	0.65		Lappilli tuff.	Red. brown fine grained matrix with			
								coarse lappilli fragments (shales & vt			
								vt - tuffs) up to 1.5cm vaguely			
								banded.			

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# GEOLOGICAL LOG

SHEET No. ....

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LIFTS			DRILL INTERVAL			BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length				% Snt	% Sns	% Cu
214	217	2.95	206.85	208.60	1.75		fault zone	Poor core recoveries highly broken			
217	220	3.00						core with abundant clays small			
220	223	2.95						intervals of tuff present.			
223	226	3.00	208.60	213.10	4.50		tuff shales	mid grey <sup>red-brown</sup> fine grained faintly			
226	229	3.00						bedded fine disseminated carbonates			
229	232	3.00						present in lighted laminae			
232	235	3.00						tuffaceous shales			
235	236	0.75	213.10	235	21.90		Vb.	mid grey green medium grained			
236	237.10	0.50						basalt with chloritic segregations			
237.10	237.90	0.50						& veinlets + calcite veinlets.			
								217.75 Quartz carbonate Fluorite.			
								218.10 " " Sphalerite			
								218.35 " " Sphalerite			
								225.1 " " Chlorite Fluorite.			
						50°	Shear	230.05 Sheared Quartz chlorite vein			
								228 Epidotization common in Vb			
								matrix.			

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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
237.90	239	1.00	235	242.55	7.55	45°	vt.	light green grey finely bedded			
239	239.70	0.50						tuffs			
239	241	1.20						tuff shales			
241	243.10	1.85						minor chlorite infill of fractures			
243.10	244.40	1.10						and minor carbonate veins			
244.40	245	0.10						Upper <del>to</del> contact sharp			
245	247	1.95						may even be <u>Fault</u> although			
247	250	3.00						not much evidence apart from			
250	253	3.00						sharp contact for it.			
253	256	3.00						239 Iron bedding highly disturbed			
256	259	3.00						+ chaotic with resultant broken core.			
			242.55	246.50	5.95		Red Argillite interrupted.	<del>Dark red</del> (crimson) fine grained			
								argillite broken and fragmented			
								To range of sizes + filled with			
								mud + grit of shales + tuffs			
								Bleaching of Red argillite fragments			
								around edges.			
								(appears to be mud flow infill			
								of an auto brecciated unit).			

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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
259	262	2.95	246.50	247.80	1.30	10-20°	Red Argillite	Deep red to purple fine grained well bedded argillite.			
262	268	6.00									
268	271	2.95	247.80	245.90	178.10		choch Shales - Red Argillite.	Red brown fine grained massive to finely bedded (rare) shales with minor <del>streaks to</del> light cream shales			
271	274	2.95									
274	277	3.00									
277	279.80	2.00						Minor Quartz - Quartz carbonate veinlets.			
279.80	280.60	<del>2.00</del> 0.75						254.2 - 255.80 Tending to red argillite			
280.60	282.30	1.70						255.95 Pyrite veinlet + bleaching of <del>the</del> shales unit.			
282.30	283.20	0.70						Down sequence bedding becoming more pronounced			
283.20	284.00	0.50						major veining rare in unit. minor pyrite or Quartz (carbonate) veinlets occur.			
284.00	286.00	2.00									
286.00	287.00	0.85				20-60°					
287.00	288.00	0.90									
288.00	289.00	1.00									
289.00	292.00	3.00									
292.00	295.00	3.00						281.45 - 281.75 ? grit light grey brown medium grained fragments subrounded to angular ? bleached argillites with fine ? clays			
295.00	297.50	2.50									
297.50	298.50	1.00									
298.50	300.30	1.65									
300.30	301.50	1.20						Fe oxide matrix contacts distorted.			

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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
301.50	303.00	<del>2.85</del> 1.45						283-291 Numerous random orientated pyrite veinlets with bleached contacts so intense in places that core is very broken + abundant clays are present.			
303.00	306.00	<del>3.40</del> 2.85									
306.00	309.00	<del>0.85</del> 3.10									
309.00	310.00	0.85									
310.00	312.00	2.00						295-10 Quartz / carbonate chlorite ? sphalerite pyrrhotite vein			
312.00	315.00	3.00									
315.00	318.15	3.10						FAULT. Pug + shaleside argillites surrounding pyritized + altered to mid-light grey.			
318.15	321.25	3.10	298.60								
321.25	324.35	3.10									
324.35	327.45	3.10									
								300 ? Shear.			
								302.25 ? Shear.			
								306.45 <sup>-306.80</sup> light grey green shales.			
								307.70 - 308.40 "			
								308.65 - 308.80 "			
								310 - 310.40 "			
								324 fault - shear. Quartz Pyrite + shalesides			

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LIFTS			DRILL INTERVAL		Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To		Angle to Core Axis			% Snt	% Sns	% Cu
327.45	330.55	3.10						332.4 - 333.4 light green grey argillites.			
330.55	333.70	3.10						337.2, 337.4 337.85 338.75 339.10.			
333.70	336.80	3.15						very clean shears slickensides			
336.80	340.00	3.10						quartz filled.			
340.00	343.00	3.10						337.60 Quartz Carbonate Chlorite			
343.00	346.00	2.90						Pyrite Vein			
346.00	349.00	3.00						Bedding within argillites locally			
349.00	352.00	3.00						disturbed.			
352.00	355	3.00						341.35 Shear.			
355.00	358	3.00						350. pyrite disseminated with bleached			
358.00	<del>360.60</del> 360.50	0.90						min in red argillite.			
360.50	361.60	1.10				20°		355.50 Shear			
361.60	364.00	2.30						336. Quartz Chlorite Pyrite Vein			
364.00	365.60	1.60						355- 358 minor light green grey argillites.			
365.60	368.70	3.10				20°		362.70 FAULT.			
368.70	371.85	3.15						372. Quartz Carbonate Chlorite Pyrite.			
371.85	375.00	3.15						372 - 376. argillites = buff-red coloured			

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LIFTS			DRILL INTERVAL			Length	BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Angle to Core Axis		% Snt			% Sns	% Cu	
375	378.10	3.10						378.70 ? Shear sediments bleached				
378.10	381.20	3.05						around numerous veinlets				
381.20	383.20	2.00						? Gypsum? spots 381				
383.20	385	1.70					Fault.	383.20. Sheared puggy vein.				
385.00	388	0.66						383 - 391 Seds have numerous alt zones				
388.00	<del>390</del>							Same // to C.P. producing broken				
<del>390.00</del>	391.20	3.00						core.				
391.20	392.20	1.80						394.60 - 395.70. highly bleached				
392.20	394.00	2.00						clay rich interval				
394.00	395.70	1.50					Fault	394.75 + 395.50				
395.70	396.60	0.90						396.60 argillites Red purple.				
396.60	399.80	3.20						397.30 Quartz Pyrite vein.				
399.80	402.90	3.15				0°	Fault	403.50 - 406.30 // to Core axis				
402.90	406.00	3.10						shearides well developed.				
406.00	407.50	1.50						403.20 Quartz Carbonate Pyrite + gray				
407.50	410.00	2.70						radiating crystals brittle? had 2 cleavages				
410.00	412.00	1.80						mineral				
412.00	415.00	3.00						407.90 Quartz chlorite carbonate Pyrite V.				
415.00	418.00	2.80						413.80 Quartz chlorite (purple) chlorite Pyrite				
418.00	421.00	3.10										

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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	
421	424.00	2.85						414.35	Quartz chlorite (minor)			
424.00	427.00	2.85						finer than pyrite veinlets & pyrite				
427.00	429.70	2.65						growth in surrounding sediments not				
429.70	432.85	3.15						uncommon.				
432.85	436.00	3.10	425.90	440.95	15.05		chert	white to creamy white fine grained				
436.00	439.00	2.90						finely bedded chert with				
439.00	442.00	3.10						minor white argillaceous units				
442.00	445.00	2.80						stylolites appear to exist				
								& marked by thin light				
								brown interfaces				
								upper contact with red argillite				
								conformable & very sharp.				
								Quartz carbonate chlorite pyrite veinlets				
								not uncommon.				
								432.10 as above vein thicker than others				
								435.80 <sup>ore</sup> Pink chert units interbedded				
								434.6 - 436.20 irregular quartz (pyrite				
								chlorite) veins & segregations.				

N.W.P.S.

HOLE No. C1165

# 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
445	448	3.00	440.95	452.45	11.50		shales.	mid grey to red-purple grey massive*			
448	451	2.95						shales. colour changes very			
451	454	3.10						diffuse. fine pyrite centered			
454	457	2.90						alteration spots occur.			
457	460	3.10						top contact sharp with cherts			
460	463.	2.90						*Very faint Bedding preserved in shales.			
463	466	3.05					Fault	444.10 Siderite on carbonate Qtz Vein			
								Carbonate Quartz Chert veinlets			
								9 segregations in section			
								449.50			
			452.45	461.25	8.80		chaotic ss/sh.	light grey to buff fine grained shales			
								with light grey medium grained			
								massive greywacke unit highly			
								chaotic with maximum intervals			
								of 0.7m of any ore unit.			
								453.50 Vein Quartz Fluorite.			
			461.25	468.10	6.95		ss.	mid grey massive medium grained			
								greywacke minor mottling due			
								to carbonates.			

N.W.P.S.

HOLE No. *C1165*

## 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	% Cu
466.0	469	2.95						461.25. Qtz Carb. vein			
469	472.	3.00						461.90 Fluorite quartz carbonate			
472	475	3.00						Sphalerite			
475	478	3.00						462.40 Qtz Carb. Sphalerite chalcocyanite			
478	481	2.95						464.15. Quartz carbonate sinterite?			
481	484	2.95						muscovite.			
484	487	2.95						467.15 Qtz. Chlorite carbonate			
487	490.	3.00						Chalcocyanite			
			468.10	472.65	4.55		shale.	mid grey fine grained shales.			
								vaguely bedded which is disturbed			
								470.95 Quartz carbonate sphalerite			
								minor SST near base.			
			472.65	474.30	1.75		SST	mid grey massive medium grained			
								greywacke			
			474.30	474.95	0.65		slate.	mid grey fine grained disturbed bedded			
								shale.			
								Qtz Chlorite vein. 474.40			
			474.95	475.50	0.55		SST	as. before			

HOLE No. 1165

# 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
490	493	2.95	475.50 <del>474.95</del>	477.80	2.30		Shale	mid-dark grey shales. fine grained			
493	496	2.90						disturbed bedding to massive shale			
496	499	2.95	477.80	482.75	4.95		Sst.	as before			
499	502	3.00						Quartz carbonate Fluorite Chlorite			
502	505	2.90						Pyrrhotite chalcocyanite vein			
505	508	3.10	482.75	484.25	1.50		Sst/sh.	mid grey greywacke + mid-dark grey			
508	511	3.00						shales. chaotic mixture			
511	514	2.95	484.25	489.70	5.45		Sh.	Chaotic mid + light grey shales.			
								minor sst incorporated			
								Chlorite Qtz Fluorite Veni 486.45			
			489.70	490	0.30		min Sst.	<del>Banded</del> Banded mid grey greywacke			
								with fine disseminated pyrite -			
								chalcocyanite.			
			490.00	496.70	6.70		Sh.	as in section 484.25 - 489.70.			
								fine calcite veins throughout unit.			
								496.40 Quartz chalcocyanite sphalerite			
			496.70	498.00	1.30		Sst.	mid grey medium grained massive greywacke.			
								fine carbonate (calcite) in matrix.			
								498.9 Quartz carbonate Chalcocyanite pyrrhotite			

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N.W.P.S.

HOLE No. C1165

# 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
								498.00 Quartz chlorite chalcocyanite pyrrhotite.			
								498.55 Quartz chlorite chalcocyanite pyrrhotite Cassiterite			
			498.00	501.50	3.50		Shale	mid grey fine grained with minor irregular sst intervals faintly bedded shales			
								501 Quartz chalcocyanite muscovite pyrrhotite vein			
			501.50	502.00	0.50		Sst.	greywacke as before.			
			502.00	504.05	2.05		Shale	as for 498-501.50			
			504.05	512.70	8.65		Sst.	mid grey medium grained slightly mottled massive greywacke			
								504.75 Quartz carbonate chalcocyanite pyrrhotite Cassiterite vein.			
								505.75 as above.			
								507.15 Quartz carbonate chlorite.			
								508.30 Quartz tourmaline chalcocyanite pyrrhotite.			

N.W.P.S.

HOLE No. 1165

# 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
514	517	2.95						510.70 Qtz chlorite Fluorite chalcocopyrite.			
517	520	3.00									
520	523	2.95						511.50 Qtz chlorite Fluorite chalcocopyrite arsenopyrite.			
523	526	3.00									
526	529	3.00	512.70	513.75	1.05		Shale.	light-mid grey fine grained shale to fine sst. carbonate in matrix.			
529	532	2.95									
532	535	2.95	513.75	519.70	2.95		sst.	mid grey medium fine grained massive greywacke with some calcite in matrix.			
535	538	3.00									
								519.55 Quartz chlorite chalcocopyrite pyrrhotite Cassiterite. Unit tends to be more shaly in places.			
								520.25 Fluorite quartz sericite			
								522.10 Qtz fluorite chalcocopyrite pyrrhotite sphalerite			
								523.70 Pyrrhotite chlorite quartz fluorite.			
								526.10 Quartz chalcocopyrite pyrrhotite tourmaline			

N.W.P.S.

# GEOLOGICAL LOG

HOLE No. ....

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
538	541	3.05						532.9 Qtz carbonate chalcocyanite			
541	544	2.85						534.55 Qtz Carbonate chalcocyanite			
544	547	2.70						Sphalerite			
547	550	2.95						535 Qtz (White) Fluorite sphalerite			
550	556	2.90						536 Qtz Fluorite Chalcocyanite pyrrhotite			
553	556	3.00	539.15	539.70	0.55		Shale	mid grey massive fine grained shale			
556	559	2.90						contacts sharp above & below			
559	562	2.95	539.70	540.90	1.20		Sst.	mid-light grey medium grained			
								massive slightly mottled greywacke			
			540.90	542.20	1.30		Shale	light grey fine grained highly			
								disturbed shales			
			542.20	543.30	1.10		tuffaceous shale	light cream-grey green finely bedded			
								with circular reaction? rims			
								in a fine grained? tuff shale			
			543.30	545.70	2.40		Shale	mid grey fine grained highly contorted			
								shale carbonate in matrix			
			545.70	546.95	1.25		Sst.	mid grey coarse-medium grained			
								massive greywacke			



# GEOLOGICAL LOG

HOLE No. ....

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
586	589	2.90	568.20	576.85	8.65		sst.	mid grey - buff medium to coarse grained massive sst.			
589	592	3.00									
592	595	3.00						570.7 - 570.85 (cont. minor shale just below			
595	598	3.00									
598	601	2.95						570 below trace sphalerite in vein also muscovite ?omite			
601	604	3.00									
604	607	3.00	576.85	577.80	0.95		sh.	mid-light grey disturbed bedding fine grained minor sst in shale			
607	610	2.90									
			577.80	579.20	1.40		sst	as before			
			579.20	580.90	1.70			mid grey disturbed bedding fine grained shale			
			580.90	584.25	3.35		sst.	as before			
			584.25	586.50	2.25		sh	mid to light grey chaotic shale. minor sst. minor very fine lamination at 586.30.			
			586.50	611.65			sst.	med grey med grained chaotic sst mainly internal minor shales present. Veining Quartz Fluorite Chlorite Carbonate			

