NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID: __NC-GWE-PV-3_____ Drill Depth From: __0.0____to_548’ Page: ___1___ of___6___

Driller: ___Evan Barto/Ray Wilson_____ Start Date/Time: _____11/15/10 at 1625__ End Date/Time: _____12/14/10 at 1150___

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	40	0 to 30 ft well-graded gravel with silt and sand (GW-GM): grayish brown (10YR 5/2), 55% fine to coarse gravel, 33% fine to medium to coarse grained sand, 12% silt, gravels are subrounded to subangular and range in size from ¼” to 3”. Minor cobbles (2-3%) are present and are up to 5” in size. Gravel clasts are composed of predominantly limestone with lesser quartzite and laminated siltstone, clasts have thin (1-2mm) coatings of calcium carbonate, material is loose and dry from 0-5 ft, becomes finer grained below 5 ft with maximum gravel size 1 - 1 ½”, and becomes more dense below 5 ft. Becomes slightly moist below 10 ft, below 15 ft clay is present from 10-12%, clay has low to moderate plasticity, no cement observed, material reacts strongly to 10% HCl.		Qal	All colors logged wet. Sediments are moist from 0 – 2 ft because of grading operation conducted on site. Creosote roots in upper 16” of soil.
	85				Borehole caves during auger operation from 0 – 5 ft and becomes more competent below 5 ft, slightly moist below 10 ft, minor clay below 15 ft.
	40				
20	40	@ 17.3 ft quartzite boulder bed.			Set 10 ¾” surface casing at 19.59 ft.
	5				
30	3				
	3	30 to 348 ft silty, clayey gravel with sand (GC-GM): grayish brown (10YR 5/2), 63% coarse to fine gravel, 20% medium to fine sand, 12% silt, 5% clay, gravels are subrounded to subangular and range in size from ¼” to 1” and are composed of predominantly dark grey limestone with lesser siltstone and quartzite. Clasts have 1mm coatings, no cementation, strong HCl reaction, samples are wet.			
	3				
40	4				
	2	@ 45 ft sand decreases to 18%, gravel decreases in size to ½”.			Due to fractured face in samples an undetermined amount of cobbles are being ground-up by drill bit.
50	2				
	3	@ 55 ft gravels increase in size to ¾”.			
60	3				
	2				
70	2	@ 70 ft gravels decrease in size to ½”.			
	2				
	2				
80	2	@ 80 ft gravel increases in size to ¾”.			
	3				@ 85ft begin to see iron-oxide staining.
90	3				
	2				

PREPARED BY: Bob Wilcoxon/Jim Foster DATE: 11/15/2010 to 12/13/2010 CHECKED BY: Bob Wilcoxon DATE: 2/6/2011

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CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID: NC-GWE-PV-3 Drill Depth From: 0.0’ to 548’ Page: 2 of 6

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	2	@ 105 ft gravel; size decreases to ½”.		Qal.	
	2				
110	2				
	2				
120	1				
	1				
130	3				
	3	@ 135 ft gravels decrease to 55% due to poor recovery.			@ 135 ft to 140 ft poor recovery.
140	4				
	2	@ 145 ft gravels increase to 63% up to ½” in size.			
150	2				
	3				
160	1				
	2	@ 165 ft gravels increase to ¾” in size.			
170	1				
	2				
180	3	@ 180 ft gravels decrease to ½” in size.			
	3				
190	3	@ 190 ft gravels decrease to ¼” in size.			
	3	@ 195 ft gravels increase to ½” in size.			

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CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID: NC-GWE-PV-3 Drill Depth From: 0.0' to 548' Page: 3 of 6

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	3			Qal.	@ 195 to 205 ft poor recovery.
	3				
210	2				
	2				
220	5				
	2	@ 225 ft clay increases to 10%.			
230	3				
	3	@ 235 ft clay decreases to 5%.			
240	3				
	3				@ 245 ft small sample. Lost fines, poor return.
250	4	@ 250 ft gravel size decreases to ¼" in size.			
	2				
260	3				
	4				
270	2				
	4				
280	4				@ 280 ft poor return. Lost fines.
	2				
290	2	@ 290 ft layer of soft fat clay.			
	2	@ 295 ft first appearance of dolomite and quartzite clasts with grain coating (1%).			@ 295 to 300 ft poor return. Small sample recovery.

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CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID: NC-GWE-PV-3 Drill Depth From: 0.0' to 548' Page: 4 of 6

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	2	@ 305 ft clay increases to 10%, gravels increase to ½" in size.		Qal.	
	2				
310	3				@ 310 ft poor circulation.
	3				
320	4				
	3				
330	3	@ 330 ft clay decreases to 5%.			
	3				
340	3				@ 340 to 350 ft poor return. Small sample recovery.
	3				
350	5				
	12	@ 355 ft gravel decreases in size to ¼".			@ 355 ft rock chatter from bit. Small sample return.
360	7				@ 360 ft hard drilling, drilling slowed. Maybe due to well cemented gravel layer. More fractured face in sample return.
	3				
370	3	@ 370 ft gravel increases in size to 1/2".			
	4				@ 375 ft less rock chatter. Drilling faster.
380	4				
	4	@ 385 ft gravel decreases in size to ¼".			
390	3				
	4				

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CUTTINGS SAMPLE LOG — CONTINUATION

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	4			Qal.	
	3				
410	3				@ 410 ft rock chatter from bit.
	3				
420	3				
	3	@425 ft gravel increases to ½" in size.			
430	3				@ 430 ft no rock chatter.
	2	@ 435 ft gravel decreases to ¼" in size.			
440	2				
	3				Water @ 448 ft.
450	3	@ 450 ft gravel increases in size to ½".			
	2	@ 455 ft gravels decrease in size to ¼".			
460	2				
	4				@ 468 ft lost circulation.
470	4	@ 470 ft gravel increases in size to ½".			
	4				@ 475 ft small water production.
480	3				@ 480 ft no sample recovered.
	3	@ 485 ft gravel decreases in size to ¼".			
490	3	@ 490 ft gravel increases in size to ½".			
	3				

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	3	Gravels are still ½" in size @ 505 ft.		Qal.	@ 505 ft fines lost to drilling foam and water in return.
	3				
510	3				
	2				
520	2				
	2				
530	2				
	2				
540	2				@ 540 ft lost circulation.
	3	TD Hole @ 548 ft.			@545 ft to TD. Ground up bit in samples.
550					
0					
0					
0					

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