

DEPTH	GRAPHIC LOGS							TR. TRACE 1. WOP. 2. WOP. 3. STRONG UNIT FOOTAGE VEINLETS	DESCRIPTIONS
	ALTERATION			Pyrite	Secondary Calcite	Secondary Quartz	GRAPHIC GEOLOGY		
	1. WOP.	2. WOP.	3. STRONG						
								20' sample interval	
0-20'								Siltstone, pale brn. & med gray minor mudstone included	
20'-40'								Mudstone, li. brn., minor silt & sand grains.	
40'-80'								Siltstone, pale brn. & grayish or pk with minor mudstone 40-60	
60'-80'								minor fine Ss in siltst.	
80'-100'								Calcite in siltst. & mudst.	
100'-120'								Mudstone, pale yel. brn. with minor siltstone	
120-500'								Siltstone, pale brn., ~50%, Ss ~30%, slate ~20% pale yel. brn.	
								Slate, dk gray, fine, even text, mic. 3-4 pale brn. slate & siltst. chips per sample.	
180'								Tr. cal. white qtz clast, 2mm cal. vein cutting li. brn. siltst. chips.	
220'								Milky qtz chip with brn. mudst. massive py in gray slate Milky qtz in gray slate	
260'								Tr. cal. clear calcite chip ~10% of sample is li. brn. muds py in gray slate, ~15% li. brn mudstone to slate.	
320'								Tr. cal. cal. cryst in mudst., few li. brn siltstone & slate chips. Slate, dark gray continued. few li. brn. siltst. & mudst. chips in dark gray slate.	
360'								320-360 ~15% light brn. siltst. & mudstone.	
400'								Tr. qtz milky qtz, free py. chips. py is probably syngenetic.	
440'								milky qtz, py not assoc. with qtz but both in gray slate. mudstone and li. brn. siltst. may be contamination from up the hole.	
500'								4 chips of li. brn. slate in the dk gray slate.	

DRILL HOLE Colado 11-36, Getty Oil
LOCATION Sec 36, T.28N., R.32E., Pershing Co.

LOGGED BY Sibbett

GRAPHIC LOGS										DESCRIPTIONS
DEPTH	ALTERATION			Pyrite	Secondary Calcite	Secondary Qtz	GRAPHIC GEOLOGY	Tr. TRACE 1. WEAK 2. MOD. 3. STRONG UNIT FOOTAGE VEINLETS		
	1. WEAK	2. MOD.	3. STRONG							
										20' sample interval.
0-100										Gravel, clast of welded tuff, siltst., marble, silicified tuff. mudstone, clast size > 1 cm. chips 5-10 mm size.
100-120								Tr. Calc. calc. veinlet in siltst. chip.		Sample across gravel-slate cont.
120-500								1, calc. 2, py, cal. 1, py, cal.		Slate, dk. gray, finely bedded. Calcite veinlets cutting bedding. py. in cal. & qtz veins. fine mica, given the rx partings. py. disseminated in slate chips.
180-200								1, py, cal.		A few clast (~5%) of white alt. ? rhyolite, poss. contamination from the surface, 180-240
200-240								1, py, cal.		
240-300								1, py, qtz cal.		
300-320								Tr. qtz		
320-340								Tr. qtz		clast of siltst.
340-360								Tr. qtz, py		dark gray slate unchanged
360-380								Tr. py		
380-400								Tr. cal, qtz		
400-420								1, cal, qtz & py		Dark gray slate continued. silty, finely bedded.
420-440								1, qtz, cal & py.		
440-460								1, qtz, py		
460-480								Tr. py		
480-500								Tr. py		
500-520								Tr. qtz, py		

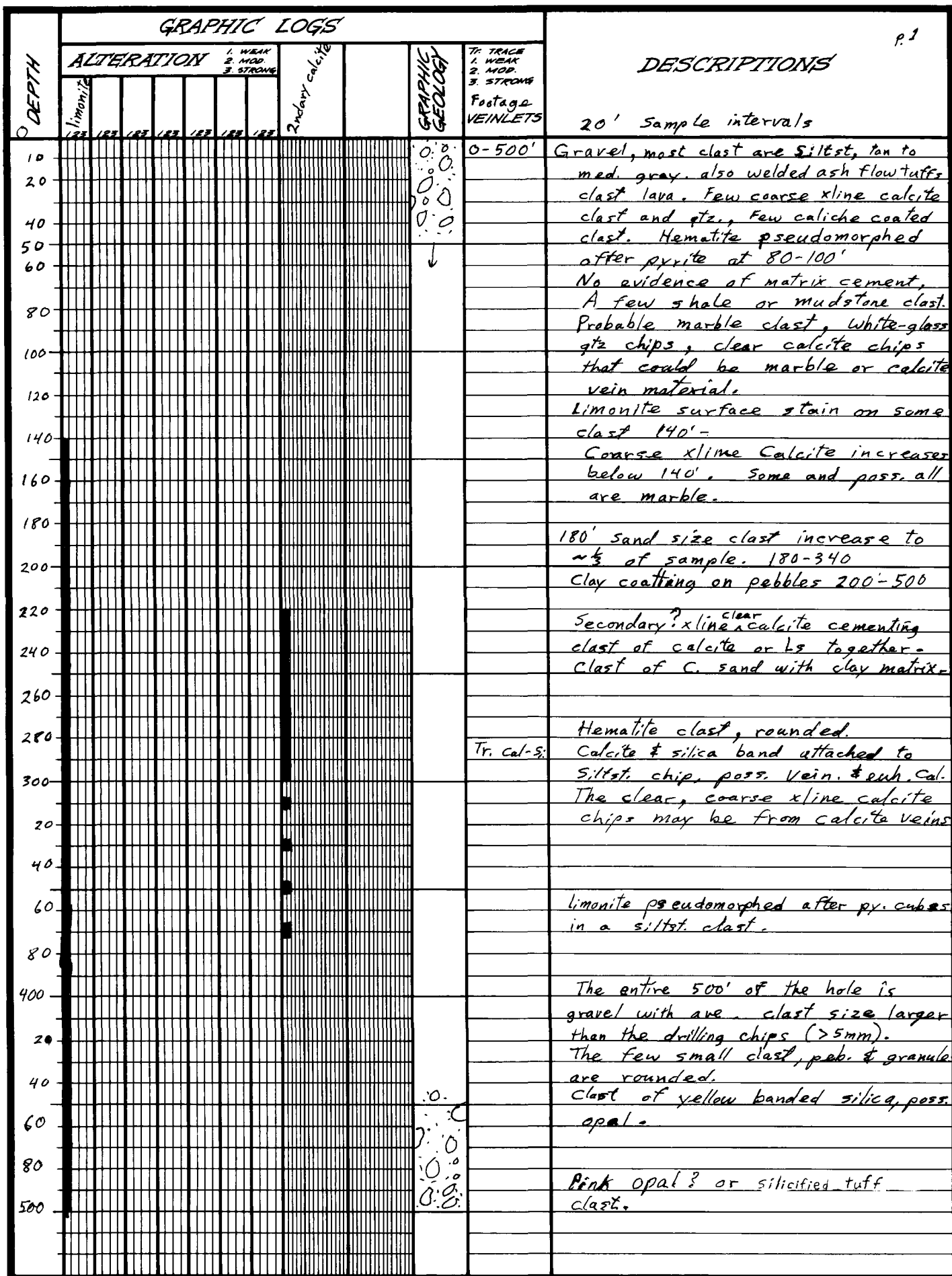
DRILL HOLE Colado 2-2
 LOCATION Sec. 2, T 27 N., R 32 E.

LOGGED BY Sibbett

DEPTH	GRAPHIC LOGS										TR. TRACE 1. WEAK 2. MOD. 3. STRONG 4. NIT FOOTAGES VEINLETS	DESCRIPTIONS	
	ALTERATION			Pyrite	Secondary calcite	Secondary quartz	GRAPHIC GEOLOGY						
	1. WEAK	2. MOD.	3. STRONG					Gypsum	Limonite				
												20' sample intervals	
0-20												0-60' Siltstone, clast of siltstone li. brn. to li. olive gray, few mudst. and Ls. or marble chips.	
20-40												Tr. cal	
40-60												Tr. cal	
60-80												60'-300' Slate, dark gray, uniform v. fine grain, mica sheer.	
80-100												80'-100' Few li. brn siltst. chips, may be contamination or thin siltst. zone.	
100-120												80-100 py. dissim. & mass. in phyllite	
120-140												Tr. cal 3 chips of tan siltst.	
140-160												dark gray slate continued.	
160-180												5% light gray shale? chips.	
180-200													
200-220													
220-240													
240-260													
260-280													
280-300												Tr. cal	
300-320												Tr., py, gyp py. cubes in slate & py. chip also pyrite with gypsum matrix	
320-340												300-500 75% slate, dk. gray, 25% siltst.	
340-360												Tr. gyp tan limonite on fracture in slate	
360-380												Tr., gyp 1mm py cubes in slate	
380-400												2, qtz, gyp dk. gray slate with few tan siltst.	
400-420												380-400. tan siltst. ~ 1/2 sample.	
420-440												400-420 only a trace of tan siltst.	
440-460												Tr. gyp py.	
460-480												L, qtz	
480-500												L, qtz	
500-520												Tr. cal 480-500 2/3 slate, dk. gray, 1/3 siltstone. few clast silicified siltst.?	

DRILL HOLE Colado 1-12
 LOCATION Sec. 12, T 27 N., R 32 E Pershing Co., Nev.

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DRILL HOLE Getty Oil 3-10
 LOCATION Sec. 10, T. 27N., R. 32E., Colado

LOGGED BY Sibbett

DEPTH	GRAPHIC LOGS							GRAPHIC GEOLOGY	TR. TRACES 1. WEAR 2. WOP. 3. STONES 4. NI FOOTAGE VEINLETS	DESCRIPTIONS
	ALTERATION									
	1. WEAR	2. WOP.	3. STONES	4. NI	5. WEAR	6. WOP.	7. STONES			
0-20								0.0 0.0	20' sample interval Gravel, pebbles, 5mm-10mm+ peb. are dark gray, li. gray, tan & white. Lith of ls, siltst, qtz, slate minor calcite cement, all igneous Tr. red hem. or cinnabar?	
20-100								0.0 0.0		
100-180								0.0 0.0	Gravel, granules & small pebbles clast of ls, qtz, siltst, ss, 1/2 gray clast & 1/2 tan clast. below 140, sand fraction increas- es to ~1/4	
180-320								0.0 0.0	Gravel, granules & sm. peb. 85% yellowish gray shale clast minor ls, marble, siltst, qtz minor calcite coating on a few clast.	
320-340								0.0 0.0	Gravel, pebbles, qtz, marble, siltst shale, slate	
340-360								0.0 0.0	Gravel, granule & pebbles, clast are qtz, qtz, siltst, ls, slate	
360-420								0.0 0.0	Gravel, granule & peb, ~60% shale minor: slate, qtz, ls, siltst.	
420-500								0.0 0.0	Gravel, peb & granules, Below 420 pebbles of slate, qtz and siltst increase to ~1/2 sample	
500								0.0 0.0	440-480 some clast cemented with calcite.	

DRILL HOLE Colado 4-16 Getty Oil
 LOCATION Sec. 16, T. 27N., R. 32E., Pershing Co., Nev.

LOGGED BY Sibbett

Colo 13-26 NW
 Getty Oil
 Pershing Co., Nevada
 Sec. 26, T28N, R32E

- 20' Calcareous reddish f.g. sandstone, and grayish white and tan noncalcareous f.g. fragments. Goethetic staining (trace) w/ gr white dolomitic clasts. up to 1/2" in size.
- 0-40' Same as 0-20
- 0-60' Same - Staining moderate (goethetic)
- 80' Same as 0-20
 Tr of mag. 0-100 gravel.
- 0-100' F.g. noncalcareous grayish white s. stone. 1/2" av 4-6 mm in size
 Tr of goethetic staining
 Fragments of reddish noncalcareous s.s.
- 0-120' Calcareous f.g. tawnyish sandstone fragments up to 1/2" in size av. 2-4 mm
 100-120. 1/2 gravel 1/2 ss. f.g.r.
- 0-140' Same - but f.g. ^{grayish} noncalcareous ss seems to be bleached (water?)
 Tr. of mag. 120-180 ss, fin. gra
 Tr of goethetic staining. Av. 2-4 mm in size or smaller.
 Tr of reddish f.g. sandstone.
- 160' Same as 120'-140' Av. size 2-4 mm
- 180' Tr. of mag. - Same as 120-140 - but has ~~red~~ reddish f.g. sandstone and goethetic stained on f.g. grayish-white ss. +60-
- change
- 200' F.g. reddish sandstone, Goethetic staining. 180-200 1/2 ss, 1/2 siltst.
 Av. 4-6 mm in size
 Tr of mag. clay material - 200-500 siltst.
 w/ quartz fragments: Smokey.
- 220' Same as 180-200

220-240 F.g. reddish ss with some clay fragments
F.g. greenish white s.s.
look goethitic staining

240-260 Same as 220-240
F.g. sulphide
Attrition products of clay

260-280 Same as 240-260
F.g. of sulphide

280-300 Black f.g. Silicious material
F.g. of sulphides, and magnetites

check →

300-320 Same as 280-300

320-340 Same as 300-320
No sulphides noticed

340-360 Same as 320-340
F.g. of magnetite, F.g. of sulphides
W/S light colored f.g.
Some milk white fragments
95% black

360-380 Same as 300-320
Some milk white fragments
95% black

380-400 Same as 380-300
95% Black f.g. gran
5% light colored
very fine

Colorado 13-26
Getty Oil

420-430 Same
Tr of mag.

430-440 Same
Small frag. of fls scattered through-out
w/s altered fls to sericite

440-460 Black f.g. Same
Tr of mag.
Tr of sulphides some associated with milky quartz
w/s hematitic staining

470-480 Same

490-500 Same
Tr of mag.

Well History

Getty Oil Company - Operator

Well No. USL-1GH#1

Location: Section 26 - T28N - R32E; Pershing County, Nevada

Elevation: 4325 ± Grnd.

Drilled by: K. O. Burt Drilling Co., Inc. Springville, Utah

- 3-4-80 Rig arrived on location at 1000 a.m. Started rigging up, prep to spud. Hauled water, mixed spud mud. Unloaded pipe and other tools. Suction hose to pump to short, Pusher will go to Reno for new one. One crew back to Utah for extra mud pump.
- 3-5-80 Pusher to Reno, crew hauling water and refilling pits. Conditioned mud and spudded well at 1700 hours p.m. Drilled one hour with rerun Hughes 9 7/8" Tricone Bit. Conditioned mud and circulated hole, repaired rig. Shut down at 2000 hours p.m. Will run 12 hour tours only.
- 3-6-80 Crew on location 0700 hours. Depth 66', mud weight 8.9# Gal., Vis 45-50 sec, Gel-H₂O system. RIH, drilled ahead, lost circulation at 135', mixed LCM into mud system. Drilled ahead with partial returns. Regained full system 175'-180'. Drilled to 198'. Bit plugged. POOH at 1500 hours. Jets and bit sub plugged with rocks. C O Bit & Sub, RIH to bottom, drilled ahead to 1900 hours with hole taking some fluid. Mixed mud and LCM during drilling operations. Pulled off bottom, shut down rig for night. Depth 236'.
- 3-7-80 Crew on location 0700 a.m. Pusher wanted backhoe to C.O. pits. Had berms raised round pits to increase volume and drop out cuttings. Mixed and conditioned mud, on bottom drilling ahead at 1030 a.m. Crew back from Utah with extra mud pump. Can now mix and jet pits while drilling ahead with other pump. Drilled until 1500 hours, POOH, bit not cutting hard quartzite formation. Lost circulation during drilling. Mixed new mud and LCM, filled hole with mud. Put crew on standby and shut rig down at 1600 hours to 1900 hours while waiting on new bit. Depth 269'. Formation - hard dense chert.
- 3-8-80 Crew on location at 0700 hours. RIH with new Smith 9-7/8" journal insert bit. On bottom prepared to drill ahead at 0850 a.m. Mixed and conditioned mud, drilling with hole taking fluid. Lost circulation and regained. Mixing mud and LCM all day. Hit hard black Phylittic slate at 345'. Made hole down to 351' (casing point) at 1645 p.m. Pulled up off bottom, mixed heavy mud, added LCM and pumped hole slowly. Pulled up 100', repeated circulation procedure and pumped hole for 15 minutes. Hole stabilized at that point. POOH at 1830 p.m. filled hole with mud, secured rig at 1900 hours. Called B.J. Hughes in Woodland, CA. Will send pump truck from Beowawe and bulk truck from Woodland.

- 3-9-80 Crew on location at 0700 hours. RIH with bit to turn over mud, tagged bottom, pulled up circulated for 20 minutes. Hole OK with fluid level in pit holding. POOH with D.P. and bit. Measured casing and started in hole with shoe joint at 1000 a.m. Ran 19 joints of K55, 23#, 8 Rnd, ST & C, to 361'. Bottom 10' shoe joint equipped with drillable cement guide shoe and insert valve at the top dressed with a centralizer and at each 80' thereafter. Tack welded each collar except last three inside conductor pipe. Rigged up B. J. Hughes Cementers at 1330 p.m. Loaded H₂O, dropped ball, pressured up, ruptured insert valve at 200#, mixed cement, sent 30 cu/ft H₂O ahead, followed with 135 sacks class 'G' cement treated with 3% CaCl. Displaced cement with H₂O and bumped plug with 500# at 1450 p.m. Reciprocated casing during cementing operations. No returns after bumping plug. Broke head off with cement in place at 1500 p.m. Rigged up 1" BLP, ran in to feel for cement in annulus. Hit firm cement at 23'. Mixed 25 sacks class 'G' treated with 3% CaCl, pumped down annulus, good returns immediately. Pumped away 15 sacks, voided rest into sump. Rigged down B. J. Hughes at 1650 p.m., cleaned out "1" Pipe, Standing cemented at 1700 hours.
- 3-10-80 Crew on location at 0700 a.m., cut off 12" conductor 1 ft below ground level. Cut off 7" casing, welding on landing plate and 7" SOW Casing Head. Installed a Shaftco Hydraulic Class II 3000# Blow-Out Preventer. Cleaned out mud pits with a backhoe, ran flow line to shaker, mixed mud, made up Hughes 6 1/4" re-run bit. RIH to 200', closed Pipe Rams; pressured up with mud to 300#. Held for 10 minutes. No leaks. Closed flow line valve to mud pump. Held for 15 minutes at 300#. Tested OK, bled off pressure, opened rams, ran to bottom, drilled out insert valve, 10' cement and guide shoe. Drilled ahead to 368'. Secured rig at 1845 hours. Hole took some fluid during drilling operations.
- 3-11-80 Mixed and conditioned mud, added LCM, drilled ahead with partial returns. Bottoms up temperature 114° F. Drilled until 0930 a.m. Pulled up, dropped Totco. POOH to change bits, depth 387'. Totco 6° with baffle ring turned sideways on top of bit. RIH with Hughes 6 1/4" rerun bit. On bottom, drilling at 1120 a.m. Drilled to 448' in hard dense black phyllitic slate with trace pyrite and quartz. Secured rig at 1900 hours p.m.
- 3-12-80 On location at 0700 a.m., ran bit to bottom, broke off Kelly, dropped Totco. POOH with bit. Rigged up air hammer and compressor. Deviation 5 1/4°. On bottom with hammer at 1945 a.m., blew mud out of hole, drilled ahead at 1100 a.m. Shut down, made shield for table, drilled until 1830 p.m. Set back two stands. Shut down for night, depth 672'. Hit hot H₂O aquifer at 445'-450', temp. 140°-150° F. Flowing in hole at 30-50 gpm mixed with foam.

- 3-13-80 Crew on location at 0730 a.m., ran to bottom, drilling ahead at 0755 a.m. Made 40' to 712' depth. POOH to check hammer. Changed to 6 1/8" hammer, RIH pressured up, blew fluid out, drilled ahead to 732'. Hole getting very hot with flowline temps 150°-160° F. Can not circulate very well thru hammer ports if mud needed to kill well, will POOH and put on tricone bit. Made trip, changed bits, reamed down last two singles of 6 1/8" hammer hole. On bottom, drilled 15', bit plugged. POOH, on bank at 1730 p.m. Drill collar sub and bit full of gravel. C. O., put in check valve. RIH and secured location at 1945 p.m. Depth 747'.
- 3-14-80 On location 0715 a.m., ran to bottom, pressured up air, drilled ahead. Drilling rate 60'/hr. Made hole til 1415 p.m. with depth 1047'. Circulating temperature 155°-158°F. After connection 174°-178° F for 5-10 secs. Drilled to 1107'. Pulled back to 700' to wipe hole. On bottom again drilling at 1720 p.m. Lost circulation, pulled up 120' added more soap emulsifier, staged back to bottom, drilled ahead to 1147', picked up single, could not regain circulation after connection. Stuck DP, worked pipe, pumped mud, got loose at 2140 p.m. Pulled up, set back 6 stands, secured location 2230 p.m.
- 3-15-80 Crew on location 0715 a.m. POOH to check bit. Mixed and conditioned mud, added Barite. Mud Weight 9-9.5#. Staged back to bottom, reamed tight spots in hole. Circulating off bottom, rerigged shaker. Flowline temperature 98°-100° F with mud. Heavy mud shut off hot fluid entry into hole. Drilled until 2200 p.m., POOH to 1000', shut down rig 2230 p.m. Depth 1313'. Formation hard dense black Phylittic slate with thin interbeds of fine sand and clay stringers.
- 3-16-80 Crew on location 0750 a.m., rig, mud hose, pits all partially frozen, temperature overnight 15°F. Thawed out, ran to bottom, drilling ahead at 0805 a.m. Put Schlumberger on standby notice for tomorrow. Drilled until 2145 p.m., depth 1501' ±. Pulled up 6 stands, filled hole with mud, secured rig at 2245 p.m. Released Strata-Log logging unit.
- 3-17-80 Crew on location 0815 a.m., RIH to bottom, circulated for 20 minutes, hole in excellent shape. Schlumberger on location, POOH, rigged up Schlumber, RIH with DILL Log at 1105 a.m. Logged out, RIH with FDC-CNL Sonde and Temperature tool on top. Temperature tool ceased to function in open hole. Ran Sonic, N.G., rigged down loggers. Secured location 1900 hours p.m.
- 3-18-80 Crew on location at 0700 a.m., RIH with bit to 1500 T.D., circulating for 15 minutes on bottom. POOH laying down drill pipe and collars. OOH at 1105 a.m. Filled hole with heavy mud. Tore out BOPE including picher nipple and blowdown and kill lines to casing head. Ran 47 joints including on 10' pup of 2 3/8" 4.7# E.U.E. ST & C tubing and hung at 1482' ± from 7' combination casing-tubing flange bolted to the casing head. Filled with fresh H₂O and installed 2" full gate valve above tubing flange. Well finished 1800 p.m. 3-18-80. Released Contractor
- 3-19-80 Clean up location.

Wayne A. Shaw
Agent