

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID: NC-GWE-GF-3PA Drill Depth From: 0.0 to 609.1 Page: 1 of 7

Driller: Evan Barto/Ray Wilson Start Date/Time: 11/18/10 at 1100 End Date/Time: 1/7/11 at 1635

Drilling Equip./Method: Bucket Auger/16" Auger Speedstar 50K/Conventional Air-Foam Sampling Equip. Method: Auger/Cyclone Collector

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
10	15	0-9 ft Clayey Sand (SC): Light yellowish-brown (10YR 6/4), 30% clay, 65% fine to medium sand, 5% fine to coarse gravel, clay has high plasticity, gravel composed of angular caliche clasts and subangular to angular volcanic clasts. Material is slightly moist (<5%) and is weakly cemented from 0 to 8 ft and has moderate to strong cement from 8 to 9 ft. Reacts strongly to 10% HCl.		Qal	All colors logged wet. Auger hole stays in gauge in clayey material.
	25				
20	25	9-25 ft Lean Clay (CL): reddish-brown (5YR 4/4), material is moist and has high plasticity, and is deeply weathered to very light-green (10G 8/2) at 9.5 ft. Reacts strongly to 10% HCl.			
	20	Set 10" surface casing at 19.31 ft.			
30	5	25 - 315 ft Reworked tuffaceous sand (SP) Interlayered with fat clay (CH): color of tuff is white (10YR 8/1) color of clay is light-gray (10YR 7/2), less than 5% silt, alternating layers of tuffaceous sand and thin clay layers from 0.5 to 10 ft thick, clay is fat with high plasticity. The tuff is pumiceous and contains about 5% lithic clasts, no phenocrysts, is non-welded, and has an open porous matrix. Tuff layers are hard and part of the pumice clasts are eroded out, clay layers are soft. Reacts strongly to 10% HCl. Samples are wet due to drilling with foam.			
	4				
	4				
	2				
40	5	@ 45 ft to 55 ft thick layers of fat clay.			
	1				
	1				
50	1	@ 50 ft perched water.			
	1				
60	1				
	3				
	4				
70	1				
	4				
80	4	@ 75 ft drill rod chattering. @ 77 ft static groundwater			
	2				
90	3	@ 80 ft thin layers of soft fat clay.			
	2				
	4				
	4	@ 100 ft thin layer of soft fat clay.			

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
110	6			Qal.	
	5				
	2				
120	2				
	1				
	3				
130	2	@ 130 ft thin layer of soft fat clay.			
	1				
140	4				
	5				
150	1				
	2				
160	2	@ 160 ft to 170 ft thick layer of fat clay.			160 to 170 ft discharge water @ cyclone seems to be more yellowish.
	6				@ 165 ft poor recovery.
170	1				@ 170 to 173 ft drill went down fast, possibly soft layer of ash.
	1				@ 175 to 185 ft poor recovery.
180	3				
	3	@ 185 ft to 190 ft thick layer of fat clay.			
190	3				
	3				

PREPARED BY: Jim Foster DATE: 1/7/2011 CHECKED BY: Bob Wilcoxon DATE: 2/6/2011

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	5			Qal.	@ 195 to 205 ft poor recovery.
210	1	@ 210 ft layer of soft fat clay.			
	4				@ 215 ft poor recovery.
220	4				
	4				
230	3	@ 230 ft layer of soft fat clay.			
	7				@ 235 to 240 ft poor recovery.
240	1	@ 240 ft layer of soft clay.			
	6	@ 245 ft hard layer.			@ 243 ft lost circulation. Layer of soft clay plugged bit.
250	10				
	3				
260	3				
	4				
270	3				@ 270 ft poor recovery.
	4				
280	4				
	4				
290	2	@ 290 ft layer of soft fat clay.			
	3				
	4	@ 295 ft first appearance of dolomite and quartzite clasts with grain coating (1%).			

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
310	4			Qal.	@ 305 ft poor recovery.
	5				
	7				@ 315 ft lost circulation.
320	6	@ 315 to 609.1 ft Interlayered Strongly Cemented and Poorly Graded Sand (SP) and Well-Graded Gravel with Sand (GW): Sand is light brownish-gray (10YR 6/2), gravel is black (GLEY 1 2.5/N) to yellowish-brown (10YR 5/4). Sand is reworked tuff and well cemented, grains are well rounded. Gravel layers contain from 50 to 80% gravel clasts up to ½" in size. Gravels are subrounded to subangular. Gravels are composed of 50% quartzite and 50% dolomite.			
	5	Contains thin clay layers that aren't good producers. Clay contains about 35% silt and has high plasticity. Cemented sand layers range from 10 to 30 ft thick, gravel layers range from 5 to 85 ft thick, and clay layers are 1 to 3 ft thick. Material is strongly cemented and reacts strongly to 10% HCl.			
330	4	@316 to 317 ft layer of fat clay.			
	5	@317 to 320 ft layer of fat clay. @ 325 to 326 ft layer of fat clay. @330 to 331 ft layer of fat clay, layer contains a Paleo root. @335 to 345 ft strongly cemented sand layer.			
	6				
340	3				@ 340 to 350 ft poor recovery.
	3				
350	2	@350 to 355 ft gravel layer.			
	3	@ 355 to 360 ft strongly cemented sand layer.			
360	3				
	3	@ 365 to 370 ft gravel layer.			
370	3	@ 368 to 369 ft layer of fat clay.			@ 370 ft poor recovery.
	6	@ 375 to 395 ft strongly cemented sand layer.			
380	8	@ 380 to 382 ft layer of fat clay.			
	8				
390	8				
	7				
	4				

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
410	4	@ 400 to 405 ft gravel layer.		Qal.	
	5	@ 405 to 408 ft layer of fat clay.			
420	3	@410 to 425 ft strongly cemented sand layer.			
	8				
430	3				
	4				
440	3	@ 430 to 510 ft gravel layer.			
	3				
450	2				
	2				@ 450 ft poor recovery.
460	2				
	3				
470	4				
	3				
480	3				
	3				
490	6			@ 485 ft poor recovery.	
	4				
	1				

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	4			Qal.	
510	5	@ 510 to 525 ft strongly cemented sand layer.			
	3				
520	8				
	3	@525 to 535 ft gravel layer.			
	4				
530	3	@ 535 to 565 ft strongly cemented sand layer.			
	3				
540	3				
	3				
550	2				
	2				
	2				
560	3	@565 to 590 ft gravel layer.			
	4				
570	3				
	3				
580	3				
	3				
590	6	@ 590 to 609.1 ft strongly cemented sand layer.			
	4				
	1				@ 595 to 609.1 ft poor recovery.

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