REF No 18543

ABMINCO N.L.
CLEVELAND MINE

CATEGORY

HOLE No. : C1155

GENERAL DATA

Objective : Deep Test 'B Str'

Area of Operation : Cleveland Tin Mine. Location : Surface Near AH. Section

Collar R.L. : 422.189 On board 2m of Co-ordinates : 15035.539 N, 10958.809 E.

Bearing of Hole : 288° 41' 24" Ground Angle of Hole : -52° 42' 24" Final Depth : 600 m

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

DRILLING DATA

Drilled by : LONYEAR Non Coring :

Drilling Rig : 38 Coring :

Driller(s) :

Core Recovery :

HOLE SURVEYS

See Camera Survey Book.

HOLE No. :

NWPS 24164

HOLE No.: C1155

SHEET No.: 1

DRILL HOLE DATA

DATE:

LOGGED: SEH

COLLAR LOCATION: AW SECTION, SURFACE, EASTERN RIDGE

OBJECTIVE: S South

FINAL DEPTH: 600

CORE SIZE: NQ/BQ

BEARING: 288.5

DIP: 52.5

R.L.: 422.19

COLLAR CO-ORDINATES: 15035.54N; 10958.81E;

SURVEY DATA				INTERPOLATED DATA			CALCULATED POSITION										
INSTR TYPE	DEPTH	DIP	AZI.	DEPTH	DIP	AZI	N	E	RL.	DIST FROM HRP ORIG	DIST FROM HALLS	SECT GO	DIST. PERP. TO H.R.P.	DIST FROM BRP ORIG	DIST FROM BATT.	SECT AW	DIST. PERP. TO BRP
EASTMAN														AW 76119.75			
CAMERA	53.0	52.0	—	12.5	52.5	287.75					102.00						
	81.0	52.0	287.5	25.0			15040.37	10944.38	402.36	20688.93	~~20688.93~~		-398.91	76120.89	+0.85		227.65
	111.5	51.75	286.5	37.5	52.5	287.50											
	140.0	52.25	286.5	50.0			15044.94	10929.86	382.52		95.62		385.12	76120.15	+1.00		212.45
	172.0	52.75	290.5	62.5	52.3	287.75											
	193.0	52.5	—	75.0			15049.48	10915.26	362.74		89.17		371.28	76119.34	+0.19		197.20
	201.0	52.75	286.5	87.5	52.0	287.80											
	230.0	52.75	285.5	100.0			15054.78	10900.61	343.04		82.48		356.93	76118.67	-0.48		181.39
	261.0	52.0	287.5		51.75	287.50											
	291.0	55.0	287.5	125.0			15058.84	10885.85	323.41		76.30		343.20	76117.91	-1.03		166.35
	294.0	55.0	286.5		51.75	287.50											
	319.5	54.0	286.5	150.0			15063.49	10871.08	303.77		69.80		329.15	76117.15	-2.00		150.88
	350.0	53.25	289.0		52.70	287.50											
	387.5	52.75	285.5	175.0			15068.10	10856.47	284.02		63.39		315.24	76116.40	-2.55		135.58
	400.0	53.75	285.5		52.40	287.50											
	429.5	55.5	284.0	200.0			15072.23	10841.92	264.21		56.56		301.70	76115.67	-3.48		120.50
	463.0	56.75	285.0		52.80	287.75											
	490.0	57.0	282.5	225.0			[illegible]	10827.53	244.30		50.72		287.64	76114.95	-4.17		105.25
	520.0	58.0	279.0		52.75	288.20											
	550.0	58.25	277.5	250.0			15082.02	10813.15	224.40		44.55		273.82	76114.43	-4.72		[illegible]
	580.0	57.75	275.5		51.75	287.50											
	600.0	56.0	272.5	275.0			[illegible]	10798.72	204.50	+Da	38.27		260.08	76113.69	-5.46		75.07
					54.75	287.50											
				300.0			15086.91	10784.96	184.05	+Da	30.68		247.33	76112.98	-7.64		67.29
					54.25	286.75											
				325.0			15095.12	10770.97	163.80	+Da	25.87		233.80	76112.07	-6.87		26.02
					53.60	286.25											
				350.0			15099.27	10756.77	143.67	+30	19.36		220.47		-7.93		31.22
					53.10	285.80											
				375.0			15103.36	[illegible]	123.68	+20	12.66		207.03	76110.72	-9.10		16.25

HOLE Nº: C7155
SHEET Nº: 2

DRILL HOLE DATA

DATE:
LOGGED: SRH

COLLAR LOCATION:

OBJECTIVE:

FINAL DEPTH:

CORE SIZE:

BEARING: 288·5

DIP: 52·5

R.L.: 4-22·79

COLLAR CO-ORDINATES: N ; E ;

SURVEY DATA				INTERPOLATED DATA			CALCULATED POSITION										
INSTR TYPE	DEPTH	DIP	AZI	DEPTH	DIP	AZI	N	E	RL	DIST FROM HRP ORIG	DIST FROM HALLS	SECT Go	DIST. PERP. TO H.R.P.	DIST FROM BRP ORIG	DIST. FROM BATT.	SECT Ah	DIST. PERP. TO E.R.P.
														Ah 16219·75			
				400·0	52·75	283·50	15107·40	10727·70	103·78		5·85		193·52	16709·45	-10·37		1·18
				425·0	54·5	284·80	15111·11	10723·69	83·43		- 0·84		180·64	16708·06	-11·76		-13·27
				450·0	55·75	284·25	15114·57	10700·03	62·77		- 7·46		168·22	16706·50	-13·25		-27·36
				475·0	56·75	285·00	15118·12	10680·79	41·86		-13·74		156·04	16705·21	-14·82		-40·91
				500·0	56·9	282·75	15121·02	10673·45	20·92		-20·57		144·22	16703·39	-16·43		-54·43
				525·0	57·5	279·75	15123·28	10660·30	-0·23		-27·74		132·92	16700·95	-18·87		-67·55
				550·0	58·2	278·00	15125·11	10647·25	-21·48		- 35·76		122·08	16099·15	-21·68		-80·42
				575·0	58·0	276·50	15126·61	10634·09	-42·68		- 42·91		111·33	16092·98	-24·84		- 93·28
				600·0	57·0	274·50	15127·68	10620·52	-63·64		-51·97		100·57	16091·28	-25·65		-106·38
				EOH													

HOLE No.: C1155

SAMPLE DATA

SHEET No.: .....

LENS	SAMPLE No.	ROCK TYPE	Σ	INTERVAL From	INTERVAL To	Length (L)	Assays (A) % Snt	Assays (A) % Sns	Assays (A) % Cu	Assays (A) % Zn	Product (A x L) P. Snt	Product (A x L) P. Sns	Product (A x L) P. Cu
	185416	Lode		460.4	461.95	1.55	0.24	0.03	0.25				
	7	Shale		461.95	462.6	0.65	0.30	0.02	0.58				
	164801	min. set.		489.45	489.90	0.45	0.08	0.02	0.52				
			Σ	460.4	462.6	2.20	0.26	0.03	0.35				

N.W.P.S.

HOLE No. C1155

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	~~0~~ 6·00	TRI CONE.	6·00	60·70	54·70		grey argillite.	mid to light grey fine to medium grained			
6·00	10·00	0·40						argillite banded (where visible)			
10·00	13·00	0·20						Unit highly disturbed (folded). Core			
13·00	16·00	0·25						recoveries bad) Joints ~~here~~ with			
16·00	19·00	0·15				~~45°~~		abundant limonite to 34m. Joints parallel to C			
19·00	22·00	2·10				45°		at 26 m.			
22·00	25·00	0·15						Beyond 34m. minor purple bands present			
25·00	27·60	0·45						and rare sandstone units 2cms			
27·60	28·20	0·20						Unit tending to be light grey - green.			
28·20	30·00	0·12						beyond 45 m			
30·00	31·00	No Core.						Dark grey silicified argillite. 49·80.			
31·00	34·00	0·05						light grey - off white chert. 52·00 m 3 cms.			
34·00	37·00	No Core. ~~0·02~~.		59·40 59·60			Shear Zone	highly sheared + quartz veined			
37·00	39·60	0·02						~~of~~ argillite.			
39·60	41·10.	0·35	60·70	60·90	0·20		Chert	light grey to off white banded chert			
41·10	43·00	0·60						highly crazed with irregular fine			
43·00	43·75	0·20						fractures.			
43·75	45·00	0·55	60·90	61·60	1·70		Limestone	Dark grey to black fine grained			
45·00	46·00	0·25						massive limestone with fine			

HOLE No. C1155

GEOLOGICAL LOG

SHEET No. 2.

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

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
46·00	47·20	0·40						disseminated pyrite near base.			
47·20	47·50	0·15						upper contact not seen, broken			
47·50	48·00	0·55						core lower contact with shale			
48·00	49·00	0·10						very clear & sharp with minor			
49·00	49·60	0·20						irregularities. Minor 2 mm fragments			
49·60	51·00	0·15						of black limestone or grey shale			
51·00	51·50	0·10						present in unit			
51·50	52·50	0·40	61·60	68·30	6·70	70-80°	chert shale	mid to light grey well banded shales			
52·50	53·10	0·15						and light grey to off white chert			
53·10	53·50	0·20						inter bedded.			
53·50	53·70	0·10						? fault at · 61·70 m.			
53·70	55·00	0·60						Banding 70-80° to core axis.			
55·00	56·20	0·10						Vein 63·10 Quartz chlorite Carbonate			
56·20	56·78	TRI CONE						fluorite with Sphalerite chalcopyrite			
56·78	57	0·25						and pyrite			
57·00	60·40	0·75				70-80°		64·50 to 63 35. Quartz Carbonate chlorite			
60·40	60·60	0·25						with trace sphalerite Veins ? faults			
60·60	63·70	2·75									
63·70	64·50	0·70									

HOLE No. C 1155

GEOLOGICAL LOG

SHEET No. 3

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

LIFTS			DRILL INTERVAL			BEDDING	ROCK TYPE	DESCRIPTION	ASSAYS		
From	To	Recovery	From	To	Length	Angle to Core Axis			% Snt	% Sns	% Cu
64·50	66·70	1·80	68·30	69·10	0·80		Shale	mid - light grey fine grained faintly			
66·70	67·20	0·30						banded shale fracture Carbonate			
67·20	68·30	0·20						filled.			
68·30	69·40	1·10		68·80		70°	fault	Quartz chlorite filled a shale-shale			
69·40	70·40	0·90	69·10	96·45	27·35		Chlor Shales	Red Brown fine grained shales with			
70·40	71·70	0·80						minor internal units (or alteration			
71·70	72·15	0·40						products) of light green - Khaki			
72·15	73·00	0·60						shale Generally unit very massive			
73·00	74·00	0·35						& structureless rarely banded.			
74·00	76·40	2·00						fractures Carbonate filled.			
76·40	79·00	2·60						Rare Quartz chlorite segregations			
79·00	82·00	3·00						Minor irregular Quartz Chlorite rare			
82·00	84·00	2·00						Sphalerite Veinlets			
84·00	84·60	0·60						82·70 Quartz chlorite Pyrite Vein at			
84·60	85·90	1·30						with alteration of dark shales			
85·90	86·60	0·50						to mid grey & growth of euhedral			
86·60	88·00	1·40						pyrite			
88·00	91·00	2·90				20-45°		Bedding highly variable from 20-45°			
91·00	94·00	2·90						to core Axis around 85m.			

N.W.P.S.

HOLE No. C1155

GEOLOGICAL LOG

SHEET No. ..... From ..... To .....

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
94.00	97.00	2.95	96.45	98.00	1.55		Arenite - Rudite.	multicoloured. from red-brown to			
97.00	100.00	2.70						khaki to light grey well			
100.00	103.00	3.00						bonded unit consisting of coarse			
103.00	106.00	2.30						~~[illegible]~~ poorly sorted sand sub rounded			
106.00	109.00	3.00						to angular, highly fragmented			
								chert shale bands minor			
								disturbed chert. Unit appears to			
								be a grit phase possibly			
								a transition from grey chert			
								shales to chocolate shale			
								~~[illegible]~~ facies			
								a fine carbonate matrix and			
								veinlets are present throughout			
			98.00	99.25	1.25		Chert & shale	mid to light grey highly contorted			
								banding fine grained shales &			
								chert. euhedral pyrite present			
								around minor veinlets.			
				98.40			Shear.	98.40 Slickenslides & quartz pyrite			
								veinlets ? Shearing			

GEOLOGICAL LOG

HOLE No. C1155

SHEET No. ____ From ____ To ____

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
109.00	112.00	3.00	99.25.	129.00	29.75		Vb	mid grey green uniform fine grained			
BQ Commenced 112.00	115.00	2.80.						generally massive or fine to			
115.00	118	3.00						coarse amygdales chlorite filled			
118	121	3.00						Numerous fine calcite veinlest			
121	124	3.00						99.25 – 103. then veins rare			
124	127	3.00						10cm Vt at 103.30 – 103.40.			
127	129	1.80		103.15. 103.85.			faults.	Quartz carbonate Quartz filled			
129	130	1.10						Vein 104.85 Quartz Sphalerite pyrrhotite.			
130	133	3.00						Veins more normally Quartz or			
133	136	3.00						Quartz chlorite			
								107.25 + 108.30. Vein. Quartz minor Carbonate.			
								Chlorite. Sphalerite Galena Arsenopyrite			
								Chalcopyrite pyrite			
								115. Quartz Sphalerite pyrite Vein			
								115 – 118 Disseminated medium to fine grained			
								pyrrhotite in Vb's,			
								118. Vein Quartz Sphalerite Pyrite.			
								118.40 " " " "			
								119.25 Quartz Galena.			

NWPS.

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HOLE No. C1155

GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
136.00	139.00	3.00						120m Epidote more common			
139.00	141.20	2.00						within interval			
141.20	142.00	0.80	129.00	129.90	0.90		min Vb	129 - 129.90 fine grained mid grey.			
142.00	145.00	2.95						Vb fine amygdules present irregular			
145.00	148.00	3.00						chlorite + Pyrite fill between fragments			
148.00	151.00	3.00						of Vb ? flow top breccia.			
151.00	154.00	3.00	129.90	146.70	16.80		Vb	mid green-grey fine grained amygdaloidal			
154.00	157.00	2.90						basalt. minor chlorite Pyrite			
157.00	160.00	3.00						mineralization within top 1m of			
								unit			
								135.35 Vein Quartz arsenopyrite			
								Sphalerite chalcopyrite			
								140.40 Vein Quartz Carbonate Sphalerite			
								142.25 Quartz chlorite Pyrite			
			146.70	148.35	1.65		Min Vb	146.70 - 148.35 irregular quartz			
								chlorite Pyrite segregations similar			
								to previous min Vb			
			148.35	194.50	45.15		Vb	mid grey-green fine grained amygdaloidal			
								basalt with fine chlorite veinlets			

N.W.P.S.

HOLE No. C 1155

GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
160.	163.00	2.85						or quartz veinlets.			
163.00	166.00	3.00						Veining Quartz Carbonate with			
166.00	167.20	1.00						~~bar~~ fine sphalerite.			
167.20	169.00	1.75						158.25 mid green medium grained			
169.00	172.00	3.00						Carbonate Vein.			
172.00	175.00	3.00						160.45. Quartz minor carbonate			
175.00	178.00	3.00						arsenopyrite ~~sphalerite~~ vein.			
178.00	181.00	3.00						165.6 – 167. light green to light brown.			
181.00	183.00	1.60						highly altered Vb dominantly clays with			
183.00	184.00	1.00						minor mafic preserved			
184.00	185.50	0.80		166.4			?Shear.	166.4 Quartz Carbonate vein quite			
185.00	186.00	0.25						open structure with abundant			
186.00	187.00	1.00						interstitial voids possibly shear zone			
187.00	190.00	3.00		170.15 171.15 171.55		45°	?fault zone	Quartz chlorite filled.			
190.00	192.60	2.10						175.1 175.65 177.0			
192.60	195.60	2.85		181.4			FAULT	Prominant Quartz chlorite sheared			
195.60	~~198.70~~ 201.20	3.00						unit 3cm thick.			
198.70	199.50	0.70		185.30 185.50			Shear.	highly fractured + sheared Vb.			
199.50	201.20	0.50						Veinlets Quartz Sphalerite present rarely.			

N.W.P.S.

HOLE No. C 1155

GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
201.20	205.00	2.60						192.70. Vein Quartz arsenopyrite Sphalerite chalcopyrite.			
205.00	207.00	2.00									
207.00	208.00	0.95	194.50	195.10.	0.60		Vt.	mid green grey fine grained highly irregular contact near parallel to CA. bedded tuff.			
208.00	211.00	3.00									
211.00	214.00	3.00									
214.00	217.00	2.95	195.10	208.05	12.95		Vb.	mid green grey fine grained massive basalt with numerous fine Carbonate and/or Quartz Veinlets. Basalt becoming vesicular down hole with chlorite or carbonate fills.			
217.00	219.50	2.50									
219.50	222.60	3.05									
222.60	225.60	2.70									
225.60	228.60	2.75									
								199.70 Quartz Pyrite chalcopyrite Vein with minor adjacent grey chert unit 5cms.			
								Vb becoming less continuous towards base of hole and at breaks small amounts of interstitial tuff shale is present.			

N.W.P.S.

HOLE No. C/155

GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
			208.05	209.65	1.60		Vt	light green-grey fine grained well bedded zone disturbance of bedding tuff 208.20 Vein Carbonate Quartz chalcopyrite			
			209.65	213.85	4.20		vb	mid green-grey fine grained amygdaloidal basalt amygdales filled with calcite minor pyrrhotite as disseminations and segregations Quartz Carbonate kinlet common 211 Vein Quartz Sphalerite pyrrhotite			
			213.65	217	3.15	20°	Vt	light green-grey fine to medium grained tuff. well bedded graded bedding at 216:10 indicates up of sequence as up in hole.			
				215.10		60°	Fault Red tuff shale green tuff	Quartz chlorite filled.			
			217.	219.70	2.70			as above unit except colour change to red brown interbedded with green grey tuffs minor coarser ~~fragmental~~ tuff (sand size) interbedded.			

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HOLE No. C1155

GEOLOGICAL LOG

SHEET No. ....

From .... To ....

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
228.60	231.70	3.10	219.70	224.75	5.05		lithic lapilli Red tuff	Red brown fine grained matrix with			
231.70	234.80	3.10						well banded sand size lithic			
234.80	238.00	3.10				45°		fragments or well orientated			
238.00	241.00	3.00						fragments + fragments grey black			
241.00	243.00	1.70						Red tuffs? shales, Vb, possibly			
243.00	244.00	0.30						some sandstones. (fragment upto 1.5 cms.)			
244.00	244.60	0.20	224.75	241.75	17.0		Vb.	mid green grey fine grained			
244.60	245.30	0.25						amygdaloidal basalt with numerous			
245.30	246.10	0.20						fine chloritic veinlets.			
246.10	246.70	0.10		227			Shearing	?? Broken core ? slickensides			
246.70	247.30	0.25						with open quartz growths.			
247.30	249.40	1.90						Veining minor Quartz Carbonate chlorite.			
249.40	252.50	3.10	241.75	250.10	8.35		tuff shale	light green-grey and light grey			
								tuffs & shales			
								Tuffs green dominant finely ~~shales~~ bedded			
								with graded bedding ~~or~~ beds			
								highly contorted			
								shale ~~slight~~ grey ~~spotted~~			
				246.40			FAULT.	Massive Slickensides core broken.			

HOLE No. C 1155

GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
252·50	255·60	3·05						Below 247. minor intervals of very dark grey - black shales with fine grained pyrite (some molybdenite is present as it occurs also in nearby veinlets below) shales.			
255·60	258·70	3·00									
258·70	261·80	3·10									
261·80	264·90	3·00									
264·90	268·00	3·05									
268·00	271·00	3·00	250·10	250·50	0·40		Red argillite	Dark red fine grained argillite upper contact highly disturbed lower contact sharp			
271·00	274·00	3·00									
274·00	276·20	1·30									
276·20	277·60	1·30	250·50	251·90	1·40		Lithic tuff	mid green grey medium to coarse grained tuff fragment reasonably well sorted with larger 3-5 cm rounded fragments of red argillite around 251·50			
			251·90	255·85	3·95		Red argillite.	Red to Pink well bedded fine grained argillite occationally beds locally disturbed lower contact marked by quartz carbonate vein.			
							Vb - chocolate shale.				
			255·85	256·20	0·35		chocolate shales	Chaotic mid green - grey Vb + fine grained chocolate shales.			

N.W.P.S.

HOLE No. C1155

GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
277·60	278·80	0·90	256·20	341·60	85·40	Parallel or 10°	chocky shales	Red - brown medium to coarse			
278·80	280·00	1·10						with minor altered or bedded units			
280·00	281·70	1·50						of cream to pink well bedded			
281·70	282·30	0·55						fine grained shales.			
282·30	283·60	1·30						Rare veining of carbonate quartz			
283·60	286·00	2·10						pyrite			
286·00	288·00	2·05						260·80 - 261·80 Colouring deep			
288·00	289·00	1·00						red as in red argillite with			
289·00	292·00	3·00						Bleaching to cream or light brown			
292·00	294·70	2·70						common around fractures and			
294·70	297·00	2·20						fine veinlets			
297·00	298·00	0·60					Fault	276·20 - 276·50 highly bleached			
298·00	298·70	0·50						shales highly fragmented core			
298·70	300·30	1·60						with slickenshides on fractures.			
300·30	301·50	1·00					Fault	? Possible fault at 278·70			
301·50	303·30	1·90						Core generally broken with			
303·30	304·00	0·60						carbonate clay on fractures			
304·00	304·80	0 80					Fault	286·30			
304·80	306·50	1·60						290 - 291·8 cream coloured shales.			

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
306·50	~~309·30~~ ~~312·50~~	2·70						minor euhedral pyrite developed around 303·30			
309·30	~~310·00~~	0·60						309. Albite Quartz + minor fine pyrite.			
310·00	310·60	0·40						Unit generally very mottled			
310·60	312·50	1·80						with Red-chocolate and fawn			
312·50	313·60	0·90						cross shale core generally			
313·60	315·00	1·30						broken			
315·00	316·00 ~~317·50~~	0·25						324·50 ~~onwards~~ onwards unit less			
316·00	317·50	0·75						fractured and dominantly Red.			
317·50	320·50	3·00						to chocolate.			
320·50	322·60	2·40						Bedding from 10 - 30° to Core Axis			
322·60	324·00	1·10						locally disturbed.			
324·00	327·00	3·00				10 - 30°		328·85 Quartz Albite Vein ?? Faults			
327·00	330·00	2·90						334·10 " " " " ? Faults			
330·00	333·10	3·10						continue			
333·10	336·20	3·10					? fault Vb.	mid green-grey fine grained			
336·20	339·35	3·10	341·60	~~341·60~~ 343·10				massive basalt minor veinlets			
339·35	342·50	3·10						of Carbonate. Carbonate also			
								present in matrix of basalt.			

HOLE No. C1155

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
342·50	345·70	3·15	343·10	344·95	1·85		Vt	mod grey-green finely bedded highly contorted bedding tuff with numerous thin basaltic intervals			
345·70	348·80	3·10									
348·80	351·90	3·10									
351·90	355·00	3·00	344·95	348·95	4·00		Vb	mid green-grey massive basalt amygdaloidal with numerous fine carbonate veinlets and blebs + veinlets of pyrrhotite common in centre of intersection			
355·00	358·00	3·00									
358·00	361·00	3·00									
361·00	364·00	2·95									
364·00	367·00	2·90									
367·00	370·00	3·00	348·95	351·70	2·75	30°	Vt	mid grey green finely bedded tuff pyrrhotite veinlets common also epidote pyrrhotite and/or chalcopyrite			
370·00	373·00	3·00									
373·00	376·00	3·00									
376·00	379·00	3·00	351·70	367·40	15·70	5°-30°	Red Argillite	Red to red brown finely bedded (highly variable angle) fine grained argillite			
379·00	382·00	3·00									
382·00	385·00	3·00									
385·00	388·00	3·00									
								359·90 Vein Quartz carbonate epidote chlorite			
								minor intervals when argillite changes to fawn-cream.			
								Rare pyrite near fractures or veinlets			

HOLE No. C1155

GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
			367.40	367.80	0.40		Vb	mid grey - green fine grained basalt fragmented with a carbonate fill			
			367.80	371.25	3.45		Vt	mid to light green - grey fine - medium grained highly contorted bedding in tuff. 370.60 Vein carbonate Quartz chalcopyrite.			
			371.25	374.40	2.15		Vb	mid green grey massive fine grained basalt with fine carbonate Veinlets appears to be epidotized			
			374.40	375.30	0.90		Vt	mid grey - green fine grained very finely bedded tuffs			
			375.30	376.50	1.20		Vb	as above intrusive			
			376.50	380.50	4.00		Vt	mid grey - green finely bedded Tuff			
						20-30°	Shear	Clay - Carbonate filled shattered zone			
			380.50	380.80	0.30		Vb	as before			
			380.80	381.40	0.60		Vt	mid green grey fine grained dominantly massive tuff fine bedding near lower contact.			

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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
388.00	391.00	2.95	381.40	384.25	2.85		Vb.	mid grey green massive			
391.00	394.00	3.00						medium grained amygdaloidal Basalt.			
394.00	397.00	2.95						minor pyrrhotite or chalcopyrite			
397.00	400.00	2.95						disseminations or vesicul fills.			
400.00	403.00	2.90	384.25	386.30	2.05		Vt ~~Sis~~	mid grey - green finely bedded tuffs			
403.00	406.00	2.50						with fine disseminated pyrite			
406.00	406.70	0.70	386.30	438.50	52.20		Red Argillite	Red fine grained bedded (somewhat			
406.70	409.00	2.25					[illegible]	contorted argillite.			
409.00	412.00	2.90						392. Vein Quartz carbonate ? fluorite			
412.00	415.00	2.90						epidote.			
415.00	418.00	3.00						Bleaching around pyritic vein			
418.00	421.00	3.00						common. Veinlets have coarse			
421.00	423.00	1.90						euhedral pyrite ~~with~~ surrounding			
423.00	426.00	3.00						them.			
426.00	429.00	3.00						412.10 Vein Quartz Carbonate			
429.00	430.00	0.90						fluorite. ? fine Sphalerite +			
430.00	433.00	3.00						minor epidote.			
								416. Vein quartz carbonate.			
								416-30 Vein Quartz chalcopyrite sphalerite			

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
433.00	436.00	3.00						425 onward colouration more brownish & disseminated pyrite cubes throughout argillites also fine white blebs ? possibly gypsum.			
436.00	438.60	2.50									
438.60	441.00	2.20									
441.00	444.00	2.95									
444.00	447.20	3.05									
447.20	450.30	3.10		438.50			Fault. Buff-red argillite	Very clean break with slickensides Colour mid brown-red argillites bedding highly disturbed & infilled with light brown shale. white spotting present, fine pyrite disseminated locally. Top contact gradational with red although fault present argillite bottom contact silicified and gradational.			
450.30	453.40	3.05	438.50	441.80	3.30						
453.40											
		*	441.80	455.00	13.20		Chert.	light grey to buff tending to light red or pink fine grained locally well bedded although generally highly disturbed & cut with light brown veinlets of clay material			

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SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
453.40	456.50	3.10						minor thin veining of Quartz Carbonate			
456.50	459.00	2.20						fluorite ? sericite chalcopyrite			
459.00	461.80	2.80						Beyond 450m red colouration			
461.80	463.00	1.15						intensifies although unit is still			
463.00	466.00	3.00						dominantly silicified.			
466.00	469.00	3.00	455	459.75	4.75		Shale	Cream to buff fine grained			
469.00	472.00	3.00						shale faintly bedded and has			
472.00	475.00	3.00						locally developed fine spots			
475.00	478.00	3.00	459.75	460.35	0.60		SST/chert	chaotic mixture of light brown			
								to buff medium grained sandstone			
								and buff fine grained chert			
			460.35	461.60	1.25		rock	Carbonate Fluorite Quartz Tourmaline			
								with veined pyrite - chalcopyrite			
								upper contact lower ? sheared at			
								45° Lower contact slightly disturbed			
								with shear.			
			461.60	463.70	2.10		chaotic shale	chaotic dark-mid grey and			
								light buff shales. minor			
								silicification + tourmalinization with			

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GEOLOGICAL LOG

SHEET No.

From ____ To ____

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
478	481	2.95						trace fine disseminated sulphides			
481	484	3.00	463.70.	~~490.50~~ 470.50	~~26.80~~ 6.80		SST.	commences with light buff which			
484	487	2.95						grades to mid grey medium			
487	490	2.95						grained massive greywacke.			
490	493	2.95						465 Vein Quartz carbonate ~~[illegible]~~ Chlorite			
493.	496.	3.00						Fluorite			
			470.50	470.90	0.40		Shale	mid grey massive fine grained			
								shale			
								Vein 490.60 Quartz Chlorite Sphalerite			
			470.90	475.30	4.40		SST.	light buff massive medium grained			
								greywacke upper contact a few			
								minor intervals of shale			
								491.15 Vein Quartz Chlorite Fluorite			
								Sphalerite.			
								474.35 Vein as above.			
			475.30	477.30	2.00		Shale.	light brown fine grained spotted			
								shale contorted banding minor			
								interval of similar coloured			
								sst.			

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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
496	499.00	2.90	477.30	478.0	0.70		SST	mid grey to light brown - fawn medium grained sst appear to have disturbed bedding very faint			
499.00	499.60	0.60									
499.60	502.00	2.30									
			478.	480.10	2.10		Shale.	Mid grey to light brown highly contorted shale fine grained minor spotting. Minor intervals containing chaotic sandstone.			
			480.10	483.50	3.40		SST.	light grey - fawn medium grained massive sandstone minor Quartz + chlorite sphalerite veinlets (as tension gash fills) 482.70 Vein Quartz minor carbonate chlorite chalcopyrite pyrite ? covellite			
			483.50	486.20	2.70		Shale.	mid grey fine grained highly contorted shales.			

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GEOLOGICAL LOG

SHEET No.

From To

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
			486.20	488.10	1.90		Sh/SST	mid grey medium grained massive sst and mid grey fine grained shales inter bended approx 50/50			
								487 Vein Quartz chlorite Flourite Carbonate Chalcopyrite pyrrhotite			
								487.55 Vein as above + trace sphalerite and not as much Chalcopyrite - pyrrhotite			
			488.10	489.45	1.35		SST	mid grey fine grained massive to slightly shaley sandstone small veinlets relatively common consisting quartz chlorite chalcopyrite & min pyrrhotite			
			489.45	489.90	0.45		min SST	mid - light grey medium - fine grained massive sst with abundant veinlets and disseminations of quartz with minor chalcopyrite pyrrhotite			
			489.90	490.90	1.00		SST	as for 488.10 - 489.45			

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GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
502.00	505.00	3.00	490.90	495.05	4.15		~~sst~~ Sh	mid grey fine grained dusted shale with minor rounded blebs (2 mm) of sst Veinlets Quartz carbonate Flourite chlorite chalcopyrite pyrhotite (4 veins in unit			
505.00	508.00	2.95									
508.00	511.00	3.00									
511.00	514.00	2.90									
514.00	517.00	3.05									
517.00	520.00	3.00	495.05	505.00	9.95		Sst	mid grey medium grained dominantly sst with minor chertic intervals of mid grey shales carbonate in matrix			
520.00	523.00	3.00									
523.00	526.00	2.95									
								497 Quartz Vein.			
								500.6 Quartz chlorite Carbonate Fluorite chalcopyrite pyrhotite Vein ? trace SnO_2			
								other minor veining and small fracture fills present of similar mineralogy (sphalerite at 500.15)			
			505.00	506.60	1.60		Shale	mid grey fine grained shale with Contorted bedding			
								505.30 Carbonate Quartz chlorite Fluorite sphalerite			

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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
								506.20 Quartz chlorite sphalerite			
			506.60	~~509.55~~	2.95		sst	mid grey medium grained massive greywacke with minor fine carbonate matrix			
			509.55	512.00	2.45		shale	Shale mid grey fine grained with disturbed bedding			
								509.75 Quartz carbonate Fluorite chlorite chalcopyrite			
								510.25 Quartz Fluorite chlorite pyrrhotite chalcopyrite.			
			512.00	518.75	6.75		sst	mid grey medium grained massive sst. Dominantly Quartz carbonate vein to 517.			
								518 vein Quartz Carbonate chlorite minor Fluorite chalcopyrite pyrrhotite SnO_2 ?			
			518.75	527.05	8.30		shale	mid grey fine grained shale. contorted habit			
								519.05 Quartz Fluorite. pyrrhotite chalcopyrite.			

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GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
526	529	2.95									
529	532	3.00						522.10 Quartz Fluorite chlorite Chalcopyrite Pyrrhotite Sphalerite			
532	535	3.00						522.30 Quartz Fluorite Chalcopyrite			
535	538	3.00									
538	541	3.00	527.05	547.75	20.70		sst.	med grey medium grained massive greywacke			
541	544	3.00						527.35 Fluorite Muscovite Vein.			
544	547	2.95						528.80 and 529.7 Fluorite Chalcopyrite pyrrhotite Veins			
547	550	3.00						530.60 Quartz Carbonate Fluorite Chlorite Sphalerite Chalcopyrite			
								533.15 Quartz Fluorite chlorite Sphalerite : fine galena			
								533.70 Quartz Carbonate Fluorite Chalcopyrite			
								535.05 Quartz Fluorite Chalcopyrite pyrrhotite.			
								536.15 Quartz fluorite Tourmaline Chlorite			

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GEOLOGICAL LOG

SHEET No.....

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

LIFTS From	LIFTS To	LIFTS Recovery	DRILL INTERVAL From	DRILL INTERVAL To	Length	BEDDING Angle to Core Axis	ROCK TYPE	DESCRIPTION	ASSAYS % Snt	ASSAYS % Sns	ASSAYS % Cu
550.0	553.00	2.95						537.20 Quartz Pyrrhotite			
553.00	556.00	3.00		540.45			Fault	Clean Break with Slickensides.			
556.00	559.00	2.80						Carbonate matrix in Sst 539 onward.			
559.00	562.00	3.10	547.75	548.85	1.10		Shale.	mid grey fine grained			
562.00	565.00	2.95						chaotic shales lower contact			
565.00	568.00	2.90						? fault			
568.00	571.00	3.00		548.85		70°	Fault	Contact Sh - Ss. with 3-4 cm.			
								Quartz chlorite Vein appears to			
								be sheared.			
			548.85	556	7.15		Sst.	mid grey medium grained mottled			
								sst with carbonate matrix			
								550.3. Carbonate Fluorite Sphalerite			
								552.55 ? Sheared. Quartz Fluorite			
								pyrrhotite			
								553.9 Sphalerite fill in fine			
								gashes.			
				556		20-30	Fault.	Lightly sheared quartz chlorite			
								fluorite vein			

GEOLOGICAL LOG

HOLE No.....

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
			556.00	559.5	3.50		sh/ss	chaotic mid grey shale and sst. 556.70 Carbonate Fluorite sphalerite Vein 557.95 Quartz muscovite Vein last 3cm of init vein + fracture filled with Quartz chalcopyrite pyrrhotite. (min 5%)			
			559.50	565.60	6.10		sst.	mid grey medium grained matted greywack with minor carbonate in matrix. fine fluorite Sphalerite carbonate Veinlets common.			
			565.60	572.60	7.00		shale.	mid grey fine grained chaotic shale (internal no sst present) Flourite Carbonate Sphalerite Veinlets common. Unit from 568.50 becoming increasingly Sandy and chaotic.			

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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
571	574	3·00						565. Quartz carbonate chalcopyrite pyrrhotite			
574	577	3·00									
577	~~580~~	3·00	572·60	578·10	5·50		Vt.	mixed grey to grey-greenish fine grained vaguely banded unit with numerous crackle textures consisting of small carbonate rings (reaction rims : fine grained material internally) grains tend to be diffuse to angular when observed.			
580	583	2·95									
583	586	3·00									
586	589	3·00									
589	592	3·00									
592	595·06	2·90									
595·06	597·06	2·15									
								574 onward unit tends to be chaotic with rounded blebs of sst incorporated.			
								Very fine delicate bedding preserved in some of the lower intervals.			
			578·10	581·50	3·40		Shale	light grey to fawn chaotic shale. fine bedding rarely evident.			
								580·10 Quartz Fluorite muscovite vein.			
								2 similar slightly lighter up.			

N.W.P.S.

GEOLOGICAL LOG

HOLE No.....

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
			580.50	581.55	0.05		Min Shale ?Lode	light fawn finely bedded Carbonatic slaty Quartz with fine laminated sphalerite chalcopyrite and pyrite			
			581.55	592.30	10.75		SSt	mid grey medium grained massive greywacke. 583.25 Fluorite Carbonate Chalcopyrite 586 Quartz carbonate Sphalerite chalcopyrite 586–586.4 similar smaller veinlets 587.80 Pyrrhotite chalcopyrite vein 591 Quartz Fluorite muscovite pyrrhotite veinlet.			
			592.30	596.	3.70		Shale.	mid grey fine grained contorted shales. veining Quartz chlorite Fluorite chalcopyrite pyrrhotite minor Tourmaline on vein on contact.			

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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
597.06	600.00	2.90	596.00	600.00	4.00		sst	mid grey medium grained massive greywacke			
								598.70 Quartz carbonate Pyrrhotite chalcopyrite ? fine disseminated chalcopyrite in surrounding sst.			
								EOH 600.00			

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