

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID: NC-GWE-8PA Drill Depth From: 0 to 448.2 Page 1 of 5

Driller: Bill Nelson/Ray Wilson Start Date/Time: 05/18/2010 @ 1621 End Date/Time: 06/01/2010 @ 1457

Drilling Equip./Method: Ford Bucket/Auger and Speedstar 50K/Conventional Air-Form Sampling Equip. Method: Auger to 20ft/Cyclone from 20 to 448.2 ft

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
10	32	From 0 to 16 ft, Fine silty sand with gravel (SM) pale greenish – yellow (10YR 8/2) contain 5% gravel clasts up to 1 ½ inch but predominantly fine to coarse up to 3/4 inch. Gravels are sub-rounded to sub-angular composed of tuff and rare limestone with thick cement rinds. Material is dry and reacts strongly to HCl.		Qal	Dry from surface to 16 ft. Loose, unconsolidated material intermittent boulders from 3 to 13 ft.
	65	@ 4 ft: begin to encounter intermittent boulders, up to 12 inch, basaltic, rounded and gravel increases to 30%.			Increased gravel content.
	157				At 10 ft replace bucket with cork screw auger to cut boulders.
20		From 16 to 20 ft: Well-Graded sand with silt and gravel SW/SM: Light brown (5YR 6/4), contains 12% silt, 30% fine to coarse gravel, gravel size is up to 2 inches, sub-rounded to sub-angular, composed of sandstone and limestone clasts with thick (1/8 inch) coatings of cement. Reacts strongly to HCl, slightly moist.			Increase sand and moisture.
	2	From 20 to 25 ft, Well-graded gravel with sand (GW) 75% gravel, 25% sand gravel size up to 1 inch sub-rounded to sub-angular light brown (5YR 6/4). Gravels are composed of 75% carbonate, 25% volcanic, limestone clasts are dark grey to black, volcanic are brown to pink, also present are a few (<10%) of limey, laminated siltstone. This is probably a conglomerate. Most clast (75%) have thick coatings up to 10 mm of hard cemented sand, the clast without coatings are cave from above, HCl strong.			Set 10 inch surface casing from 0 to 20 ft.
30	4	@ 25 to 95 ft: Well-graded sand with gravel (SW), light brown (5YR 6/4). 55% sand, 40% gravel, 5% clay. Gravels up to 1 inch size, gravels are sub-rounded to sub-angular. Material is conglomeratic and composed of carbonates, limey laminated siltstone and gravel clasts from cave above. Clasts have thick grain coatings up to 5 mm, HCl strong, clay has low plasticity.			Rod change at 28 ft.
	5	@ 30 ft clay decreases to < 2%.			
40	4	@ 35 ft gravel decreases to 35%, clay increase to 5%.			
	3				
	3	@ 45 ft sand increases to 75%, gravel decreases to 20%.			Rod change at 48 ft.
50	2	@ 50 ft gravel increases 60%, sand decreases to 38%, clay to 2%.			
	3	@55 ft sand increases to 75%, gravel decreases to 20%, clay to 5%.			
60	4	@ 60 ft gravel increases to 45%, sand decreases to 50%.			
	3	@ 65 ft gravel increases to 60%, sand decreases to 38%, clay to 2%.			Rod change at 68 ft.
	2	@ 70 ft clay increases to 5%.			
80	2	@ 75 ft gravel increases to 70%, clay decreases to 1%.			
	9	@ 80 ft gravel decreases to 6 %, clay increases to 2%.			
90	3	@ 85 ft gravel decreases to 45%.			Rod change at 88 ft.
	3	@ 90 ft clay increases to 5%.		↓ Qal	
	3	From 95 to 230 ft clayey sand with gravel (SC). Moderate yellowish-brown (10YR 5/4), 25% clay, 60% sand, 5% gravel, clay has moderate plasticity, gravel clasts are predominantly carbonate, limey siltstone, gravel are sub-rounded, sub-angular, fewer grain coatings, HCl strong, gravel size up to 3/4 inch.		Tvf	

PREPARED BY: Jim Foster/Bob Wilcoxon DATE: 06/01/2010 CHECKED BY: Jamie Walker DATE: 06/04/2010

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110	3	@ 100 ft gravels increase to 65 %, up to 1 inch in size, large gravel clasts are cut from cobble size clasts.		Tvf	Rod change at 108 ft.
	3				
120	2	@ 110 ft gravel decreases to 20%.			
	3	@ 115 ft gravel increases to 45%.			
130	3	@ 120 ft gravel increases to 60%.			
	4	@ 125 ft gravel decreases to 45%.			Rod change at 128 ft.
140	2				
	2				
150	3	@ 145 ft gravel increases to 45%, clay decreases to 10%.			Rod change at 148 ft.
	4	@ 150 ft clay decreases to 5%.			
160	4				
	4	@ 160 ft gravel decreases to 20%, clay increases to 20%, gravel size up to 1/4 inch size.			
170	3	@ 165 ft gravel increases to 45%, clay decreases to 5%.			
	2	@ 170 ft clay decreases to 2%.			
180	2	@ 175 ft clay increases to 5%, 35% gravels.			
	2	@ 180 ft predominantly fine-medium sand (80%), 5% clay.			
190	2	@ 185 ft gravels increase to 25%, clay decreases to 2%.			Rod change at 188 ft.
	3	@ 190 ft no gravels, clay increases to 25%.			
200	2			Tvf	

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210	2			Tvf ↓ Tvf	Rod change at 208 ft.	
	2					
220	2					
	2	@ 220 ft gravel increases to 10%. Sand increases to 50%.				
230	3	@ 225 ft no gravels.				Rod change at 228 ft.
	3	From 230 to 250 ft clayey sand (SC), moderate yellowish-brown (10YR 5/4) 10% fine gravels up to 1/4 inch. 70% sand, 20 % clay, gravels are sub-angular to angular, clasts are composed of carbonate, limey siltstone, and a trace of basalt and quartzite, minor grain coatings (<3%) up to 3mm, HCl strong reaction, no cementation.				
240	2					
	3	@ 240 ft clay increases to 12%.				
250	5	@ 245 ft clay decreases (<5 %).				Rod change at 248 ft.
	2	From 250 to 270 ft clays sand (SC). Moderate yellowish-brown (10YR 5/4) 10% fine gravel up to 3/8 inch, 60% sand, 30% clay, gravels are sub-angular to angular, clasts are composed of carbonate, limey siltstone, and a trace of quartzite. Thin grain coatings (1mm) HCl reaction strong, moderate plasticity.				
260	3					
	2					
270	3	@ 265 ft clay decreases to 20 %, gravel increases to 40 %, trace of quartzite and sandstone.			Rod change at 268 ft.	
	2	From 270 to 445 ft sandy lean clay (CL) moderate yellowish-brown (10YR 5/4) 60% clay, 40% sand and fine to coarse sand, clay has moderate plasticity HCl reaction strong, sand is composed of carbonate, limey siltstone and a trace or quartzite.				
280	2					
	3				@ 288 ft driller injected lots of foam to condition the hole. Rod change at 288 ft.	
290	4					
	3	@ 290 ft gravel increases to 15% up to 3/8 inch in size.				
300	4	@ 295 ft gravel decreases to 5% up to 1/4 inch in size.				

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310	2	@ 300 ft no gravels.		Tvf ↓ Tvf	Rod change at 308 ft.	
	6					
320	3	@ 310 ft clay increases to 70%.				
	3	@ 315 ft clay increases to 80%.				
330	3	@ 320 ft clay decreases to 60%, gravel increases to 5% up to 1/2 inch in size, 35% sand.				@ 320 to 325 ft has clean-out contamination.
	5	@ 325 ft no gravel, clay increases to 70%.				Rod change at 325 ft.
340	3					
	3	@ 335 ft clay decreases to 55%, sand increases to 45%.				
350	3	@ 340 ft clay decreases to 50%, sand increases to 50%.				
	5	@ 345 ft clay increases to 60%, sand decreases to 40%.				Rod change at 348 ft.
360	3	@ 350 ft clay increases to 85%, sand decreases to 15%.				
	3					
370	3					Rod change at 368 ft.
	6					
380	3	@ 370 ft sand increases to 35% fine, medium, and coarse.				
	3	@ 375 ft clay 40%, sand decreases to 30%, gravel increases to 30%.				@ 375 ft gravels maybe from contamination from above.
390	4	@ 380 ft sand increases to 35%, fine, medium, and coarse.				
	3	@ 385 sand decreases to 30%, gravel 30%.				
	2	@ 390 ft clay increases to 70%, sand 30%.				
	2					

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410	1			Tvf ↓ Tvf	@ 405 to 415 ft has contamination from above, poor recovery. Rod change at 408 ft.
	3				
420	1				
	2	@ 415 ft clay decreases to 40%, gravel increases to 35%, sand 25%.			
430	2	@ 420 ft clay increases to 65%, sand increases to 35%.			
	3	@ 425 ft gravels increase to 25% up to 1/2 inch, clay decreases to 45%.			425 to 430 ft poor recovery. Rod change at 428 ft.
440	3	@ 430 ft gravels decrease to 5% up to 1/4 inch in size.			
	2	@ 435 ft no gravels, sand increases to 55%. Fine to medium grain.			435 to 440 ft poor recovery.
450	2	@ 440 ft gravels increase to 25% up to 1 inch in size.			
	1	448.2 TD			445 ft TD no recovery.
0					
0					
0					
0					