E1

ESSO RESOURCES CANADA LIMITED

ESSO MINERALS CANADA

803751

DRILL LOG

"Ca hole" below 126.5m

PROJECT: 2153	GROUND ELEV.: 4860' 1481.3m
HOLE NO.: 37	BEARING: nil
LOCATION: Sulphurets Gold Zone	DIP: -90°
	TOTAL LENGTH: 696' 212.14m
LOGGED BY: Dane Bridge	HORIZONTAL PROJECT:
DATE: Sept 9 - 11, 1981	VERTICAL PROJECT:
CONTRACTOR: Arctic Diamond Drilling	
CORE SIZE: BQ	
DATE STARTED: Sept 5, move started Sept 8, drilling	
DATE COMPLETED: Sept 10, drilling Sept 11 / 1981 testing	

ALTERATION SCALE

absent
slight
moderate
intense

TOTAL SULPHIDE SCALE

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

DIP TESTS

38'	dip 89.2	corr brg	292.5
198'	89.5		292.5
368'	89.6		166.5
478'	87.6		160.5
588'	84.3		167.5
688'	82.3		177.5

COMMENTS

LEGEND

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E (cal. Frt. Filling)	FRACTURE INTENSITY	% VEIN QTZ.
				0.00 - 5.18 : overburden							
5				5.18 - 18.85 : aphanitic andesite: med grey, color, intensely fractured w. fractures every 2-5 mm, fractures are 50% healed w. hairline calcite and 50% have hairline chlorite, intense fracturing destroys all relict textures, no veins other than fracture fillings, moderately silicic or silicified, very hard except for rare chloritic spots					M		
10			35° 45° 20 30	10.25 - 10.75 : sheared with gouge planes at 35-45°, abundant calcite					H		
15									M		
20			b.? 40 b.?	18.85 - 27.50 : aphanitic andesite med gray to locally dark green, intensely fracutured w. calcite and trace chlorite on frs., moderately silicic but w. minor med. green to dark green chloritic					H		

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo
		5.18							
5.18 - 10.75: avg 3-5% py, Fine to med grained, dissem to minor patches.									
10.75 - 18.85: avg 10% py, mainly Fine grained, very irregularily dissem, mainly on fractures w. minor patches up to 5 cm thick.				5.57	4783	.004		.023	
		10.75							
			4.00		4784	.011		.024	
		14.75							
			4.10		4785	.006		.007	
		18.85							

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E (cal fr. filling)	FRACTURE INTENSITY	% VEIN QTZ.
				patches which may be brecciated clasts, scattered local banded sections which may be bedding but probably are disoriented by intense fracturing or brecciation							
25			b? 35-90						H		
				27.50 - 59.50 : aphanitic andesite light gray-green, locally very dark gray to black, int. fractured w fine calcite infilling fractures and minor chlorite films on some fractures, uniformly moderately silicic or silicified, very minor chloritic patches, appears that intense fracturing has disrupted all primary features except for isolated banding							
			b? 50								
30			b? 35								
35											
40											
45											

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS			
18.85 - 31.50 : avg 5% py, fine grained, dissem, concentrated in chloritic patches and some bands in the minor banded or bedded sections									
31.50 - 59.50 : avg 2% py, finely dissem along discontinuous fractures, locally 10-15% over 20-30 cm.									

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

PROJECT:

HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E (Calcite filling)	FRACTURE INTENSITY	% VEIN QTZ.
50				51.00 – 52.60 : brecciated section, minor broken banded sections, slight increase in chlorite such that chlorite outlines the clasts					H		
55			10 / 6								
60				59.50 – 79.45 : aphanitic andesite. aphanitic to very fine grained w. a fine speckling of trace epidote throughout, moderately silicic, intensely fractured, calcite and chlorite on fractures local zones w fine distinct chlorite grains							
65											

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS				
59.50 - 64.55 : avg 1% py										

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	B	C	D	E (Pyrite)	FRACTURE INTENSITY	% VEIN QTZ.
				64.55 - 66.90: section w disrupted bands of gray-black andesite and thicker and more intense calcite veinlets							
70											
									H		
				74.30 - 76.40: medium gray green section w. minor to 10%, up to 3 mm chlorite grains probably after Ferromags.							
75											
				79.45 - 120.70: chloritic andesite light gray-green siliceous andesite, minor to 10% 1-3 mm pale green chlorite grains probably after hornblende uniformly hard and siliceous, probably silicified, generally moderately well fractured, variable density of fine calcite on discontinuous fvs, generally moderate density compared to sections higher in hole.							
			irreg. contact								
80									M		
85											
			25-30° veins and Foliation	86.55 - 87.87: very slighty foliated, locally heavily calcite veined, and thin py veins					H		
									M		
90											

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS			
64.55 - 66.90 : 3-5% py									
66.90 - 79.45 : ≤ 1% py									
79.45 - 80.10 : avg 15% py, f-m grained, dissem on frs.									
80.10 - 86.55 : avg 1-2% dissem py									
86.55 - 87.87 : avg 10% py, mainly f-g veins, 1-2 mm thick on continuous fractures									

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

 PROJECT: 2153 HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C	ALTERATION D	ALTERATION E (Fracture Filling)	FRACTURE INTENSITY	% VEIN QTZ.
									M		
			15°	1cm healed bx zone							
95											
			30	Fractures w. slicken-sides					L		
100											
105											
			25	Foliation? 107.00 - 115.20: transition to a section where the fine chlorite grains are difficult to distinguish, Fr. intensity and silicification increase slightly, minor chlorite occurs as films on Frs.,							
110			15-25	Foliation? 4 sections 2-20 cm long w. intense silicification and cream color.							

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/tn Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo
87.87 - 98.85: avg 2-3% py, dissem grains and discontinuous Fr. Fillings									
98.85 - 104.60: avg 10% py, mainly fine grained, dissem on Frs.		98.85							
				3.00	9786	.002		.009	
		101.85							
				2.75	4787	.003		.006	
104.60 - 108.00: avg 3% py		104.60							
108.00 - 110.95: avg 8% py									
110.95 - 121.50: avg 1% py.									

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B (bio)	ALTERATION C (chl)	ALTERATION D	ALTERATION E (cal Fr. Filling)	FRACTURE INTENSITY	% VEIN QTZ.
									L		
115				115.20 - 120.70: intensely fractured chloritic andesite, unit looks like a crackle breccia at the fault contact, 3 minor 1-20 cm long bleached, silicified patches, moderate intensity of discontinuous calcite Fr. Fillings					M		
120			100 lower contact at 10°	120.70 - 121.50: Fault zone, rock probably aphanitic andesite, broken rock and 30 cm of rock paste							
				121.50 - 126.55: tectonic breccia of aphanitic and: small angular clasts, closely packed, local py matrix, local coarse green-blk chl. patches, 40 cm of tourmaline matrix, 6 qz-cal v, 5-40 cm, rx mod. silicic, most clasts are mod. calcite Fr. Filled					M		
			20° - shear								
125			Foliation 45								
			60 c								
			c 50	126.55 - 130.50: aphanitic andesite							
				126.55 - 127.75: light gray, intensely fractured, possibly brecciated, 5 qz-cal veins, int silic.							
				127.75 - 130.50: pale green to gray-green, avg. mod. silicified, locally soft and unsilicified, int fractured, speckled w. chlorite? + py.					L		
130				130.50 - 134.10: brecciated aphanitic andesite: light cream gray to dk green-black, avg mod silicic w. 10% patches of dk chl + minor brown biotite?							
			Foliation 45 15								
135											

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo	ppm Zn	ppm As	ppb Hg
								second Cu values are by AAS				
121.50 - 126.55: avg 15-20% py, dissem, patches and interstitial to clasts, no veins		121.50										
				2.50	4788	.001		.028				
							1.8	.022	20	56	132	120
		124.00										
				2.55	4789	.005		.064				
							3.4	.052	22	368	148	200
126.55 - 127.75: 5% py, 1% cp, mainly dissem, one qz v. w. cp grain		126.55										
				1.20	4790	.016		.620				
127.75 - 130.50: avg 5-7% py, 2% cp, Fine dissem and hairline short Fracture Fillings		127.75					3.6	.552	137	82	45	210
				2.75	4791	.011		.488				
							1.8	.420	64	68	81	150
130.50 - 134.10: 2% py, 1% cp, dissem and closely assoc. w. chlorite		130.50										
				3.60	4792	.021		.530				
							1.6	.468	76	74	53	220
		134.10										

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B (bio)	ALTERATION C (chl)	ALTERATION D	ALTERATION E (cal Fr filling)	FRACTURE INTENSITY	% VEIN QTZ.
		c 50		134.10 - 136.75 : brecciated chloritic andesite: large dark green and minor med green clasts of mod. siliceous and w. 20% chlorite grains, and ~5% Fr Fillings and matrix patches of dk later chlorite					L		
				136.75 - 163.00 : aphanitic andesite:							
140		30 40°		136.75 - 155.42 : aphanitic andesite, mainly light gray to light gray-green, avg uniformly moderately siliceous, intensely fractured, minor calcite veining in discontinuous Frs, minor chlorite on Frs., minor small chlorite patches, rare qz veins.					L		
145			shear	@ 141.45 : 20cm finely brecciated seam 144.70 - 145.10 : brecciated zone w. 1-2% dissem tourmaline? mod. intensity of calcite veinlets over 1m in and around zone					L		
150											
									L		
155		40 50°	banding	155.42 - 157.00 : light green to purplish brown color possibly due to hydrothermal biotite, local grd banding of biotitic ? sections							

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo	ppm Zn	ppm As	ppb Hg
134.10 - 136.75 : 3-5% dissem												
py, tr cp,				2.65	4793	.019		.250				
							1.2	.226	66	80	12	90
136.75 - 142.75 : 5-7% py,		136.75										
1% cp,												
F-m grained disseminations												
and fr. fillings, moly in				3.00	4794	.044		.430				
2 fr. zones							1.4	.382	40	82	36	20
		139.75										
				3.00	4795	.024		.660				
142.75 - 147.40 : 5% py,							2.0	.540	348	120	16	160
.2-.3% cp												
		142.75										
147.40 - 156.10 : 5% py,												
0.5-1% cp,				4.65	4796	.015		.412				
5 sections w. moly on							1.6	.360	92	112	52	220
slickensided fractures												
		147.40										
				3.00	4797	.024		.810				
							1.8	.660	380	302	81	510
		150.40										
				3.00	4798	.019		.490				
							2.0	.434	280	160	98	230
		153.40										
				2.70	4799	.073		.885				
							2.6	.740	296	636	260	490
		156.10										

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

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B (bio)	ALTERATION C (chl)	ALTERATION D	ALTERATION E (Fe sul filling)	FRACTURE INTENSITY	% VEIN QTZ.
				157.00 - 163.00: light green aphanitic andesite, very homogenous and massive, local specklers of F-g chlorite and minor coarse dk green chl patches.					L		
160											
				163.00 - 178.50: chloritized, biotitized and silicified aphanitic andesite: section contains a few remnants of pale green, weakly silic, aph. and w. minor fine chlorite speckles.		/	/				
165				163.00 - 166.12: intensely shattered and broken section w. some fault gouge; orientations of gouge zones is variable		/	/				
				166.12 - 170.55: very intensely fractured section, mainly pale gray highly silicified w. 50% colored to green and brown due to chlorite and biotite?, local zones w. chl on Fvs and minor brown biotite? patches, local moderately intense calcite Fr filling but mainly low		/	/				
170				170.55 - 177.20: as above but w. 2 metres of intense chlorite alteration from about 172.15 - 175.00		/	/				
175				177.20 - 178.50: alteration fades, ~50% aphanitic andesite w patches of chl-bio.		/	/				
180						/	/				

PAGE 16 OF | PROJECT: | HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo	ppm Zn	ppm As	ppb Hg
156.10 - 163.00 : avg <1% py, widely spaced				3.40	4800	.005		.275				
Fine to coarse patches,							1.0	.243	120	86	15	90
trace moly on a few fvs		159.50										
				3.50	5026	.009						
							1.4	.305	102			
							1.2	.326	112	124	74	130
163.00 - 166.12 : 3% py, 1-2% cp, minor moly		163.00										
				3.12	5027	.040						
							2.9	1.216	235			
							2.6	1.06	400	150	33	190
		166.12										
166.12 - 177.20 : 3-5% py, 2-3% cp, mainly fine disiem short				3.04	5028	.029						
stringers and patches along							2.0	1.05	350			
intense fracturing, local							1.8	0.94	520	108	95	20
zones of 30-40 cm w. 10%		169.16										
cp in ragged stringers and patches												
				3.97	5029	lost est. .025	-		-			
		173.13										
				4.07	5030	.034						
							2.2	.802	98			
							2.2	.700	104	90	29	180
177.20 - 178.50 : avg 2-3% py, <1% cp		177.20										
				1.36	5031	.042						
		178.50					3.4	1.151	84			
							3.2	1.08	116	70	114	150
				2.50	5032	.036						
							1.7	.201	21	52	25	170
							2.0	.218				

R.D. PENHALL LTD., MADE IN VANCOUVER, CANADA
3L DUKSBAK WATERPROOF

 PROJECT: HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B (bio)	ALTERATION C (chl)	ALTERATION D	ALTERATION E (cal fr filling)	FRACTURE INTENSITY	% VEIN QTZ.
				178.50 - 190.67: aphanitic andesite section is variable, averages moderately siliceous and weakly chloritic, minor yellow-green epidote occurs as scattered disseminations through the section, locally calcite fracture filling is intense but overall is low, minor purplish-brown patches of biotite occur to about 181.00.					L		
185											
			10° shear								
190											
		30 c	20 15	Foliations 190.67 - 192.80: aphanitic andesite: moderately chlorite and siliceous, local granular texture, avg 25% dark green chlorite patches							
				192.80 - 199.10: aphanitic andesite light greenish gray, intensely siliceous, very minor chlorite, local occurrence of small clasts, unit may be locally a breccia.							
195											
				199.10 - 209.00: aphanitic andesite moderately siliceous and chloritic, minor remnants are pale green-gray to cream colored, rx is mainly ~50% altered to dark green chlorite					L		
200											

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS oz/ton Au	ASSAYS ppm Ag	ASSAYS % Cu	ASSAYS ppm Mo
178.50 - 190.67: avg 7-10% py, fine to coarse dissem, commonly w. heavy chlorite		181.00							
190.67 - 192.80: avg 15-20% medium-grained dissem py.		190.67							
				2.13	5033	.007			
							1.3		50
192.80 - 199.10 avg 15% py, mainly med grained dissem.		192.80							
				3.20	5034	.012			
							3.0		34
		196.00							
				3.10	5035	.043			
							1.5		29
199.10 - 209.00: avg 15% py, tr cp, very fine-grained and med-grained py, mainly in patches		199.10							
				3.90	5036	.011			
							2.0		12

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

PROJECT:

HOLE NO. 37

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION A	ALTERATION B	ALTERATION C (chl)	ALTERATION D	ALTERATION E	FRACTURE INTENSITY	% VEIN QTZ.	
205												
210				209.00 - 212.14 : aphanitic andesite moderately siliceous, weakly chloritic, light to med gray								
				212.14m end of hole								

 PROJECT: HOLE NO. 37

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES FROM	SAMPLES TO	SAMPLES WIDTH	SAMPLE NUMBER	ASSAYS			
		203.00							
209.00 - 212.14 : avg 15% py									

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