

## BRAYTON P. FOSTER, CONSULTING GEOLOGIST

## OLMC TEST WELL #1 at MUD BOIL SAMPLE LOG

2" spoon on 3" drill pipe(Failing drill pipe) driven with 140# weight to 150' sample; driven with 300# weight at 160' and below

SAMPLE	BLOWS	FIELD DESCRIPTION
10 - 12	3, 5, 7, 9	Clay, red plastic, calcareous with interbedded thin light brown or gray calcareous silts. Moist Occasional small pebble
20 - 22	push spoon 2' with foot (#100± plus pipe)	Clay, varved red and gray, low silt content, plastic and greasy, Wet. calcareous 1/8" sandy interbed at 20.5'
30 - 32	"	Clay, slightly reddish gray, massive no bedding, calcareous, wet Occasional sand grains Plastic - so soft plug from spoon will not maintain shape standing
40 - 42	fall 2' with weight of drill pipe	Clay, massive as above no sand grains observed
50 - 52	"	as above
	53.5	Driller notes harder formation
60 - 62	14,20,18	Silt or very fine sand, brownish red with clay, massive - no bedding plastic, calcareous
70 - 72	22,25,26	Silt as above, interbedded with silty clay, plastic, wet.
80 - 82	48,65,73,88	Sand, fine grained, reddish brown, silty, no bedding, moderately calcareous
90 - 91.5	32,38,105	Sand, slightly reddish brown as above with a trace of clay
100 - 101.5	61,77,100	Sand as above
110 - 111.5	24,55,97	Silt, reddish brown, sandy with scattered pebbles and clay, wet, calcareous
	114	Driller notes faster drilling - sand?
120 - 121.5	61,89,78	Sand, brown, fine to medium grained calcareous, no bedding, wet
130 - 131.5	71,81,81	Sand, layered medium to coarse, brown with silt layers and pebbles, wet, calcareous
		Driller notes gravel during drilling
140 - 140.8	76, 100/.3"	Sand, brown, coarse to medium grained calcareous, with small pebbles, wet less silt than previous sample

150 - 150.4	100/.4'	Silt, brown - very slightly reddish plastic, wet
		Driller notes hard drilling - compacted?
	#300 weight to drive spoon	
160 - 162	24,28,34,37	Silty clay till, slightly reddish brown with sand grains and occasional pebbles dense, calcareous
170 - 170.9	35, 50/.4'	Sand, grayish brown, medium grained, calcareous, silty, wet occasional pebbles
	179	First boulders encountered
179 - 210		Drill boulders in coarse sandy gravels
185 - 185.9	31, 50/.4'	Sand, dark gray, coarse grained, compact calcareous, wet
200 - 200.5	60/.5'	Gravel, brown, coarse sandy with silt calcareous, wet
215 - 216	42,46	Sand, coarse, gray calcareous, wet
230 - 231	27,43	Sand, brown and gray layered, fine grained silty, wet, calcareous
240 - 241.5	27,30,39	Fine grained sands and silts, gray to gray-brown with reddish brown silty clay interbed( $\frac{1}{2}$ " thick), calcareous
243 - 247		Drill pipe chatter suggests gravel layer
250 - 251.5	31.34,47	Sand, coarse to medium grained, gray few small pebbles, calcareous, wet
260 - 260.9	32, 50/.4"	Sand, gray, medium to fine grained, silty, calcareous, wet
270 - 270.9	46, 50/.4'	Sand, dark gray, fine grained, calcareous no bedding, compact, moist
278 - 285		Hard drilling - cobbles and boulders in hard gravel Mud sample is predominantly dark gray limestone cuttings and clear quartz grains
290 - 290.4	75/.4'	Gravel, dark gray, sandy, calcareous
	292	drill cobble
	295	Lost circulation zone
295 - 296	58,52	Sand and gravel, dark gray with red sandstone pebbles, calcareous

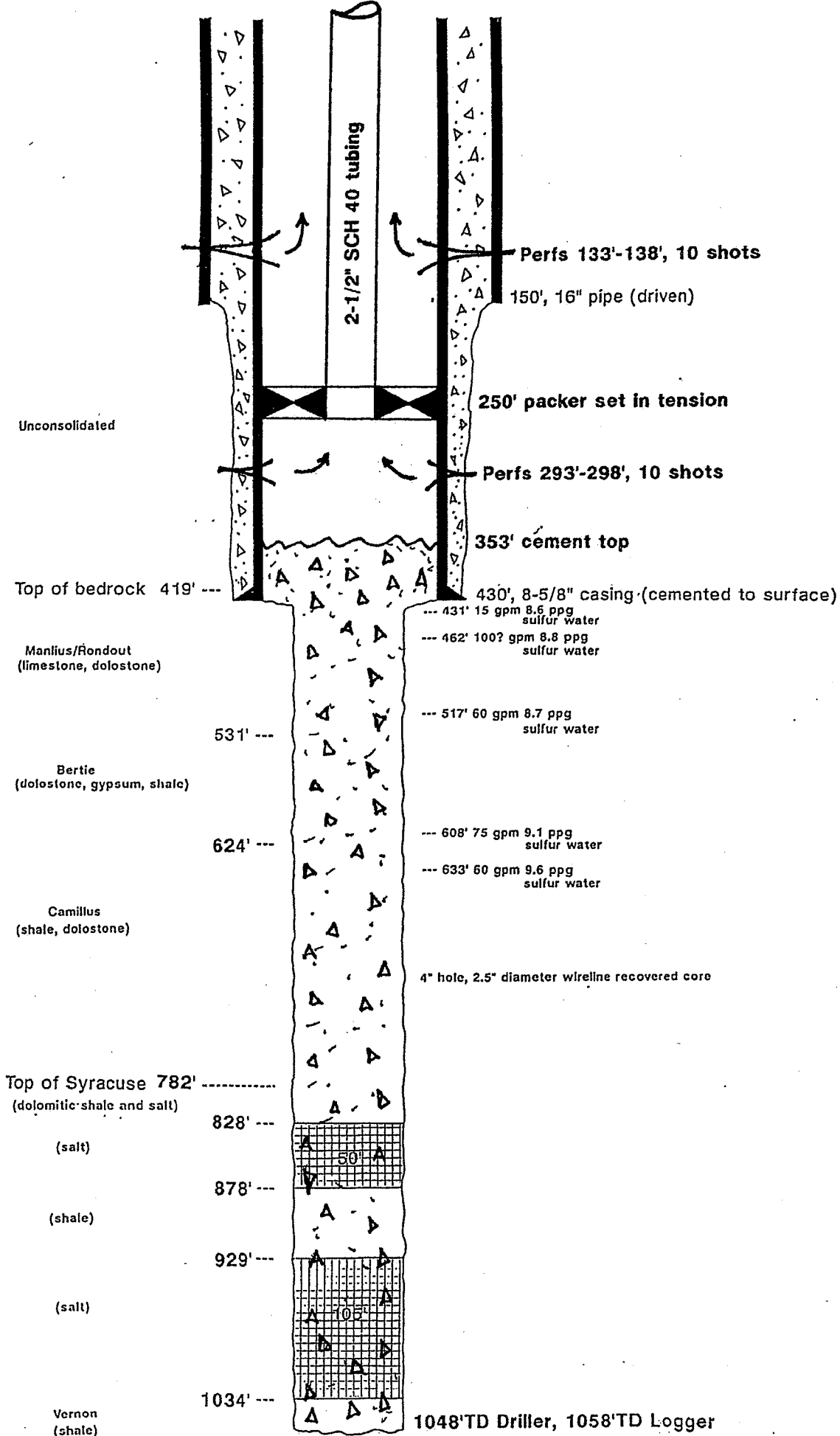
310 - 310.2	70/.2'	Gravel, dark gray, sandy, dense silty, calcareous
	319.5	cobble
320 - 320.3	50/.3'	Sand, gray, medium grained, calcareous
	330	Boulder
335 - 335.4	50/.4'	Silts, slightly reddish gray. with gray fine grained sandstone interbeds
	347.5	Harder drilling below 247.5
350 - 350.5	50/.5'	Sand, dark gray, calcareous, wet
	359.5	6" layer drilled quick
360 - 360.5	47/.5'	Sand, dark gray, medium grained wet calcareous
	363.5	Harder drilling - possible bedrock
367 - 367.2	70/.2'	Coarse sandy gravel, pebbles consist of black aphanitic limestone and greenish-gray limestone
363 - 400		This zone drills uniformly hard suggesting tightly packed boulders
380 - 380.2	70/.2"	Coarse sandy gravel, calcareous
395 - 395.1	70/.1'	Gravel and fine sand, moist, compact Black limestone and green sandstone pebbles
	400	1½' of fast drilling - sand?
402 - 405		Boulder, dark gray to black limestone initially thought to be bedrock
405 - 407.5	core	½' limestone, thin layer of dark gray sand over dark gray calcareous till moist, compact
402 - 419		Slow hard drilling - cobbles and boulders dense, believed to be till cuttings are entirely very dark gray shaley limestone.
419 -		Top of Bedrock by drilling uniformity
425 - 435	Core Run #1	Recovery 9'3", longest piece 1', Limestone, thin to medium bedded, dark gray to very dark gray with black shale partings, stylolites, borings, soft sediment deformation
428 - 430.6		Thin high angle paper thin fractures mud bleeds from fractures
431.5 - 431.6		Vertical fracture no staining
433.2 - 433.5		60° fracture, no staining, faint slickensides

- 435 - 439 Core Run #2 Cored 4' recovered 4' of fractured core  
Fractures irregular - not planar with various  
orientations, some open others filled with white calcite  
Limestone, dark gray, as above, paper thin calcite
- 436.5 Horizontal slickensides on thin black shale  
interbed
- 438.2 Horizontal slickensides on thin black shale  
interbed

Lost circulation zone below 436', hole stayed full of mud  
during drilling but was taking 10+ gpm of 15# mud  
Mud level stablized at 9.9' below top of casing when  
drilling stopped.

Drilling stopped to set screen in bedrock water zone

Surface Elevation 580' USGS



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