E1

ESSO RESOURCES CANADA LIMITED

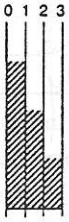
ESSO MINERALS CANADA

Sulphurets 803673
Lake Gold
Zone 104B/8

DRILL LOG

PROJECT: 2153	GROUND ELEV.:
HOLE NO.: 21	BEARING: 090°
LOCATION: Sulphurets Lake Gold Zone	DIP: 45
	TOTAL LENGTH: 237.5' 51.19m
LOGGED BY: D. Fedun, T. Simpson	HORIZONTAL PROJECT: 36.20m
DATE: July 7, 1981 - July 9, 1981	VERTICAL PROJECT: 36.20 m
CONTRACTOR: Artic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: July 6, 1981	
DATE COMPLETED: July 7, 1981	
DIP TESTS: unable to do - hole collapsed	

ALTERATION SCALE



absent
slight
moderate
intense

TOTAL SULPHIDE SCALE



traces only
< 1%
1% – 3%
3% – 10%
> 10%

COMMENTS: hole lost at 72.24m/237.5 ft, core barrel sheared off in hole

LEGEND

J. M. Simpson
SEPT 9, 1981

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DUKSBAK WATERPROOF

PAGE 1 OF 8 | PROJECT: 2153 | HOLE NO. 21

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D (qtz v)	ALTERATION E (cal v)	FRACTURE INTENSITY	% VEIN QTZ.
				0-5.8: overburden							
5.0			35/70 tr qtz, py v; oxid fault	5.80-22.45: chl. and : gry to gry-gr, F-m grain, locally flow banding, 11.92-12.13 silic section, locally remnant feld and hrnblende(?)	194	1	0	99	59	M	
			30/ 9cm py, highly oxidized v	some py bands parallel to or replacing(?) flow bands, fractures show up to 1cm of oxidation rind, many sections highly broken and oxidized, local dark green areas of high chl content, cal and qtz veins healing small angular fracture patterns, along some faults chl brecc. but are not oxid., traces of a gry-blue granular mineral, trace moly also							
10.0			50/ frac with 2cm oxid rind								
			?/120 fault, 3cm slip								
			20/ frac with 3cm oxid rind								
			30/ traces with oxid rinds								
15.0			50/ py v with 4cm oxid rind	at 16.15: 3cm fault gauge at 16.42: 9cm fault gauge							
20.0			40/ cal v with 2cm oxid rind								

PAGE 2 OF 8 | PROJECT: 2153 | HOLE NO. 21

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au			
5.80 - 22.45: py dark brown, very fine grain where parallel to flow bands, trace chalco in py v.		6.00							
				3.00	3814	.160			
5.80 - 6.09: 5% py, F grain, dissem									
6.09 - 8.55: 20% py, F-c grain, mostly veins, chalco		9.00							
8.55 - 12.08: 5-10% py, F grain, veins and dissem				3.00	3815	.031	—		
12.08 - 12.88: 1-3% py, F grain, dissem, core highly broken and oxidized.		12.00							
12.88 - 13.42: 10% py, F-m grain, v and patches, trace chalco									
13.42 - 22.45: 2% py, F grain, some veins, mostly dissem				3.00	3816	.017			
		15.00							
				3.00	3817	.001			
		18.00							
				3.00	3818	.003			
		21.00							
				1.45	3819	.001			
		22.45							

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PAGE 3 OF 8 | PROJECT: 2153 | HOLE NO. 21

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
			40° fault	22.45-27.03: chl. and.: varegated pale gry-gr to dark gr-purple; flow banding very prominent, high py occurrences coincident with areas of high chl content, upper contact a fault between and. relic texture and flow banding, lower contact an oxidized frac., at 24.10 fault gouge	24	0	0	18	2	L	
			50 py v, 3cm oxid rind								
			90 frac., 2cm oxid rind								
25.0			50 py v, 6cm oxid rind								
			50 qtz v., 3cm oxid. rind	27.03-27.89: chl. and.: pale gr to dk gr, relic texture, more silic overall	2	0	0	14	0	L	
			60 fault at boundary	27.89-48.37: chl. and.: varegated gr to gry to purple; flow banding distinct, F grain to aphanitic, chl. dissem as well as present along flow bands, py locally high and F grain along flow bands, trace hematite in some qtz v., some sections of relic and. texture between flow band sections	280	4	1	51	9	L	
			30 1cm py, qtz, chalco v.								
30.0			80 11cm qtz, cal, py v. including 3cm oxid rind								
			60 frac with 3cm oxid rind								
			35 0.3cm py v								
35.0			50 3cm semi-mass py v.								
			50 12cm semi-mass py v. including 4cm oxid rind								
40.0											
			30 1cm py v.								
45.0			25 1cm py v.								

PAGE 4 OF 8 | PROJECT: 2153 | HOLE NO. 21

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au
22.45-27.03: 2% py, F grain, mostly veins, oxid assoc.				1.55	3820	.003
at 23.10: chalco in qtz v, trace galena also assoc. in veins		24.00				
				3.00	3821	.002
		27.00				
27.03-27.89: 2% py, vF-m grain, dissem,						
27.89-48.37: F grain, anhedral, generally brown color				3.00	3822	.004
27.89-29.25: ≤1% py, dissem.		30.00				
29.25-31.49: 1% py, veins, trace chalco in py v				3.00	3823	.006
31.49-37.55: 5-7% py, veins and coarse grained patches or spheroids of chl with py in the centre.		33.00				
				3.00	3824	.013
		36.00				
37.55-45.24: 1-5% py, veins but mostly dissem				3.00	3825	.021
		39.00				
				3.00	3826	.007
		42.00				
				3.00	3827	.008
		45.00				
45.24-45.55: 10% py, veins and						

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.
45.0			50 – 25cm semi-mass py-veins and oxid rinds 2% qtz-cc								
			40 25 – 23cm oxid rind around fracs	48.37-55.64: chl. alt. and: gr-gry to gr, low sulphide content, py found commonly in centre of spheroid chl rimmed with qtz, chl breccia in some cal v, from 50.00 to 50.50 excessive oxid and frac, relic texture preserved throughout interval	18	0	0	11	55	M	
50.0											
			45 – frac with 4cm oxid rind 35 – frac with 7cm oxid rind 65 – 1cm cal V with chl breccia								
55.0			50 – 1cm cal, qtz V. iron stain 55 – 23cm frac and iron stain 50 – frac with 8cm oxid rind	55.64-56.37: and. dyke?: M grain, pale-med gr, chl altered, smaller, border chill zones 56.37-72.24: chl. alt. and: gr-gry to gr as before low sulphide levels with some local highs, some flow banded sections, some pale gr chl sections, some mottled pale and dk gr chl sections containing sulphides, the rest exhibit relic texture, fracture intensity and accompanying oxid. moderate, lowermost section also exhibits chl bresc. (≤4cm)	0	0	0	1	14	L	
					110	0	0	24	59	M	
60.0											
65.0			40 – frac with 3cm oxid rind								

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tm Au	ASSAYS	ASSAYS	ASSAYS
along flow bands									
45.55 - 46.22 : 3% py, along flow bands									
46.22 - 47.87 : 10-15% py, 1 massive V, (75% py)				3.00	3828	.076			
(2-3% F grain chalco), most along flow bands									
47.87 - 48.37 : 3% py, along flow bands									
		48.00							
48.37 - 55.64 : 1-3% py, mostly patches of M-f grain crystals avg 3%,									
minor to trace chalco				3.00	3829	.009			
		51.00							
				3.00	3830	.010			
		54.00							
				3.00	3831	.007			
55.64 - 56.37 : no visible py, iron stain on qtz, cal v.									
56.37 - 62.54 : 2% py, mostly veins and along flow bands, trace		57.00							
chalco in some py v.				3.00	3832	.005			
		60.00							
				3.00	3833	.004			
62.54 - 72.24 : avg < 5%, locally varies between 2%									
to 10% in some sections, trace		63.00							
chalco in uppermost area				3.00	3834	.015			
		66.00							

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PAGE 7 OF 8 | PROJECT: 2153 | HOLE NO. 21

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.	
			50 / 30	fracs with 13cm total oxid mod Py, chalco, cal V								
70.00				at 71.02 fault gouge hole lost at 72.24								
75.00												

PAGE 8 OF 8	PROJECT:	HOLE NO. 21

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				3.00	3835	.005			
		69.00							
				2.00	3836	.020			
		71.00							
				1.24	3837	.004			
		72.24							

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DUKSBAK WATERPROOF

PAGE OF | PROJECT: | HOLE NO.

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	

E1

ESSO RESOURCES CANADA LIMITED

ESSO MINERALS CANADA

DRILL LOG

PROJECT: 2153	GROUND ELEV.
HOLE NO.: 22	BEARING: 090°
LOCATION: Sulphurets Lake Gold Zone	DIP: 70°
	TOTAL LENGTH: 133.54 m 432 ft
LOGGED BY: D. Fedyk, R. Baerg, D. Bridge	HORIZONTAL PROJECT
DATE: July 9, 1981 - July 10, 1981	VERTICAL PROJECT
CONTRACTOR: Arctic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: July 7, 1981	
DATE COMPLETED: July 8, 1981	

ALTERATION SCALE



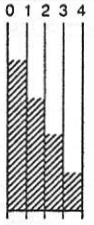
absent

slight

moderate

intense

TOTAL SULPHIDE SCALE



traces only

< 1%

1% – 3%

3% – 10%

> 10%

DIP TESTS

depth	angle	obs. brg	corr brg
33'	71.5	059.5	087
133'	70.5	061	088.5
233'	70	070.5	097.5
333'	69.5	074	101.5
433'	69.5	n/a	n/a

COMMENTS

LEGEND

Diane A Bridge

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PAGE 1 OF 12 | PROJECT: 2153 | HOLE NO. 22

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
				0.00-1.83: overburden							
				1.83-10.50: silic. and.: pale gr to dark gr-gry, alternating sections of cherty (pale gr) and flow banded (gr and gry) and mottled dark gr and gry, overall silic, in the area of 6.05 spheroids of a soft white mineral (due to devitrification?), interval fractured and intensely oxid.	59	1	0	26	7	M	
5.00			30	frac with 2cm oxid. rind							
			30	flow bands, py v., oxid fracs							
10.00				10.50-84.82:							
			45	33cm fracs and oxid rinds							
				flow banded							
				10.50-20.75: chl ∧ and.: pale gr to dark gr-gry, half relic and. texture and half flow banding, locally silic, areas of high chl in flow bands	60	0	0	38	4	M	
15.00			30	py v. with 1cm oxid rind							
			45	flow bands, py v.							
20.00				20.75-26.10: chl. and.: pale gr to gry, almost completely a fault zone and gouge, intensely oxid	8	0	0	2	17	M	

PAGE 2 OF 12 | PROJECT: 2153 | HOLE NO. 22

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag	ASSAYS ppm Cu	ASSAYS ppm Mo	ppm As	ppm Sb	ppb Hg
1.83 - 10.50: 4% py, veins, also along areas of flow banding,		1.83										
				1.17	3994	.058						
F-C grain, many areas so oxid py completely lost		3.00										
				3.00	3995	.013						
		6.00										
				3.00	3996	.016						
		9.00										
				1.50	3997	.043						
10.50 - 84.82:		10.50										
				1.50	3998	.036			. .			
		12.00										
10.50 - 20.75: avg 5% py, C-f grain along flow bands and in patches along fracs., moderately dissem also				3.00	3999	.011						
		15.00										
				3.00	4000	.006						
		18.00										
				3.00	4001	.003						
20.75 - 26.10: 1% py, some veins, mostly dissem, M-f grain		21.00										

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DUKSBAK WATERPROOF

PAGE 3 OF 12 | PROJECT: 2153 | HOLE NO. 22

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
			30	fault							
25.00				flow banded 26.10 - 52.87: chl. ∧ and : pale to dk gr-gry, more chl. than above fault, some flow banding, some mottled sections, some pale gr soft (chl.?) sections, hematite in chl breec. at 52.80, py content very low overall	57	3	0	41	35	L	
30.00			35	1cm py, chalc ∨							
			60	1cm py ∨							
			75	4cm qtz ∨							
35.00											
			70								
			40	1cm py ∨, frac							
40.00											
			75								
			40	25cm fracs and oxid rinds							
45.00											

PAGE 4 OF 12 | PROJECT: 2153 | HOLE NO. 22

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au			
				3.00	4002	.003			
		24.00							
				3.00	4003	.002			
26.10-52.87: overall 1% py except for locally higher contents		27.00							
				3.00	4004	.004			
at 29.87-32.52 5-10% py		30.00							
				3.00	4005	.004			
		33.00							
				3.00	4006	.007			
		36.00							
				3.00	4007	.005			
		39.00							
				3.00	4008	.011			
		42.00							
				3.00	4009	.008			
		45.00							

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
45.00											
			20 — 1cm qtz V								
50.00				52.87-53.45: and. dyke: mid gr, very chl, relic texture	0	0	0	0	19	0	
			30 / 40 — 1cm cal V and frac with 1cm oxid rind	53.45-55.30: and: mottled lt and dk gr, mainly the flow banded unit, very chl.	14	0	0	0	7	L	
55.00			25 — frac with 6cm oxid rind	55.30-59.40: chl. and.: lt to med gry-gr, py along most fracs in small amounts, relic texture preserved, very chl throughout	47	0	0	18	8	H	
			40 — 1cm qtz, py V								
			30 — 9cm qtz, py V								
				59.40-60.71: chl. and.: lt to med. gry-gr, mod silic., intensely frac., py again centred around fracs.	10	0	0	10	0	H	
60.00			90 ? — minor fault ?								
			65 — 1cm qtz, py V.	60.71-67.60: chl. and.: lt grn and grey to dk green, mod. silic, fine grain chl and groundmass chl	81	0	0	23	7	L	
			20 / 70 — 1cm qtz, pyV., 4cm slip fault								
65.00											
			30 — frac with 1cm oxid rind								
			60 — fault								

PAGE 6 OF 12 | PROJECT: 2153 | HOLE NO. 22

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				3.00	4010	.016			
		48.00							
				3.00	4011	.007			
		51.00							
52.87-53.45 : 0% py				3.00	4012	.009			
53.45 - 55.30 : <1% py, few veins, mostly dissem., trace chalco		54.00							
				3.00	4013	.010			
55.30 - 59.40 : 2% py, dissem, F grain, trace chalco		57.00							
				2.40	4014	.020			
59.40 - 60.71 : 5% py, dissem, F grain		59.40							
		60.00		0.60	4015	.008			
		60.71		0.71	4016	.004			
5- 60.71 - 67.60 : 10% py, veins and along fracs, C-f grain, trace chalco along veins at 66.70		63.00		2.29	4017	.003			
				3.00	4018	.007			
		66.00							
				1.50?	4019	.030			

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DUKSBAK WATERPROOF

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
				67.60-72.05: mixed and.: lt to dk green, mod chl overall, texture varies from mottled to flow banded	71	1	0	8	6	L	
			70	5cm qtz, py, chl v.							
70.00											
			40	4cm py, qtz, chalco v.							
			35	72.05-77.80: chl. and.: pale to dark green, very chl, some sections of flow banding (?), others have relic texture	73	1	0	10	39	L	
				8cm cal, chl, py chalco v.							
			15	3cm py, chl, cal v.							
75.00											
			10								
			40	4cm qtz, chl, py v, with frac with 2cm oxid rind							
				77.80-79.06: and. dyke: med gr, very chl, relic texture, hematite in cal v.; trace epidote also in cal v., chl grains in relic texture	0	0	0	0	40	L	
			20	1cm qtz, chalco, py v and frac.							
			5	fault							
			25	1cm cal, hem, ep v							
				79.06-84.82: chl. and.: pale gr to mod gry-gr to dk gr, extensively chl., chl brecc along cal v., hematite along some cal v, prominently flow banded, relic texture in lowermost section of interval	104	1	0	22	20	L	
80.00			60	1cm qtz, py v							
			45	2cm py, qtz, chalco cal v.							
			40	1cm qtz, chl v.							
85.00				84.82-108.07: chl. and.: lt to med gr, intensely chl., mottled sections, some brecc. chl. sections, other areas relic texture, py forms patches haloed by chl. and cal to form spheroid structures, several patches of epidote, several patches of a translucent soft green mineral (chl-sericite?)	219	1	0	98	114	L	
			30	2cm qtz, chl v							
			25	1cm qtz, chl, py v.							
90.00											

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tm Au
67.60 - 72.05: 10-15% py, mostly veins and small patches, C-f grain, minor chalco along qtz and cal veins				1.50?	4020	.041
		69.00				
				3.00	4021	.007
		72.00				
72.05 - 77.80: 5-10% py, mostly along flow bands, M-f grain, trace chalco as patches				3.00	4022	.006
		75.00				
				3.00	4023	.003
77.80 - 79.06: no py						
		78.00				
79.06 - 84.82: 5-10% py, mostly veins and along flow bands, C-f grain, sub-rahed crystals, trace chalco with py, trace sphalerite				3.00	4024	.009
		81.00				
				3.00	4025	.012
		84.00				
84.82 - 108.07: 3-5% py, C-f grain, mostly veins and patches, trace chalco, trace sphalerite				3.00	4026	.001
		87.00				
				3.00	4027	.003
		90.00				

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DUKSBAK WATERPROOF

 PROJECT: 2153 HOLE NO. 22

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
90.00											
			60	1cm qtz, pyrite veins							
95.00											
100.00											
105.00											
				108.07-110.95: chl. and. ± mottled lt to dk gry-gr, mod. silic. throughout	69	0	0	18	6	L	
			35	22cm py, chl veins							
110.00			35	3 1cm py veins							
				110.95-115.37: chl. and.: lt gr to lt gry to dk gry-gr, flow bands (?) in uppermost section, mottled and more chl in lowermost half	81	3	0	25	24	L	

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				3.00	4028	.002			
		93.00							
				3.00	4029	.005			
		96.00							
				3.00	4030	.004			
		99.00							
				3.00	4031	.007			
		102.00							
				3.00	4032	.004			
		105.00							
				3.00	4033	.029			
		108.00							
108.07 - 110.95 : 15-20% py, mostly as semi-massive veins and along flow bands in lower section c-f grain				3.00	4034	.049			
110.95 - 115.37 : 10-15 % py, as veins and dissem, c-f grain		111.00							

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DUKSBAK WATERPROOF

PAGE 11 OF 12 | PROJECT: 2153 | HOLE NO. 22

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
115.00			40 fault and ~15cm gouge	115.37-133.54: chl. and.: lt to med gry-grn, relic texture throughout, trace epidote(?) in some cal v., oxid. still present at depth, relic texture entails 10-15% chl grains ≤3mm with an aphanitic groundmass	239	3	0	33	14:1	2	
120.00			20 1cm cal v.								
125.00			65 2cm cal v.								
			60 1cm py v.								
			40 3cm py, qtz v.								
130.00			50 2cm py, qtz v.	hole ends at 133.54							
135.00											

PAGE 12 OF 12 | PROJECT: 2153 | HOLE NO. 22

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				3.00	4035	.027			
		114.00							
				1.37	4036	.006			
115.37–133.54 5–10% py, as veins and patches, C-f grain, goes from bronze to dark brown to dark grey when fine grained		115.37							
				1.63	4037	.007			
		117.00							
				3.00	4038	.004			
		120.00							
				3.00	4039	.002			
		123.00							
				3.00	4040	.002			
		126.00							
				3.00	4041	.036			
		129.00							
				3.00	4042	.004			
		132.00							
				1.54	4043	.012			
		133.54							

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PAGE OF | PROJECT: | HOLE NO.

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	

E1

ESSO RESOURCES CANADA LIMITED

ESSO MINERALS CANADA

DRILL LOG

PROJECT: 2153	GROUND ELEV.: 1085.1 m
HOLE NO.: 26	BEARING: 045°
LOCATION: Sulphurets Lake Gold Zone	DIP: 045°
	TOTAL LENGTH: 225.55 m / 740 ft
LOGGED BY: D. Fedulk, D. Bridge	HORIZONTAL PROJECT: 188.72 m
DATE: July 21, 1981 – July 26, 1981	VERTICAL PROJECT: 119.72 m
CONTRACTOR: Arctic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: July 20, 1981	
DATE COMPLETED: July 25, 1981	

ALTERATION SCALE

0 1 2 3

absent

slight

moderate

intense

TOTAL SULPHIDE SCALE

0 1 2 3 4

traces only

< 1%

1% – 3%

3% – 10%

> 10%

DIP TESTS

72'	-41°	037.5°	010° obs	492'	-28°	037°	009.5° obs
132'	-38.2°	036°	008.5°	612'	-27°	039°	011.5°
252'	-36°	039.5°	012°	732'	-23.5°	042°	014.5°
372'	-31.7°	039.5°	012°				

COMMENTS

Sucking water at ~90 ft

Cement used at 30.18 m / 99 ft

Au assays in oz/ton, metal analyses in ppm, First Au assay by Canada wide Mines – Granduc, second by Min-En Labs Ltd.

LEGEND

Donna Bridge

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (<1cm)	ALTERATION B (1-10cm)	ALTERATION C (>10cm)	ALTERATION D (qtz)	ALTERATION E (cal)	FRACTURE INTENSITY	% VEIN QTZ.	% tourmaline
0				0.00 - 3.66 : overburden and broken bedrock that was not recoverable								
				3.66 - 10.70 : fresh to altered and with 2 mass. sulph veins; higher tourm. content in alt and; chl grains diffuse, some feld. noted						L		
5.0			20 - 11cm semi-mass py, qtz v	3.66 - 4.62 : mod. silic. and : lt gry, F grain; tourm dissem (F grain, black); leaching, oxid on fracs.	22	0	0	1	0			5
			25 - trace with 2cm oxid rind; 30 - py, qtz veining	4.62 - 6.00 : semi-mass py vein : 10% silic tourm. and; minor cal, qtz v to 1cm; 6.00 - 9.29 : and : med gr; 10-15% pale gr chl	77	6	1	14	4			
10.0					40	0	0	2	6			2-3
			20 - cal, chl vein	grain, upper contact silic; 15-20% fine pale gr-grey feld highly visible 9.29 - 10.70 : qtz, py v : minor cal, chl, 1 trace v.g.	48	4	0	1.1	0 patches			upper contact 15.7%
				10.70 - 35.72 : and : massive F-m grain med. gry-gr, abundant small scale variants from lt to med; groundmass F- v F grain; chl pale gr abund; epid white (sauss.) locally; tourm in varying amounts (subsections below);		18.7/m		16.4/m	3.66 - 10.70 L			
15.0			40 - 1cm cal, epid, chl v	10.70 - 15.21 : tourm mainly dissem; assoc with py; qtz cal veins ≤ 1cm, evenly distrib;	37	0	0	15	50			2-3
				15.21 - 15.96 : highly veined, bleached, broken zone with higher cal (patches, veins); tourm F grain;	6	0	0	2	14			1
			60 - cal veining; 25 - trace with 2cm oxid rind	15.96 - 35.72 : tourm decrease at ~18.19, dissem or veinlets (some py assoc); local bleaching related to veining; becoming more silic near lowermost part; becoming mottled near end of interval also; abund. hairline veins evenly distrib throughout	227	0	0	25.3	7.2			1-2
20.0						16.8/m		10.8/m	10.70 - 35.72			

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/t Au	ASSAYS ppm Ag	ASSAYS ppm Cu		ppm As
		3.66								
				2.34	4044	.074				
						.075	12.4	1590		194
3.66-4.62: avg 15% py, mostly disseм, some irregular veins		6.00								
				3.00	4045	.052				
4.62-6.00: 60-70% py, trace chalco,						.045	6.2	585		70
		9.00								
6.00-9.29: 10-15% py, mostly veins, locally				1.70	4046	.265				
disseм or near absent		10.70				.219	15.2	2190		200
9.29-10.70: 35% py, semi-mass veins, trace				1.30	4047	.021				
		12.00				.022	2.6	392		6
of 1 v.g., trace chalco										
				3.00	4048	.007				
						.003	1.2	338		41
		15.00								
10.70-15.21: 1-2% py, disseм and assoc with				3.00	4049	.008				
tourm on hairline seams, trace chalco						.002	1.4	156		20
15.21-15.96: avg 20% py, some veins mostly patches		18.00								
15.96-35.72: 1-2% py, decrease trace chalco, mostly				3.00	4050	.004				
hairline veins and disseм						.001	1.0	176		20
		21.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (<1cm)	ALTERATION B (1-10cm)	ALTERATION C (>10cm qtz)	ALTERATION D	ALTERATION E (cal)	FRACTURE INTENSITY	% VEIN QTZ.	% tourmaline
25.0			65 - 1cm qtz V									
			35 - frac with 6cm oxid rind									
30.0			20 cal, qtz veins									
			30 two sets of qtz veining									
35.0												
			60 - 2cm 70% cal, chalco, py, qtz V	35.72-44.29: massive and.: lt gry-gr to med gry-gr; variable silic areas; chl grains fine, ranging from abund to mod content	157	7	2			M		
			50 - 9cm chalco, cal V			19.1/m						
			20 - 6cm semi-mass py V.	35.72-38.10: mod silic and: 3 stages of veining, qtz-cal → py-tourm → cal-chalco-py; tourm not evenly distrib, some heavy halos; mod chl grain; cal breccia midsection								1-2
			50 - ½cm chl V.									
40.0			40 - 22cm semi-mass py, qtz, chalco V.	38.10-40.70: chl. and: pale gry-gr; abund. chl grain, few feld (white, sauss); bleaching assoc with veining; tourm uniform distrib.								2
			55 - 1cm py V.	40.70-44.29: and: aphanitic gry, py-tourm halos, qtz V. healing angular frac.								1-2
45.0				44.29-64.25: aphan. fic andesite								

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag	ASSAYS ppm Cu		ASSAYS ppm As
				3.00	4051	.003				
						.002	1.3	137		8
		24.00								
				3.00	4052	.005				
						.001	1.0	136		46
		27.00								
				3.00	4053	.002				
						.001	1.0	134		<1
		30.00								
				3.00	4054	.004				
						.002	1.2	150		32
		33.00								
				3.00	4055	.013	4.0	500		36
						.018				
		36.00								
				3.00	4056	.075				
35.72-38.10: avg 30-35% py mostly veins; chalco 35.72-36.83: 1% as veins with cal and py 36.83-37.60: 15% 37.60-38.10: minor						.070	15.4	6540		90
		39.00								
				1.70	4057	.010				
38.10-40.70: 5% py mostly veins, locally concentrated, assoc qtz v.		40.70				.009	2.8	360		60
				1.30	4058	.064				
		42.00				.052	10.0	384		212
40.70-44.29: avg 25-30% semi-mass v, trace chalco, heavy dissem.				2.29	4059	.045				
						.038	3.9	188		430
		44.29								
		45.00		0.71	4060	.009				
						.009	1.9	344		10

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.	% tourmaline
45.00				44.29-44.94: fault zone with halo of highly silic aphan. and.;	7	0	0	4	1	H		<1
			45 — 6cm semi-mass py V	44.94-46.22: aphan and.: int silic; extremely mottled lt to med gry-gr; int frac and shattered	12	0	0	7	1	H		0
			20 — 1cm py, qtz V	46.22-46.91: semi-mass py V w/ int silic and	12	2	1	2	0	M		0
50.00				46.91-48.96: chl in lowermost, feld, chl grains visible	38	2	0	17	9	H		0
				48.96-56.07: aphan and.: lt gry-gr; int	87	1	0	94	22	H		<1
			45 — ½cm py V	frac.; varying silic and chl sections;		2.1.7/m		10.5/m		44.29 - 56.07		
			55 — 2½cm py V	veining small and irregular for most part								
55.00			45 — 4cm qtz V									
			40 — 6cm qtz, py, tourm V.	56.07-64.25: aphan. and.: mottled lt gry and lt gr; int frac; tourm content increased; speckled texture prominent; brecc along cal veins; veining small scale and irregular	197	1	0	37	25	H		2-3
						23.5		4.5				
60.00			60 — 10cm py V.									
			20 — contact 64.25	64.25-114.16: aphanitic andesite								
65.00				64.25-68.86: chl and: med-dk gry to med gr; some silic aphan areas; mod frac, veining small scale and irreg.; chl grains vary from prominent (trace hem)	72	0	0	39	29	M		0
			25 — contact 66.45			15.6		8.5				

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS ppm Cu		ppm As
		46.22		1.22	4061	.031				
						.027	3.7	1300		37
		46.91		0.69	4062	.028				
				1.09	4063	.013 .051	1.2	94		48
		48.00				.041	2.0	2200		49
				3.00	4064	.028				
46.22 - 46.91 : 50-60% py, C-f gr						.023	1.6	700		18
46.91 - 48.96 : 20-25% py, semi-massv										
		51.00								
48.96 - 56.07 : avg 20% py, mostly veins and patches,										
				3.00	4065	.028				
						.019	1.6	900		36
		54.00								
				3.00	4066	.017				
						.013	0.6	700		<1
56.07 - 64.25 : 10-15% py, mostly veins and patches, trace chalco, trace arseno (?)		57.00								
				3.00	4067	.013				
						.012	0.8	750		10
		60.00								
				3.00	4068	.009				
						.009	0.8	595		<1
		63.00								
				3.00	4069	.019				
						.019	0.8	865		<1
64.25 - 68.86 : 5-10% py, mostly veins, M-f grain		66.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION <1cm A	1-10 B	>10 C	g D	c E	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
				to indistinct (66.45-68.86: med-dk gry, slightly silic, speckled patches)								
				68.86-91.29: chl. and. : med gr to dk gry-gr, uniform aphan groundmass, abund pale chl grains (≤20%, 1-6mm); diffuse and irreg. veining; color lightens in last 5m, chl grains became very distinct; several 1-2cm patches of dk chl in a lt groundmass; several lighter silic areas 20-30cm long	269	2 (12.1/m)	0	94 (4.2)	44	L		0
70.0			30 shear									
75.0												
80.0												
			40	5cm qtz, py, chl v.								
85.0												
			25	2cm py v.								
90.0												

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag	ASSAYS ppm Cu		ppm As
				3.00	4070	.021				
68.86-91.29: avg 5% py, mostly veins,		69.00				.020	1.4	920		<1
increasing content in last 1m of interval				3.00	4071	.012				
		72.00								
				3.00	4072	.009				
		75.00								
				3.00	4073	.007				
		78.00								
				3.00	4074	.008				
		81.00								
				3.00	4075	.009				
		84.00								
				3.00	4076	.007				
		87.00								
				3.00	4077	.012				
		90.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (<1)	ALTERATION B (1-10)	ALTERATION C (>10)	ALTERATION D (g)	ALTERATION E (Δ)	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
90.0			15 2cm chl, py, calc v									
			30 contact 91.29	91.29-92.40: chl. and.; lt to med gry; chl grains indist.; weakly silic	15	1	1	16	13	L		a
			40 17cm semi-mass py; qtz v.			15.3		14.1				
				92.40-97.72: chl. and.; lt to med gry-gr; bleached in areas of high veining; chl grains ? very distin	57	1	0	40	26	L		0
95.0						10.9		7.5				
			35 contact 97.72 shearing	97.72-107.14: aphan and; lt to med gry-gr; int frac., mod silic; diffuse highly irreg veining; very blocky recovery; tourm (rutile?) grains appear again in more silic sections; chl concentrated in banded section above shear zone	28	1	0	57	10	M		1-2
						13.7		6.0				
100.0			40 2cm py v.									
			30 25cm banding; qtz v, shearing									
			30 4cm qtz v. (chl, chalco)									
105.0												
			35 contact 107.14 shearing	107.14-112.09: chl and; lt gry to lt gry-gr; int silic; upper contact a shear zone; highly frac, a few veins which are concentrated locally	67	0	0	13	11	H		0
						12.3		2.6				
110.0												
			80 contact 112.09	112.09-114.16: aphan and; lt to pale gr; speckled texture absent; larger py veins have dk aphan chl combined; interval	41	2	0	6	4	H		0
						20.8		2.9				

PAGE 10 OF 20	PROJECT: 2153	HOLE NO. 26

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				1.29	4078	.023			
91.29 - 92.40 : 10-15% py, mostly veins, semi-mass section 60-70% py		91.29							
				1.11	4079	.047			
		92.40							
		93.00		0.60	4080	.013			
92.40 - 97.72 : 10-20% py, veins and dissem.									
				3.00	4081	.008			
		96.00							
				3.00	4082	.014			
97.72 - 107.14 : 5-15% py, mostly as patches and filling fracs in highly broken, silic areas.		99.00							
				3.00	4083	.022			
		102.00							
				3.00	4084	.014			
		105.00							
				3.00	4085	.018			
107.14 - 112.09 : 15-20% py, veins and numerous small (5-10mm) patches, trace sphal, trace chalco as patches and one vein at 109.35		108.00							
				3.00	4086	.017			
		111.00							
112.09 - 114.16 : 5-10% py, mostly veins, f-c grain, following fracs and silic bands.									

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (<1)	ALTERATION B (1-10)	ALTERATION C (>10)	ALTERATION D (B)	ALTERATION E (O)	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
				is weakly silic								
			30 contact @ 114.16	114.16 – 135.68 : chl and : mass, mod silic								
115.0			30 5cm py v.	114.16 – 120.40 : chl and : pale to lt gry-gr, uniform color, weakly silic generally w a few int silic areas of the same color and texture ; veining evenly distrib	120	2	0	20	18	C		0
			35 silic-chl contact	and small scale (≤ 5mm)								
120.0			65/40 5cm py, cal, chl veining									
				120.40 – 134.18 : chl. and : lt to med gry-gr,	136	0	0	25	23	H		0
			60 20cm sheared zone	more aphan in appear but chl grain still visible, some small aphan areas								
			20 1cm qtz, cal, hemat v	dispersed ; chl concen. on foliation planes, some sections highly frac ; veining limited, small scale and irreg. ; trace hemat								
125.0												
			30 1cm calv in 10cm sheared zone									
130.0												
			50 12cm silic area with shear zone as upper contact									
			60 10cm shear zone	134.18 – 135.68 : chl. and (?) : med to dk gry-gr, aphan	19	0	0	8	2	H		0
				in appear, largely composed of faults and shear planes		13.8		2.5		114.16 – 135.68		
135.0												

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tm Au.			
				3.00	4087	.010			
		114.00							
114.16 - 120.40: 15-20% py, as veins and abund disser. patches of F grain crystals (1-17mm)				3.00	4088	.011			
		117.00							
				3.00	4089	.007			
		120.00							
120.40 - 134.18: 5-10% py, as veins and abund dissem small patches (1-5mm)				3.00	4090	.003			
		123.00							
				3.00	4091	.006			
		126.00							
				3.00	4092	.005			
		129.00							
				3.00	4093	.004			
		132.00							
134.18 - 135.68: 5% py, mostly dissem, F-vf. grain, evenly distrib.				3.00	4094	.010			
		135.00							

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
135.0												
			70 – 6cm fault gouge	135.68-149.14: aphan and: pale gry to pale gry-gr to med gry-gr; indist contact with chl and above; shearing and fault gouge in upper portion; some areas int silic, int frac, very mottled colors, others are banded (5-15cm) with lt to med gry-gr chl areas; increase in py content; spheroid structures, some chl, most py haloed by dk chl; chl breccia along some cal v; veining ranges from 1mm irreg hairlines to 1cm irreg;	151	3	0	35	50	M		<1
						11.4		2.6				
			55 – 28cm semi-mass py, qtz, cal, chl v									
			50 – shearing planes									
140.0			30 – 4cm py, chl v									
			75									
			35 – py, qtz vein									
			50 – 5cm py, chl, qtz v.									
145.0												
			40 – 1cm cal v									
			40 – 1cm py, cal v									
			45 – contact 149.14 indistinct	149.14-155.80: chl and: mainly								
150.0				149.14-152.93: chl and: lt to med gry-gr; mod silic; aphan groundmass, chl grain indist (5-10%); veining small scale and irreg	81	1	0	9	10	M		0
						21.6		2.4				
			75 – 1cm py v	152.93-153.79: aphan. and: lt gry to lt gr; spheroids; tourm (?)	50	1	0	8	0	H		25
			90 – contact 152.93 1cm py v.			59.8		9.3				
			55 – contact 153.79 shear plane	153.79-155.80: chl and: lt to med gry-gr; spheroids; weakly silic; chl grain indist (5-10%); chl breccia in cal v;	44	0	0	4	14	M		0
						21.9		2.0				
155.0				155.80-187.33: aphan and:								
			70 – contact 155.80									
			65 – 2 py veins, 10cm apart			26.6		3.2				0
									149.14-155.80			

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
135.68 - 149.14 : avg 40-60% py, locally 5-15%, as veins but mostly dissem patches (1-5mm) also with abund larger patches (1-7cm), C-vf grain		138.00		3.00	4095	.022			
				3.00	4096	.035			
		141.00							
				3.00	4097	.007			
		144.00							
				3.00	4098	.008			
		147.00							
				3.00	4099	.009			
		150.00							
149.14 - 152.93 : 5-15% py, as veins and dissem patches				3.00	4100	.016			
152.93 - 153.79 : avg 20% py, locally 10-15%, as veins and dissem C-f gr		153.00							
153.79 - 155.80 : 10-15% py, as veins and dissem patches (1-10mm)				3.00	4101	.042			
		156.00							

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (<1)	ALTERATION B (1-10)	ALTERATION C (>10)	ALTERATION D (q)	ALTERATION E (c)	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
			15 shear, fault plane; 3cm fault gouge; 30 shearing	155.80-164.21: aphan and.: pale gr to pale gry to med gry-gr to med purple-gry; ranging locally from mod to int silic; silic areas int frac, veining healing most	120	2	0	35	19	F-M		0
						19.5		4.2				
160.0			35 shearing	in an angular pattern; pale gr low py areas exhibit speckled texture;								
			40 qtz v, chl bands									
			55 8cm py, cal, qtz veining									
			60 contact 164.21 4cm py v, qtz cal halo; 80	164.21-181.71: aphan and: lt gr to lt gry to lt	238	1	3	35	37	H		0
165.0			60 2cm qtz vein and fault; 25 shear and py concentration; 30 shear	gry-gr; int silic overall, some small mod silic areas; texture varies from uniform to extremely mottled (in higher py content areas); many areas of		13.8		2.0				
				int frac with veining patterned after in an angular manner, overall veining small scale, irreg, unevenly distrib; chl breccia on some cal v; large								
			15 15 2 sets of py filled fracs	spheroid patches of py and dk chl (4cm); ~178 to ~182 very broken and crushed recovery, nothing discernable;								
170.0			40 11cm semi-mass py v.									
			30 14 cm semi-mass py, chl, chalco v.									
175.0			60 banding of qtz, cal, py, chl; 65 1cm cal v									
			50 15cm qtz, py, chl banding									
180.0												

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
155.80-164.21: 15-20% py, locally 5-10%, locally 30-40%, as veins but mostly dissem patches and filling small scale fracs				3.00	4102	.030			
		159.00							
				3.00	4103	.010			
		162.00							
				3.00	4104	.016			
164.21-181.71: 20-25% py, locally 5-10%,		165.00							
locally 30-40%, as veins and dissem abund patches, follows chl-qtz banding in several places, small dissem patches form a speckled				3.00	4105	.012			
or dotted texture, vC-vf grain, dk-black when vf gr;		168.00							
3 areas of semi-mass py and qtz combined, trace chalco in largest semi-mass area				3.00	4106	.006			
		171.00							
				3.00	4107	.011			
		174.00							
				3.00	4108	.027			
		177.00							
				3.00	4109	.029			
		180.00							

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION <1 A	ALTERATION 1-10 B	ALTERATION >10 C	ALTERATION & D	ALTERATION C E	FRACTURE INTENSITY	% VEIN QTZ.	% tourm
180.0			75 9cm py v. 40 contact 181.71	181.71-182.77: aphan and: lt to med gry-gr, some small mottlings of lt gry and gr; int silic; veining angular and diffuse	75	0	0	2	1	H		0
						14.1		1.9				
			40 contact 182.77	182.77-187.33: aphan and: lt gry to lt gr to med gry, locally mottled, overall uniform;	53	0	1	14	11	M		0
						11.8		3.1				
185.0			20 3cm shear zone									
			35 10cm py v.									
				187.33-205.25: massive vF grain and: lt gry to dk gr, uniformly vF grain, locally aphan, commonly granular with no identifiable minerals; weakly locally silic but very indist boundaries; veining evenly distrib but irreg (from angular to stigmatic); many areas of chl breccia and assoc cal; end of interval extremely broken and crushed, no structure discernable;	256	2	0	43	30	L		0
			15 hairline chl, py fracs			14.4		2.4				
190.0			45 2cm py v									
195.0			45 shearing									
			45 6cm breccia of chl, cal and shear zone									
200.0			30 shearing									

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tm Au			
181.71-182.77: 5-10% py, as veins but mostly dissem.				3.00	4110	.009			
182.77-187.33: 10-15% py, as veins and small dissem patches, C-f grain, trace chalco, 1 massive vein and small chalco vein at 186.3		183.00		3.00	4111	.005			
		186.00							
187.33-205.25: C-vf grain				3.00	4112	.006			
187.33-189.2: 1-5% py, along hairline fracs already chl filled		189.00							
189.2-192.6: 10-15% py, as veins and dissem patches				3.00	4113	.022			
192.6-193.7: 5% py, small scale veins		192.00							
193.7-195.4: 10-15% py, as py and concen dissem patches				3.00	4114	.015			
195.4-205.25: 5% py, locally 10-15%, for higher dissem concen.		195.00							
				3.00	4115	.007			
		198.00							
				3.00	4116	.013			
		201.00							

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION <1 A	ALTERATION 1-10 B	ALTERATION >10 C	ALTERATION 3 D	ALTERATION C E	FRACTURE INTENSITY	% VEIN QTZ.	% tour.
205.0				205.25 - 212.54 : chl and ±								
				205.25 - 209.61 : chl and (?) ; massive, vF grain, granular, uniform ; lt gry-gr ; trace fine pale gr chl grains ; chl in veins also as f grained, med gr ; veining diffuse, irreg	17	0	0	6	9	H		0
						3.9		1.9				
			150 ± 5cm shear zone									
			45 ± chl, epid, qtz v.	209.61 - 212.54 : chl and. or feld porphyry ;	21	0	0	0	12	L		0
210.0				F grain, granular, uniform groundmass ; med gr ; abund fine pale chl grains, trace epidote, epid after plag (?) phenocrysts (1-2%, 1-8mm, tabular) ; veining diffuse, irreg		7.2		0.0				
				212.54 - 217.78 : aphan and. ; lt to med gr ; locally spheroids (1-10mm) pale gry-gr chl ; veining diffuse irreg	33	0	0	0	29	L		0
						6.3		0.0				
215.0												
				217.78 - 225.55 : chl and ;								
				217.78 - 221.83 : chl and ; massive, vF grain, granular ; lt gry ; abund fine pale gr-gry chl grains ; lower half of interval extremely broken and sheared ; veining small scale, diffuse, irreg	24	0	0	5	17	H		0
220.0						5.9		1.2				
			235 ± contact 221.83 shear zone									
				221.83 - 225.55 : chl and (?) ; massive, vF grain, locally aphan. ; lt gry ; minor to trace chl grains ; vrt frac and veined ; veining small scale, angular pattern	22	0	0	0	41	H		0
						5.9		0.0				
						5.9		0.6				
225.0				hole ends at 225.55 m								

217.78 - 225.55

PAGE 20 OF 20	PROJECT: 2153	HOLE NO. 26

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au			
				3.00	4117	.007			
		204.00							
205.25-209.61 : 1-5% py, locally 10-15%, mostly veins and filling hairline fracs				3.00	4118	.008			
		207.00							
				3.00	4119	.011			
209.61-212.54 : 5% py, as veins, some									
		210.00							
disseminated, uniform distrib									
				3.00	4120	.011			
212.54-217.78 : 5-10% py, locally 10-15%, mostly veins, some disseminated patches in higher concen areas		213.00							
				3.00	4121	.004			
		216.00							
				3.00	4122	.006			
217.78-221.83 : 1-5% py, as hairline fracs for most part, traces of chalco		219.00							
				3.00	4123	.007			
		222.00							
221.83-225.55 : 1-5% py, locally 10-15% where veining in concen,				2.45	4124	.005			
		225.00							
		225.55		0.55	4125	.003			

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PAGE	OF	PROJECT:	HOLE NO.

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	

E1

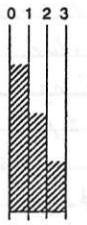
ESSO RESOURCES CANADA LIMITED

ESSO MINERALS CANADA

DRILL LOG

PROJECT: 2153	GROUND ELEV.: ~ 1385 m
HOLE NO.: DDH 30	BEARING: 170°
LOCATION: Brucejack Lake	DIP: -45°
	TOTAL LENGTH: 706' 215.2 m
LOGGED BY: R. Baerg, T. Simpson	HORIZONTAL PROJECT: 161.10 m
DATE: Aug. 11/81	VERTICAL PROJECT: 123.43 m
CONTRACTOR: Arctic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: Aug 10/81	
DATE COMPLETED: Aug 13/81	

ALTERATION SCALE



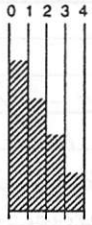
absent

slight

moderate

intense

TOTAL SULPHIDE SCALE



traces only

< 1%

1% – 3%

3% – 10%

> 10%

DIP TESTS

32'	-44°	170°	143° obs	412'	-33°	154°	127° obs
112'	-41°	161°	134°	512'	-32°	154°	127°
212'	-36°	160°	133°	612'	-30.5°	155°	128°
312'	-35°	157°	130°	692	-29°	138°	111°

COMMENTS

LEGEND

J.M. Gibson

SEPT 9, 1981

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKS8AK WATERPROOF

PAGE 1 OF 20 | PROJECT: 2153 | HOLE NO. 30

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION: qtz veins <1cm A	qtz veins 1-10 B	qtz veins >10 C	py v. D	cal v. E	FRACTURE INTENSITY	% VEIN QTZ.	Ba v.
0.0				0.00 - 2.50 : overburden								
				2.50 - 11.25 : ser. lithic arenite; med. to lt. gry; abund sm. light gr. transluc. chl. grains, 1-3mm; angular to sub angular, poor sorted lithic frags? locally	67	9	0	7	0	L		0
5.0				replaced by py.; abund. pale white ser. alt as sm fibers + plates; groundmass is pale transluc chl + ser; abund qtz veining, veins to 2cm w/ local cal + / or barite; several sm. chr. gr. mariposite grains, also several med gr chl patches to 1cm.		7/m		0.8/m				
10.0				11.25 - 14.07 : silic Lithic arenite; lt. - med grey; med. to int. silic; groundmass locally has pale translucent gr. chl. patches to 1cm and sm chl grains of same color to 2mm, ang. to subang., abund qtz veining w/ minor local cal. + bar., veins to 3cm	25	7	0	3	0	L		0
						11/m		1.1/m				
15.0				14.07 - 16.00: mass. qtz vein; white to lt. br. due to staining; no apparent cal. or bar.; local sm. sections of silic arenite surrounded by qtz, qtz is locally fract and has local sm. vugs + cavities.	0	0	1	3	0	L		0
								1.5/m				
			ash flow units	16.00 - 17.70 : silic. lithic arenite, med - lt. grey - gr.; int. silic w/ abund. sm. qtz veins, 2 phases of qtz veining at least; locally sm. gr. ang. chl. grains; local hairline fracts healed w/ qtz.	17	0	0	0	0	M		0
			5cm ash flow			10/m						
20.0			qtz vein	17.70 - 19.92 : interbedded ash flow and lithic arenite, lt. - med. grey; flow is fine grained w/ 1-2mm thin elongate shards ± aligned; shards are	7	1	0	0	0	L		0
						4/m						

PAGE 2 OF 20	PROJECT: 2153	HOLE NO. 30

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/t Au	ASSAYS ppm Ag		
		2.50							
2.50 - 11.25: py - 10%, mainly as sm. sub spherical patches and larger irreg. patches; several obs. of gal. in qtz veins, one at 4.35; trace pyrarg.?		4.00		3.0	4322	.003	10.2		
		7.00							
				3.0	4323	.008	8.0		
		10.00							
11.25 - 14.07: py - 10%, mainly as dissem. + sm patches; trace pyrarg.? or gal. assoc. w̄ several qtz veins; locally py sub bed, minor py in qtz veins.		13.00		3.0	4324	.007	12.6		
14.07 - 16.00: py - 5%, mainly as f.g. dissem. + on fracts.; trace Ag-gry min.?				3.0	4325	.006	6.0		
16.00 - 17.70: py - 5%, one 17cm section is ≈ 20%; mainly as dissem.; 17.33 - 17.47 has several obs. of gal - sph in and along qtz veins, sph is lt. yellow		16.00		1.70	4326	.042 (.029)	16.0		
		17.70							
17.70 - 19.92: py - 5-10%; mainly as dissem., f.g.		19.00		1.30	4327	.003	5.9		
19.92 - 21.17: py - trace									
				3.0	4328	.003	9.2		
21.17 - 38.47: py - 5-10%, f.-med. g., mainly as dissem + sm. patches; several obs of gal. - sph in qtz + bar. veins, trace pyrarg?		22.00							

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PAGE 3 OF 20 | PROJECT: 2153 | HOLE NO. 30

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION: qtz veins <1cm A	qtz veins 1–10 B	qtz veins >10 C	py D	cal v. E	FRACTURE INTENSITY	% VEIN QTZ.	Ba
				translúc.; unit is poorly lithified, sharp contacts w/ arenite; local porph. clasts in flows to 3cm, local ser. alt.; arenite is same as previous, silic w/ some chl grains.								
25.0				19.92 – 21.17: mass qtz vein, white w/ iron staining on fracts, abund vugs, minor local lt. gr chl.	0	0	1	0	0	0		0
				21.17 – 38.47: lithic arenite; med to lt. gry to pale lt. gr., abund. pale gr. ang. translúc. chl. grains to 3mm; several aph. text. zones pale gry–br w/ abund sm py crystals, subhed, and abund hairline fracts filled w/ qtz; abund qtz veining throughout, veins to 9cm, sometimes very irreg., 3 barite veins to 5cm, trace cal. in some qtz veins.; local abund ser. alt, ser. is pale white to v. lt. gr.; local silic. sections; apparent reverse graded bedding, fine grained, dk'er and more silic above apparent bedding contact.	161	19	0	7	0	M		2
30.0						10/m		0.4/m				
35.0			50/b bedding?									
				38.47 – 73.90: ser. lithic arenite; med. to lt. gry; abund pale gr. translúc. chl. grains, angular to sub angular; abund. ser. throughout, forms as thin layers along crystal–mineral edges and on grain boundaries, pale white; local silic. sections, slightly lighter color, less chl. grains; abund qtz veining, veins to 80cm, locally w/ barite + minor cal., several barite veins to 5cm; py occurs as sm. patches (after chl?) giving a speckled appearance; several qtz veins contain ang. wall rock frags.	313	33	6	14	0	L		27
40.0						10/m		0.9/m				
45.0												

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag		
barite - qtz - gal vein at 24.73 to 24.93				2.71	4329	.026			
							21.2		
		24.71							
		25.00		0.29	4330	.075			
							9.2		
				3.0	4331	.005			
							12.4		
		28.00							
				3.0	4332	.003			
							8.4		
		31.00							
				3.0	4333	.007			
							11.2		
		34.00							
				3.0	4334	.004			
							14.4		
		37.00							
38.47 - 73.90 : py - 5-10%, f.-m. g., mainly as sm. patches, after chl?; several qtz + qtz-bar veins w/ gal-sph and pyrarg., 44.89 - 49.13 gal-sph in mass, irreg. qtz., 52.30 - 52.46 mass gal-sph in qtz-bar, sulph. occurs in center of vein w/ minor py; 71.18 - 71.44 qtz-bar vein w/ gal ± sph; sph is pale yellow to light tan brown.				3.0	4335	.012			
							18.8		
		40.00							
				3.0	4336	.004			
						(.002)	10.4		
		43.00							
				1.85	4337	.009			
							7.0		
		44.85							
				0.30	4345	.013			
							17.2		

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION qtz <1cm A	ALTERATION veins 1-10 B	ALTERATION veins >10 C	ALTERATION py v D	ALTERATION cal v E	FRACTURE INTENSITY	% VEIN QTZ.	Ba v.
45.0				ser. lithic arenite continued; Bar. veining increases from 60.70, unit also becomes slightly greener, increased chl alt?								
			60 / 60	qtz - bar v̄ minor pyrarg?								
50.0												
			65 / 30	qtz-bar-sph gal								
55.0			60 / 35	qtz v̄ minor gal								
			25 / 10	qtz vein								
60.0												
65.0												

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag		
		45.15							
		46.00		0.85	4338	.009			
							5.8		
				3.0	4339	.014			
							23.0		
		49.00							
				3.0	4340	.020			
							15.7		
		52.00							
		52.46		0.46	4341	.090			
							36.0		
				2.54	4342	.006			
							12.9		
		55.00							
				3.0	4343	.010			
							8.4		
		58.00							
				3.0	4344	.009			
							38.0		
		61.00							
				3.0	4346	.003			
						.005	5.9		
		64.00							
				3.0	4347	.009			
							19.6		
		67.00							

N2/E2

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 PROJECT: 2153 HOLE NO. 30

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION qtz veins <1cm A	1-10 B	>10 C	Py D	Cal E	FRACTURE INTENSITY	% VEIN QTZ.	Ba
70.0			80 / 80	bar-qtz-sph-gal.								
75.0			60 / 70	bar-qtz w̄ gal-sph, pyrarg	73.90 – 84.75: Flow breccia; med. to dk gry. w̄ local lt gr patches; upper section has abund angular to sub round frags to 2cm, frags are of pale gr chl and white silica; as qtz veining increases groundmass becomes paler gr, also frags contain sm. pale gr. chl. grains to 2mm, (andesite flow?), abund. pale yellow-white ser. alt on grain boundaries; abund. qtz veining, veins to 4cm; locally w̄ minor pale gr. chl. and cal; sudden incr. in cal. veining from ≈ 78.0 m, veins to 42cm w̄ minor qtz, several veins contain ang. wall rock frags to 5cm; local v. minor bar. veins, veins to ≈ 5mm,	58	11	0	3	17	L		5
						6/m		0.3/m				
80.0												
85.0			35	flow banding	84.75 – 94.12: And flow; aph. to f.g.; med gry to pale gr.; f.g. sections are lt gr w̄ pale gr. chl. groundmass and abund. ser. alt on grain edges, aph zones are pale gr., ≈ 100% pale gr chl. w̄ minor ser. alt.; local py patches to 5mm have replaced chl. frags.; locally some w. to mod silic sections; qtz veining is minor, veins to 5cm w̄ cal and minor pale gr. chl.; abund cal veining, veins to 10cm locally w̄ ang. wall rock frags to 2cm.	13	4	0	14	37	0		0
						2/m		1.5/m				
90.0												

PAGE 8 OF 20	PROJECT: 2153	HOLE NO. 30

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag
				3.0	4348	.005	
							15.6
		70.00					
				1.18	4349	.004	6.4
		71.18					
		71.62		0.44	4350	.038	
							17.5
				1.38	4351	.006	
		73.00					9.9
				1.90	4352	.015	
73.90 - 84.75 : py - 10%, f.-m.g., mainly as sm. irreg.		73.90					20.8
				1.08	4353	.040	
patches; locally abund pyrarg? in		74.98					300.0
ground mass + lg. qtz-bar vein w				1.02	4354	.009	
gal-sph at 74.69 - 74.95;		76.00					10.2
generally greater amt. of py.							
assoc w pale chl. patches; v.							
little mineralization in veins.				3.0	4355	.005	
							16.6
		79.00					
				3.0	4356	.004	
						(.001)	16.0
		82.00					
				3.0	4357	.003	
							7.5
84.75 - 94.12 : py - 5-10%, f-m.g.,		85.00					
mainly as sm. irregular, discont.							
veins + sm patches up to 1 cm replacing							
chl. frags.				3.0	4358	.004	
							13.6
		88.00					
				3.0	4359	.006	
							14.8

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION: qtz clem A	veins 1-10 B	veins >10 C	py V D	cal V E	FRACTURE INTENSITY	% VEIN QTZ.	Bx V.
90.0				local hairline fract ῶ cal-qtz filling.								
				94.12 - 108.72 : lithic arenite; f.g to crs g. volcaniclastic?; med. to lt gry to pale gr.; grades from a v.f.g - aph zone into a f-m.g zone ῶ sm. pale gr. ang. chl. grains to 1mm; abund ser. alt. throughout; locally silic sections are bleached to a pale gr-white; abund. qtz veining throughout, veins to 38cm ῶ minor cal. locally; minor cal veining, veins to 2cm; locally the rock has a speckled text due to chl grains and py replacing the chl.; locally hairline fracts filled ῶ qtz-cal; ser. locally on fract. surfaces.	132	26 (11/m)	5	12 (0.8/m)	16	L		0
100.0			20 / 40	qtz vein ῶ pyrarg.								
			55 / 40	qtz-cal ῶ gal.								
105.0			35 / 40	qtz-cal ῶ gal-sph, pyrarg								
				108.72 - 138.30 : And. flow?; f.g to aph.; med to lt gry to pale lt gr.; aph zones are lt. pale gr. and are often abund. speckled ῶ sm py grains (after chl?), locally the py patches are up to 5mm ῶ a bleached halo around them, overall the aph zones have mottled appearance; local med chl frags? to 1cm,	104	15 (4/m)	2	45 (1.5/m)	70	L		0
110.0												

PAGE 10 OF 20 | PROJECT: 2153 | HOLE NO. 30

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag
		91.00					
				3.0	4360	.012	
							23.2
		94.00					
94.12 - 108.72 : py - 10-15%, f-m. g., mainly as dissem +							
abund. sm. patches to 1-2mm;				3.0	4361	.009	
replacing chl. grains?; 7 obs of							12.2
pyrarg in qtz veins, usually as							
sm dendritic patches, one lg		97.00					
patch (1cm) in qtz vein at ≈101.37;							
several obs of gal-sph in qtz							
veins or along the edge of the				2.84	4362	.019	
vein.; qtz vein w pyrarg at 99.84							19.0
to 100.20., gal-sph in qtz at							
102.41 - 103.00, 107.37 - 107.90 -		99.84		0.36	4363	.275	
qtz vein w gal-sph.; sph is pale		100.20				.176	19.9
yellow to rusty br.							
				2.21	4364	.010	
						.011	21.6
		102.41					
		103.0		0.59	4365	.005	
						.006	8.6
				3.0	4366	.011	
						.019	4.0
		106.0					
				1.37	4367	.008	
						.008	8.2
		107.37		0.53	4368	.148	
		107.90				.112	40.0
				1.10	4369	.011	
108.72 - 138.30 : py - 10-15% v.f.-m g		109.0				.011	30.4
mainly as sm patches + dissem,				0.74	4370	.010	
higher py in more chl arm; several		109.74				.011	16.8
obs of gal-sph + pyrarg. in and		110.62		0.88	4371	.031	
along qtz veins, usually in minor						.031	22.0
amts; 109.74 - 110.62 - several sm				1.38	4372	.032	
veins w gal-sph + pyrarg., 113.88 -		112.0				.022	34.0
114.60 - qtz w sm. patches of pyrarg							
py veins to 3mm;							

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.
				abund qtz - cal veining throughout qtz veins to 30cm, cal veins to 5cm locally both have dk gr - blk chl rims; ser. alt throughout along grain boundaries, pale white, also on local fracts.; local patches of med. gr. chl; local minor ep. alt. along fracts; local patches w purple - grey color, hematite?, local silic - bleached patches usually show incr. py content, pale grey - gr.							
115.0			70 qtz v. w pyrarg.								
120.0											
125.0											
130.0											
135.0											

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag		
				1.88	4373	.069			
		113.88				.021	31.8		
				1.12	4374	.045			
		115.0				.095	42.0		
				3.0	4375	.025			
							8.6		
		118.0							
				3.0	4376	.011			
						(.003)	24.0		
		121.0							
				3.0	4377	.003			
							10.4		
		124.0							
				3.0	4378	.006			
							13.2		
		127.0							
				3.0	4379	.005			
							13.8		
		130.0							
				3.0	4380	.009			
							16.0		
		133.0							
				3.0	4381	.003			
							5.0		

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION: qtz veins <1cm A	qtz veins 1-10 B	qtz veins >10 C	py. v. D	cal v. E	FRACTURE INTENSITY	% VEIN QTZ.	Ba v.
135.0												
				138.30 - 155.18 : Andesite; f. - m. g.; pale gr. to med. grey; abund. pale gr. transluc. ang to subang chl grains to 2mm; zones around qtz veins are mod. bleach to a pale gr, chl. grains are less distinct, area around and between the mineralized veins is well silicified, zone from 147.75 to 150.70 is mod. to well silic. w minor hairline fracts filled w qtz; mod to abund qtz veining usually w minor cal, veins to 7.6cm; minor cal veining, veins to 1cm; veins locally contain med - dk. gr. chl., several have dk. gr - blk chl rims; locally abund. ser. alt, pale yellow - white, also trace to minor ep.							
140.0					74	9	2	14	17	0		0
						5/m		1.1/m				
145.0			60	qtz-cal w gal, sph, chalco								
			30									
			70 10	qtz-cal > gal sph, chalco								
			40	2cm qtz v. w gal - sph								
150.0												
155.0				155.18 - 192.46 : med. g. Andesite, lt. to med. gr.; abund med to dk. gr chl grains, ang. to subang., 1-2 mm, vary from elongate to ≈ square, locally show rough alignment, possible flow text.; ground mass varies in color	62	2	0	57	32	0		0
						2/m		1.5/m				

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag		
		136.0							
				3.0	4382	.003			
							3.5		
138.30 - 155.18 : py - 10%, f. - m.g., mainly sm. irreg patches, after chl?, veins are 1-2mm; several qtz - cal veins w gal - sph - chalco, veins at 144.34 - 145.10, 145.80 - 145.91, sph is a pale yellow usually in direct contact w gal.		139.0							
				3.0	4383	.003			
							4.2		
		142.0							
				2.34	4384	.002			
							3.0		
		144.34							
		145.0		0.66	4385	.076			
							28.3		
		145.90		0.90	4386	.015			
						.067	18.0		
				2.10	4387	.005			
							10.1		
		148.0							
				3.0	4388	.005			
							5.6		
		151.0							
				3.0	4389	.008			
							3.2		
		154.0							
155.18 - 192.46 : py - 5 - 10%, v.f. - m.g. mainly as sm. irreg. patches and dissem; trace moly on fract; py usually assoc w chl, veins to 3mm, py. is anhedral to subhedral, up to 3mm				3.0	4390	.009			
							4.0		
		157.0							

N2/E2

R. D. PENHALL LTD., MADE IN VANCOUVER, CANAD
DUKSBAK WATERPROOF

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION qtz veins <1cm A	1-10 B	>10 C	py v. D	cal v. E	FRACTURE INTENSITY	% VEIN QTZ.	v. Ba
				from gry to med. gr., areas around veins are mod. bleached and show incr. ser. alt.; ser. alt. minor to abund. throughout, pale white to lt. yellow;								
160.0				minor qtz + cal veining, veins to 1cm, locally ~ dk gr-blk chl. and dissem. py rims; local dk gr. chl frags? assoc.								
				intimately ~ py grains; one section from 166.85 to 167.48 is med-dk. gr translucent chl ~ local lighter gr. chl frags and								
				abund. f.g. py.; ser. locally varies from thin layer on grain boundaries to sm.								
165.0				irreg. patches; chl. grains vary from 10-20% depending on extent of alt.;								
				sharp contact ~ lower unit.								
170.0												
175.0												
180.0												

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag			
				3.0	4391	.005				
							3.0			
		160.0								
				3.0	4392	.002				
							3.3			
		163.0								
				3.0	4393	.001				
							2.6			
		166.0								
				3.0	4394	.002				
							3.6			
		169.0								
				3.0	4395	.002				
							3.2			
		172.0								
				3.0	4396	.002				
						(.001)	3.0			
		175.0								
				3.0	4397	.004				
							3.0			
		178.0								
				3.0	4398	.002				
							9.8			

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

PROJECT: 2153

HOLE NO. 30

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION qtz clem A	ALTERATION ve 1-10 B	ALTERATION ns >10 C	ALTERATION py V D	ALTERATION cal V E	FRACTURE INTENSITY	% VEIN QTZ.	Ba <
180.0												
185.0												
190.0												
		30		192.46 - 193.42 : And. flow; med. to								
		C		dk. gr.; contacts are v.f.g. and	0	0	0	2	2	0		0
		55	and. flow	banded; abund dk. gr. chl. grains,		0/m		2/m				
		C		euhedral to subhedral, after hbl?,								
				2-4mm; local anhedral white grains to								
195.0				1mm, relic fs.; local spherical white								
				grains to 2mm, amygdules or devitrified								
				vol. glass?; ser. alt. as f. white								
				specks throughout.								
				193.42 - 213.02: alt. And.; lt. gr to								
				med-dk grey.; med. grained;								
				abund. ang. to subang chl. grains	75	6	1	19	3	4		0
				to 2mm, chl. grains and groundmass		4/m		1.0/m				
				gradually fade in color down through								
				the unit, the chl. grains go from								
200.0				med-dk gr to a pale grey., the								
				groundmass goes from lt gr. to a								
				pale white-grey.; abund. pale								
				white ser. throughout, on grain								
				boundaries, fracts and as sm. patches;								
				qtz veining incr. toward bottom of								
				unit, veins to 37cm, most 3-5mm ū								

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag		
		181.0							
				3.0	4399	.005			
							2.8		
		184.0							
				3.0	4400	.005			
							3.4		
		187.0							
				3.0	4401	.006			
							2.7		
		190.0							
				3.0	4402	.005			
							5.0		
192.46 - 193.42 : py - minor, v.f. - f.g., 2 veins <1mm and trace dissem.		193.0							
193.42 - 213.02 : py - 10 - 15%, section from 210.85 - 213.02 py is 20-25%, v.f. - m.g, mainly as sm patches + v.f.g veins, anhed to subhed., trace to minor py in veins				3.0	4403	.004			
							3.0		
		196.0							
				3.0	4404				
							3.4		
		199.0							
				3.0	4405	.001			
							3.2		
		202.0							

R. D. PENHALL LTD., MADE IN VANCOUVER, CANAD
DUKSBAK WATERPROOF

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION qtz <1cm A	veins 1-10 B	veins >10 C	py v. D	cal v. E	FRACTURE INTENSITY	% VEIN QTZ.	Ba v.
				local gr. chl. and minor py., local veins contain ang. frags of wall rock minor cal ± the qtz and as sm. irreg. veins; below the 87cm qtz vein the rock is bleached to a lt. grn. chl. grains also are a lt. gry, py increases signif. and the rock has a mottled pale gry text.								
205.0												
210.0												
				213.02 - 215.25: Flow breccia; lt. to med gry; abund. ang. to subang chl. + silic. frags to 6cm, frag size goes from crs. to f. to crs. to f. to crs. but not well graded into each other, frags locally show rough alignment (flow?); locally py has replaced some chl. frags; minor ser. alt throughout along grain boundaries + on fracts., minor to trace cal. veining veins to 2mm; frags are pale gry to pale gr., locally frags contain sm <1mm dk chl. grains.	0	0 o/m	0	7 3.1 /m	4	2		0
215.0												
220.0												
225.0												

PAGE 20 OF 20	PROJECT: 2153	HOLE NO. 30

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tm Au	ASSAYS ppm Ag		
				3.0	4406	.004			
							3.0		
		205.0							
				3.0	4407	.001			
							3.0		
		208.0							
				3.0	4408	.006			
							4.6		
		211.0							
				3.0	4409	.004			
							11.4		
213.02 - 215.25: py - 20-25%, v.f.-m.g., mainly as irreg. patches to 1cm, replacing frags? and as v.f.g. veins to 3mm.		214.0							
				1.25	4410	.002			
		215.25					2.2		

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

PAGE	OF	PROJECT:	HOLE NO.

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	

E1

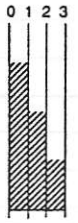
ESSO RESOURCES CANADA LIMITED

ESSO MINERALS CANADA

DRILL LOG

PROJECT: 2153	GROUND ELEV.: 1566.7m
HOLE NO.: DDH-36.	BEARING: 180°
LOCATION: South Burrejack Zone 2+25S ; 0+56W	DIP: 70°
	TOTAL LENGTH: 567 Ft. 172.82m
LOGGED BY: L. Moffat, W. Melnyk	HORIZONTAL PROJECT: 70.94 m.
DATE: Sept. 5 - Sept. 6, 1981	VERTICAL PROJECT: 157.21m
CONTRACTOR: Arctic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: Sept. 3	
DATE COMPLETED: Sept. 5	

ALTERATION SCALE



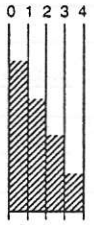
absent

slight

moderate

intense

TOTAL SULPHIDE SCALE



traces only

< 1%

1% – 3%

3% – 10%

> 10%

DIP TESTS

59'	dip 68.3	corr brg 176.5
159'	68.1	174.0
259'	67.8	174.5
359'	65.0	174.5
459'	61.9	175.5
559'	60.1	177.5

COMMENTS

LEGEND

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

PAGE 1 OF 16 | PROJECT: 2153 | HOLE NO. 36

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION py ≤1cm A	veining 1-10 cm B	veining ≥10 cm C	qz v D	E	FRACTURE INTENSITY	% VEIN QTZ.
				0.00-2.16: overburden							
				2.16-48.60: MAFIC TUFFS andesitic in comp^n; lt gr-dk gy-gr. soil; f-m gr; [illegible] amt of q.v^ing variable, few in gl. fract. zones; considerable amt of diss. pyr throughout (2-7%); some hairline pyr^c frac. fillings; oxid^zd frac. sfcs to a depth of ~58.0 m.							
5.0				2.16-11.15: [illegible] q.v. much diss. pyr + pyr^c frac. fills, few of the q.vs are vuggy;	1.9	3		2.2			
						2.4/m		2.4/m			
			5								
			10								
				Rcutting qvs. <1cm barren							
				4cm qz/py vein ≥ elect ttd							
			35								
10.0											
				11.15-18.92: much irreg. q.v^ing	1.2			4.8			
			15		1.5/m			6.2/m			
			30	2 qvs <1cm barren							
			5-10								
				1cm qv, electrum							
15.0											
				17.00-18.62: large q.v; vuggy, barren							
			5-10								
				18.92-22.70: relatively few q.vs; hairline pyr^c frac. fills + diss. pyr.	2.2			1.0			
			5		5.8/m			2.6/m			
				<1cm pv (25°)							
20.0				cut by later-stage qv (<1cm); barren							
				22.70-28.62: vuggy frac. ≥ oxid^zd sfcs;				mod-int silicification			

PAGE 2 OF 16	PROJECT: 2153	HOLE NO. 36

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/t Au	ASSAYS oz/t Ag		
2.16-48.60: f-c gr. pyr. dics. thru/out (2-7% pyr):									
2.16-11.15: possibly tr. amts of td.		3.00							
				3.0	4721	.009	.20		
		6.00							
				3.0	4722	.013			
						.010	.22		
		9.00							
9.44: 4cm qz/py. v. ≅ elect. ± td									
				3.0	4723	.078			
						.034	2.31		
		12.00							
				3.0	4724	.075			
						.034	1.90		
14.44: ~1cm qv. ≅ elect.									
		15.00							
		15.60		0.60	4725	.091			
						.102	0.52		
				2.40	4726	.011			
							.53		
		18.00							
				3.0	4727	.008			
							.42		
		21.00							
				3.0	4728	.006			
							.20		

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

 PROJECT: 2153 HOLE NO. 36

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A (py veining)	B	C	D (qz v)	E	FRACTURE INTENSITY	% VEIN QTZ.
				section of mod-high frac and shattering; small bx zone (25.35-26.50); fracs. tend to 11el core axis + X-cut core axis; mod-high silicn.							
25.0											
				28.62-42.55: lith. as previously describd. m-dk gr. col; regul. q.v but sparse; some q.vs 11el core axis; irreg. pyr veining; some hairline pyr fracs. fills; no mineralized	62 4.4/m			51 3.7/m			
30.0											
35.0											
			40	tcm. q.v. carrier							
40.0											
				42.55-44.96: zone of fault gouge, vuggy q.v ing, mod-high frac; q.v. regul but sparse; highly frac. zones ~10cm and are regularly spaced ~50cm apart; frac. sfcs are oxidzd	1 0.4/m			14 5.8/m			
45.0				44.96-48.58: m-dk gr. col; wk-mod	5 1.4/m			27 10.2/m			

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS oz/ton Ag		
		24.00							
				3.0	4729	.006	.21		
		27.00							
				3.0	4730	.006	.32		
		30.00							
				3.0	4731	.007	.25		
		33.00							
				3.0	4732	.007	.23		
						.007			
		36.00							
				3.0	4733	.005	.36		
		39.00							
				3.0	4734	.005	.20		
		42.00							
				3.0	4735	.016	.32		
		45.00							

R. D. PENHALL LTD., MADE IN VANCOUVER, CANADA
DUKSBAK WATERPROOF

 PROJECT: 2153 HOLE NO. 36

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION py veining A	B	C	qz v D	E	FRACTURE INTENSITY	% VEIN QTZ.
				X-cutting q.vs generally <1cm, barren, few hairline pyr^c frac. fills							
			25 bedding	48.58-50.81: MAF. TUFF MARKER and^c in comp^n; m-dk gr. col; f-m. gr; well-bedded, slightly bleached at top and bottom; many amph. grains (~ aligned ≥ bedding); carb. grains up to 5mm diam.							
50.0			50 bedding	50.81-126.14: lith same as previous to mafic tuff marker; col. + gr-size variable; 50.81-63.18: mod. to strong irregular q.v^ing and q-flooding; lt. gr-dk gy-gr colour; qv^ing tends to ll^el and X-cut core axis; few pyr^c frac. fills; tr. - good mnlzn; coarser gr. pyr. assoc. ≥ dker gr. chl^c patches				qz Flooded			
			10 12cm qv, tr. td								
55.0			30 1cm qv, tr. td								
			30 <1cm qv; tr. td or arg.								
60.0											
			30 lineation (chl^c grains)	63.18-90.69: lt-dk gr. col; sparse but reg. q.v. generally <1cm; uniform section; a soft, bk. elong^d mnl noted (gy. streak); chl^c grains at top of section tend to be aligned; c. gr. pyr tends to be assoc. ≥ dker gr. chl^c patches	39	1 1.5/m		1.19 4.3/m			
65.0			30 12cm qv, barren tr. mnlzn								

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS oz/tn Ag			ppm As
45.35: <1cm qvz tr arg/td										
45.85: <1cm qvz tr sph±td										
46.75: pyr⁵ fmc fills (11/1cm)				3.0	4736	.062				
						.029	.46			
		45.00								
				2.80	4737	.016				
50.18 - 51.56: qz ± sph.						.012	0.99			
disc td										
		50.80								
				1.0	4738	.226				
52.63: 13cm tr td assoc		51.80				.248	1.77			
± irreg qvzing										
				1.6	4739	.018				
53.40 - 54.35: disc td		53.40				.019	.32			
assoc ± qz fld.				1.0	4740	.007				
		54.40				.011	.73			
55.13: 1.2cm qvz tr td				2.6	4741	.016				
56.43: 1.5cm qvz tr td;						.012	.28			56
tends to 11° c. axis										
57.14: <1cm qvz tr td		57.00								
58.00: <1cm qv; tr cpy										
tr dis to 11° c. axis				3.0	4742	.021				
59.02: <1cm qvz tr arg						.021	.32			109
or td										
59.55: 42cm qz fld ±		60.00								
tr. td										
60.20: 8cm qz/py ± z										
sph, td; 60.52 - 63.18: tr to				3.15	4743	.194				
good td, ccp, sph, gn, arg acc ± qz fld.						.157	1.35			420
63.18 - 90.69: tr mod zn;		63.18								
				2.82	4744	.073				
						.029				350
		66.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
70.0											
			5								
			20	(20°) 2mm qv, diss org/td Xcut by 5mm qv c̄ diss pyr (5°)							
75.0											
			30	5mm qv, c̄ td?							
80.0											
85.0											
			50	2.5cm qv c̄ sph diss td.							
90.0											

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS oz/ton Ag			ppm As
				3.0	4745	.032				
						.021	.17			390
		69.00								
				3.0	4781	.021				
							.17			460
		72.00								
				3.0	4782	.016				
							.14			550
74.50: 2mm qv c̄ diss										
arg/td X-cut by 5mm qv c̄ diss pyr		75.00								
75.23: 5mm qv c̄ diss sph										
76.70: 3mm qv c̄ td?										
76.90: <1cm qz/py v. c̄				3.0	4780	.022				
sph, pyr arg							.15			
		78.00								
				3.0	4746	.024				
80.34: <1cm qv c̄ sph							.07			
td. arg										
		81.00								
				3.0	4747	.010				
							.03			
		84.00								
				3.0	4748	.014				
							.16			
86.72: 2.5cm qv c̄ sph,										
diss td.		87.00								
				3.0	4749	.011				
							.18			
		90.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D (qz v)	E	FRACTURE INTENSITY	% VEIN QTZ
				90.69-99.00: lt-m.gr.col; f-m.gr; soft bk, elong^d mnl.st. present; incr. in qz.v^ing and some qz.fld; larger q.vs contain angul. clasts of volc^c country rk.	6 0.7/m			4.0 4.8/m			
95.0											
			50	99.00-105.12: m-dk gr col; sparse but reg. qv; few lge chl.gr. up to 8mm diam; qz.veins tend to be later stage than pyr^c veins.				2-3/m			
100.0											
105.0				105.12-113.45: m-dk gr col; f-c.gr; incr. in qz.v^ing and fld^ing; bxn in zones of qz.fld?				25/m			
110.0				111.86-112.70: ghosts of amph grains randomly oriented (1-4mm long)							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS oz/ton Ag
90.33: <1cm qtz sph							
				3.0	4750	.017	
							.19
		93.00					
				3.0	4751	.017	
							.12
96.50: <1cm qtz sph, td		96.00					
				3.0	4752	.045	
						.030	.16
		99.00					
99.35: <1cm qtz td							
				3.0	4753	.034	
							.08
		102.00					
				3.0	4754	.019	
							.03
		105.00					
106.62: <1cm qtz td ccs sph ± td.							
				3.0	4755	.008	
							.18
		108.00					
				3.0	4756	.010	
							.28
		111.00					
				3.0	4757	.021	
							.30

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D (qz v)	E	FRACTURE INTENSITY	% VEIN QTZ.
				113.45-126.14: distinct col. change to apple green; wk-mod qz veining at top of section dropping off to sparse qz veining down section; pyr veining fairly regul; some pyr veining exhibit strange "crackle" texture; some qvs ||el c. axis				3-5/m			
115.0			15	5cm q.v, sph, td, arg, gn, pyr, arg							
			20	pyr veinlet, barren							
			30	<1cm qv, barren							
120.0											
			45	bedding?							
			35	bedding? 124.35-125.19: m-dk gy col; intrusive qz f.d.; some tourm.? noted; vuggy; no mnlzn;							
125.0											
			40	bedding? 126.14-172.82: BRECCIA ZONE (marker) - pale-dk gr to dk gy-gr col; f-m gr; angul/rounded volc^c country rk. clasts (up to 7cm long) in a f.gr silic^s matrix or qz flooding; clasts tend to be highly chl^c; some of the q.vs are vuggy; diss pyr thru/out.	26	1		1.69			
						0.6/m		3.6/m			
130.0											
135.0											

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/fm Au	ASSAYS oz/fm Ag			
		114.00								
114.70: 5cm qv ≅ good				1.0	4758	.016				
sph td, arg, go, pyr arg		115.00					1.35			
				3.0	4759	.058				
							.54			
117.45: tr. td or arg										
		118.00								
				3.0	4760	.013				
							.50			
		121.00								
				3.0	4761	.006				
							.15			
		124.00								
				3.0	4762	.027				
126.84-172.82: 3X ZONE - minor						.031	.47			
[illegible] (mostly sph); diss pyr										
throughout.		127.00								
				3.0	4763	.026				
							.40			
		130.00								
				3.0	4764	.018				
							.46			
		133.00								
				3.0	4765	.011				
							.39			

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E	FRACTURE INTENSITY	% VEIN QTZ.
			5-10								
140.0				~20cm [illegible] sph. arg							
145.0											
150.0											
155.0											

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS oz/ton Ag			
		136.00								
				3.0	4766	.033				
							.70			
		139.00								
140.05: ~20 cm qvz disc										
sph, arg				3.0	4767	.005				
							.65			
		142.00								
				3.0	4768	.005				
144.18: 2 mm qvz sph							.12			
		145.00								
				3.0	4769	.007				
							.19			
147.46: 2 mm qvz sph										
		148.00								
				3.0	4770	.005				
							.19			
		151.00								
				3.0	4771	.006				
							.18			
		154.00								
				3.0	4772	.004				
						.017	.18			
		157.00								

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.
			15	1.2cm qv, sph							
160.0											
			30	2cm qv, sph, gn?							
165.0											
170.0											
				172.68: E.O.H.							
175.0											

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MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS oz/ton Ag		
				3.0	4773	.060			
158.80: 1.2cm qv c̄ sph							.15		
		160.00							
161.80: 8cm zone of qv^ing c̄ sph, gn, pyrarg?				3.0	4774	.008			
							.13		
162.65: 2cm qv c̄ sph, gn?		163.00							
				3.0	4775	.036			
							.27		
166.10-166.50: sph assoc c̄ qz flooding		166.00		1.0	4777	.021			
		167.00					.40		
				3.0	4778	.021			
							.15		
		170.00							
				2.28	4779	.016			
							.12		
172.28: E.O.H		172.28							

N2/E2

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DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	