

CASCADIA EXPLORATION CORPORATION

SHEET 1 OF 17

LITHOLOGIC LOG

804-57

PROJECT McCoy HOLE NO. 66-8
 LOCATION Churchill County, Nevada COLLAR EL. 5795 feet
 COMPANY AMAX - O'Brien Resources TOTAL DEPTH 2510 feet
 CONTRACTOR American Geothermal Drilling SPUDED 10/30/79 FINISHED 3/16/80
 LOGGED BY Jim Gross

DEPTH	LITHOLOGY	DESCRIPTION	CASING
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150	TUFF ? NO SAMPLE	<p>0-90' No samples - samples supposed to have been collected but not in storage room. During the drilling operations conducted by American Geothermal Drilling (0-800 feet) the samples were not collected as accurately as they were by Anderson Drilling (800-2510 feet). There is some question regarding whether all samples in the interval 0-800 feet were labeled properly. 0-90' Some samples of questionable origin probably from this interval were Tuff.</p> <p>90' to approximately 660' TUFF euhedral sanidine, euhedral magnetite, euhedral phlogopite and biotite, aphanitic groundmass is grayish orange pink to white. Probably latitic composition. 90% of material aphanitic to pumiceous xlts < 1 mm.</p> <p>@ 120' euhedral biotite inside clear sanidine.</p> <p>@ 130' oxidized magnetite, first indication of green alteration.</p>	

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 LOGGED BY Jim Gross

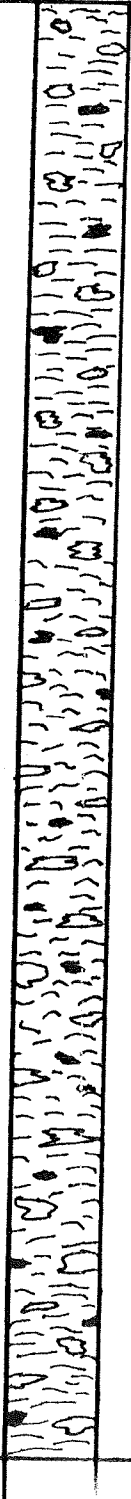
DEPTH	LITHOLOGY	DESCRIPTION	CASING	
150		@ 150' anhedral white sodic (albite) feldspar intergrown with groundmass.		
160				
170				
180				
190				
200				
210				
220				
230				
240				
250		@ 250' no sanidine, 100% orange pink aphanitic, some biotite.		
260		@ 260' minor sanidine & biotite.		
270		@ 270-280' no sample.		
280	NO SAMP.			
290				
300				

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 LOGGED BY Jim Gross

DEPTH	LITHOLOGY	DESCRIPTION	CASING
300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450		<p>@ 340' 90% of material is now white and aphanitic.</p> <p>@ 350' same as 340' with orange yellow stain.</p> <p>@ 360' same as 350' mostly white, very few sanidine xls, yellow stain.</p> <p>@ 390' same as 360', trace sphalerite.</p> <p>@ 400' note: coatings seen on and through aphanitic cuttings.</p> <p>@ 410' same, less orange & yellow, faint purple color to some fragments and HgS(?).</p> <p>@ 420' purple color zone - orange & yellow color back.</p> <p>@ 440' concentrations of yellow mineral on rotted, altered feldspar (sanidine).</p>	CASING

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 LOGGED BY Jim Gross

DEPTH	LITHOLOGY	DESCRIPTION	CASING	
450				
460				
470				
480				8 5/8" @ 488'
490				
500				
510				
520			520'-530' No sample	
530		NO SAMP.	530'-540' same as @ 510-520'	
540			540'-560' No sample	
550	NO SAMPLE			
560				
570		@ 570' reappearance of green celadonite & prominent black biotite to 1 mm.		
580		@ 580' same as 570'		
590		@ 590' significant steel chips		
600		@ 600' same as above, noticeable amounts < 10% fine grained material (not all amphibitic now).		

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LITHOLOGIC LOG

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 COMPANY AMAX - O'Brien TOTAL DEPTH 2510 feet
 CONTRACTOR American Geothermal Drilling SPUDDED 10/30/79 FINISHED 3/16/80
 LOGGED BY Jim Gross to 700' - Eugene V. Ciancanelli below 700'

DEPTH	LITHOLOGY	DESCRIPTION	CASING
<p style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">ALL SAMPLES IN THIS INTERVAL COULD BE MISLABELED</p> <p>600</p> <p>610</p> <p>620</p> <p>630</p> <p>640</p> <p>650</p> <p>660</p> <p>670</p> <p>680</p> <p>690</p> <p>700</p> <p>710</p> <p>720</p> <p>730</p> <p>740</p> <p>750</p>	<p>NO SAMPLE</p> <p>NO SAMPLE</p>	<p>600'-650' No sample</p> <p>650'-660' first appearance of cherty or fine grained quartzite material, light brown color. This could be xenoliths in tuff.</p> <p>660'-680' No sample</p> <p>NOTE: Sample recovery in this portion of hole was poor. Also sample collection and labeling by American Geothermal Drilling was not properly performed and some samples mislabeled.</p> <p>The actual contact between tuff and limestone was probably at about 725 feet. Check gamma log as tuffs much more radioactive than limestone. Check temperature and S.P. logs in this interval also.</p> <p>700'-725' approx. TUFF</p> <p>Overall color of fine powdery cuttings, light brownish gray with dark and light colored fragments including shades of red, brown, black, white & gray rock and xl fragments. The section is probably interbedded tuffs with some welded zones. Sulfides present as pyrite.</p> <p>725' to 777' BLACK LIMESTONE? Check this rock type for positive identification. Unknown black rock possibly limestone, partially effervesces in HCl acid, some shiny black xl faces seen. Should check in case economic minerals present, possibly carbon or manganese. Formation of shiny black scum on water surface when samples washed. Sulfides also present.</p>	<p>6 5/8" @ 704'</p>

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LITHOLOGIC LOG

PROJECT McCoy HOLE NO. 66-8
 LOCATION Churchill County, Nevada COLLAR EL. 5795 feet
 COMPANY AMAX - O'Brien Resources TOTAL DEPTH 2510 feet
 CONTRACTOR American Geothermal (to 800') Anderson SPUDED 10/30/79 FINISHED 3/16/80
 LOGGED BY Eugene V. Ciancanelli Drilling (below 800')

DEPTH	LITHOLOGY	DESCRIPTION	CASING
<p>750</p> <p>760</p> <p>770</p> <p>780</p> <p>790</p> <p>800</p> <p>810</p> <p>820</p> <p>830</p> <p>840</p> <p>850</p> <p>860</p> <p>870</p> <p>880</p> <p>890</p> <p>900</p>		<p>775'-790' SANDSTONE - CALCAREOUS Sandstone, medium dark gray, fine grained, sulfides present, calcareous SS.</p> <p>@ 790' becomes darker in color and more like the unknown rock in 730-775 interval. It is possible that the black rock is a limestone.</p> <p>790'-1020' LIMESTONE Limestone - dark gray N3, sulfides & calcite veins both present, but sulfides less common in limestone below 790' than higher in hole.</p> <p>@ 800' Anderson Drilling Co. began sampling and samples are correct below 800 feet.</p> <p>@ 840' becomes like interval 730'-775' then gradually downward changes to interval 790' type limestone.</p>	<p></p>

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 LOGGED BY Eugene V. Ciancanelli

DEPTH	LITHOLOGY	DESCRIPTION	CASING
900		@ about 980' limestone becoming sandy toward bottom of interval.	
910			
920			
930			
940			
950			
960			
970			
980			
990			
1000			
1010			
1020		1020'-1040' SANDSTONE Sandstone, medium dark gray, medium to fine grained poorly sorted, sulfides again present after being virtually absent in the interval 790'-1020'. The grain size gradually coarsens downward until becoming a conglomerate at 1040'.	
1030			
1040			
1050			

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LITHOLOGIC LOG

PROJECT	McCoy	HOLE NO.	66-8
LOCATION	Churchill County, Nevada	COLLAR EL.	5795 feet
COMPANY	AMAX - O'Brien Resources	TOTAL DEPTH	2510 feet
CONTRACTOR	Anderson Drilling	SPUDED	10/30/79
		FINISHED	3/16/80
LOGGED BY	Eugene V. Ciancanelli		

DEPTH	LITHOLOGY	DESCRIPTION	CASING
1050		<p>Veinlets of sulfide probably mostly pyrite.</p> <p>1060'-1080' SANDSTONE Sandstone same as interval 1020'-1040'</p> <p>1080'-1240' CONGLOMERATE OR COARSE SANDSTONE Probably coarse sandstone, veins of sulfides as pyrite.</p> <p>@ 1100' becomes lighter colored to medium gray N5.</p>	
1060			
1070			
1080			
1090			
1100			
1110			
1120			
1130			
1140			
1150			
1160			
1170			
1180			
1190			
1200			

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LITHOLOGIC LOG

PROJECT	McCoy		HOLE NO.	66-8
LOCATION	Churchill County, Nevada	COLLAR EL.	5795 feet	
COMPANY	AMAX - O'Brien Resources	TOTAL DEPTH	2510 feet	
CONTRACTOR	Anderson Drilling	SPUDED	10/30/79	FINISHED 3/16/80
LOGGED BY	Eugene V. Ciancanelli			

DEPTH	LITHOLOGY	DESCRIPTION	CASING
1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350		<p>The grain size has been becoming less coarse so that by 1220' there is more of medium to fine grained sandstone.</p> <p>@ 1230' begin to get some light gray N7 quartzite fragments.</p> <p>1240'-2180' CONGLOMERATIC QUARTZITE Medium dark gray N5 pebbles & cobbles in a Medium light gray N6 matrix sulfides present as pyrite. The pebbles all are the same light gray to medium dark gray quartzite with the matrix being the light gray color. The pebbles are rounded.</p>	

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 LOGGED BY Eugene V. Ciancanelli

DEPTH	LITHOLOGY	DESCRIPTION	CASING
1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650		<p>@ 1520' color gradually darkened down to 1620' and then became lighter to medium gray to medium light gray. At this point it is again becoming a conglomerate and less sandy.</p> <p>@ 1550' cuttings became very fine and brown mud was a large portion of the sample. Occasional sample of fault gouge. This continues to about 1620'.</p> <p>@ 1620' QUARTZITE CONGLOMERATE Quartzite, relict pebble outlines, light gray N7.</p>	CASING

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LITHOLOGIC LOG

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 LOGGED BY Eugene V. Ciancanelli

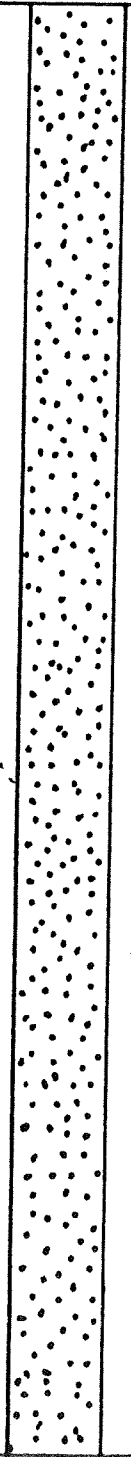
DEPTH	LITHOLOGY	DESCRIPTION	CASING
1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800		<p>@ 1650' began to get light brownish gray colored quartzite. Sulfides fairly abundant.</p> <p>@ 1670' began to get dark reddish brown cuttings with micaceous foliated texture, possibly this is hematitic quartzite. These cuttings are 15% of sample.</p> <p>@ 1680' same as above 1670' - sulfides other than pyrite possibly present. Some fault gouge cuttings. The cuttings are light gray N7 in color.</p> <p>@ 1730' same as at 1650'</p> <p>@ 1740' same as at 1680'</p>	CASING

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 LOGGED BY Chris Tower (1800' to 1880') - Eugene V. Ciancanelli (below 1880')

DEPTH	LITHOLOGY	DESCRIPTION	CASING
1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950		<p>@ 1800' white quartzite w/ abundant pyrite and other sulfides minor about 5% reddish quartzite probably hematized.</p> <p>@ 1830' white quartzite no hematized chips, some quartzite is red stained probably along fractures, decrease in sulfides.</p> <p>@ 1880' quartz pebble fragments from quartzite conglomerate, fine grained, medium light gray N6, minor light brownish gray fragments, abundant sulfides, euhedral pyrite < 0.5 mm grains and as seams and coatings. Some pyrite oxidized to yellowish brown. @ 1890' slightly less sulfides; light N7 to medium light gray N6 color.</p> <p>@ 1930' to 1980' some white crushed fault gouge with slicken sides.</p>	

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COMPANY	AMAX - O'Brien Resources	TOTAL DEPTH	2510 feet
CONTRACTOR	Anderson Drilling	SPUDED	10/30/79
LOGGED BY	Eugene V. Ciancanelli	FINISHED	3/16/80

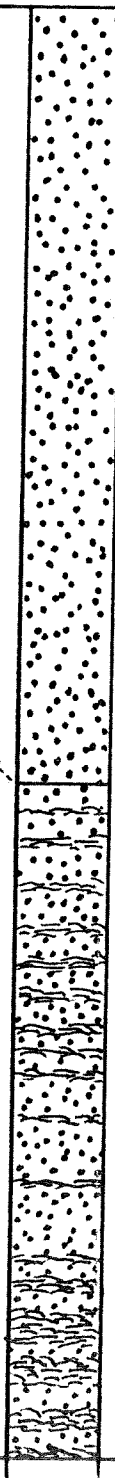
DEPTH	LITHOLOGY	DESCRIPTION	CASING
1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100		<p>@ 1960' sulfides decreasing.</p> <p>@ 1980' gouge material reappears.</p> <p>@ 1990' darkening in color to medium gray and medium dark gray.</p> <p>@ 2000' sulfides rare.</p> <p>@ 2010' color light gray to medium light gray.</p> <p>@ 2020' some chips big enough to see pebble outlines.</p> <p>@ 2030' sulfides increasing.</p> <p>@ 2040' minor light brownish gray colored fragments.</p> <p>@ 2060' - 2080' sulfides rare.</p> <p>@ 2090'-2100' minor sulfides, plus minor light brownish gray fragments.</p>	CASING

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LITHOLOGIC LOG

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COMPANY	AMAX - O'Brien Resources	TOTAL DEPTH	2510 feet
CONTRACTOR	Anderson Drilling	SPUDED	10/30/79
LOGGED BY	Eugene V. Ciancanelli	FINISHED	3/16/80

DEPTH	LITHOLOGY	DESCRIPTION	CASING
2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250		<p>@ 2110' color medium gray - some minor gouge material.</p> <p>@ 2120' vein pyrite common, one fragment showed secondary silicification following brecciation. Color is medium light gray with abundant light brownish gray fragments.</p> <p>@ 2140' minor green chlorite.</p> <p>@ 2160' gradual increase in percent of light brownish gray fragments - other fragments medium light gray to medium gray. There seems to be more evidence of crushing of the quartzite conglomerate.</p> <p>@ 2180'-2370' HEMATITIC (?) QUARTZITE CONGLOMERATE Approximate top of hematitic (?) zone in the quartzite conglomerate. About 10 to 20% of fragments are hematite (?) material present as grayish red finely laminated micaceous material which is friable. The remaining 80-90% of fragments are quartzite conglomerate. Acid showed some minor gouge material to be carbonate. No evidence of sulfides.</p> <p>@ 2190' hematitic material grayish red to dark reddish brown.</p> <p>@ 2200' same as 2180' except 30-40% hematitic material.</p> <p>@ 2210' about 10% hematitic material.</p> <p>@ 2220' same as 2190'.</p> <p>@ 2230'-2240' about 80% hematitic material.</p>	CASING

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SHEET 16 OF 17

LITHOLOGIC LOG

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 LOGGED BY Eugene V. Ciancanelli

DEPTH	LITHOLOGY	DESCRIPTION	CASING
2250		@ 2250' about 50% hematitic material.	
2260		@ 2260' about 20-30% hematitic material grayish red - also abundant pale red fragments.	
2270		@ 2270' same as 2250'.	
2280		@ 2280' about 50% grayish red hematitic material.	
2290		@ 2290' about 10-20% hematitic material.	
2300		@ 2300'-2310' 5% grayish red hematitic material - the rest is pale red sugary textured quartzite fragments with minor sulfides.	
2310			
2320		@ 2320' more white quartzite fragments now present.	
2330		@ 2330'-2360' 5% grayish red hematitic quartzite, 20% pale red quartzite, 75% pinkish gray to white quartzite, minor sulfides.	
2340			
2350			
2360			
2370		@ 2370' - QUARTZITE CONGLOMERATE Sample is white quartzite with some fault gouge fragments.	
2380			
2390			
2400			

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LITHOLOGIC LOG

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 CONTRACTOR Anderson Drilling SPUDDED 10/30/79 FINISHED 3/16/80
 LOGGED BY Eugene V. Ciancanelli to 2410' - Chris Tower below 2410' to T.D.

DEPTH	LITHOLOGY	DESCRIPTION	CASING
2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510		<p>2410' to 2420' white quartzite w/ occasional hematite, minor sulfides, slightly calcareous.</p> <p>2420' to 2510' 50% white quartzite, 50% hematite and hematized quartzite w/ opalescent coatings on some grains.</p> <p>2440' slightly calcareous.</p> <p>2470' decrease in hematite, white quartzite 65%, hematite 15%, hematized quartzite 20%, cuttings are large.</p>	CASING