

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID: NC-GWE-GF-4 Drill Depth From: 0.0 to 318 ft Page: 1 of 4

Driller: Evan Barto/Ray Wilson Start Date/Time: 11/13/10 at 0995 End Date/Time: 1/5/11 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
0-10	30	0-14 ft Silty Sand (SM): moderate yellowish-brown (10YR 5/4), 85% fine to medium sand, 12% silt, 3% fine gravel up to 1/2 inch. Becomes clayey at 2 ft (10%), clay is pale brown (10YR 6/3), gravels are subround and composed of caliche clasts, material is dry. Reacts strongly to 10% HCl, no cementation observed.		Qal	Surface has gravel and cobble-sized clasts. All colors logged wet.
10-20	30				
20-30	25	14 to 80 ft Fat Clay (CH): pale olive (5Y 6/3), hard with high plasticity, slightly moist, possibly bentonite, thin layers of caliche (5mm) thick.			Clay at 14 ft. Possible bentonite, slightly moist. Auger hole = 19.7 ft bgs.
30-40	30	@ 20 ft caliche fragments (1 - 2%)			
40-50	12	@ 45 to 55 ft thick layers of fat clay.			@ 43 ft first sign of water about 5 GPM.
50-60	5				
60-70	5				
70-80	3				
80-90	1	80 to 145 ft Well-Graded Sand with Clay and Gravel (SW-SC): yellowish-brown (10YR 5/4). 75% fine to medium sand, 10 to 30% fine to coarse gravel ranging in size from 1/4 to 1". Predominantly 5% clay. One coarse gravelly zone is present at 100 to 115 ft where gravel content ranges from 40 to 45%. There are 3 clayey layers less than 5 ft thick at 85, 95, and 115 ft where clay content is approximately 20%. Gravels are gray limestone and light gray quartzite. Clasts are subrounded to subangular. No cement. Reacts strongly to 10% HCl. Sediments are wet.			@ 60 ft water 40-50 GPM.
90-100	1				
100-110	2				
110-120	4				
120-130	4				
130-140	1				
140-150	2				
150-160	3				
160-170	1				
170-180	1				
180-190	2				
190-200	2				

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DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
110	2	@ 100 to 115 ft gravels increases to 40 – 45%.		Qal.	
	2				@ 110 ft poor recovery.
	3	@ 115 – 118 ft clay content is 20%.			
120	3				
	3				@ 123 ft producing water @ 70 GPM.
	4				
130	4				
	4				
	4				
140	3				
	2	145 – 230 ft Well Graded gravel with Sand (GW): Reddish-brown (5YR 4/4). Predominantly 55% fine to coarse gravel ranging in size from ¼ to 1 ¼", 45% fine to medium to coarse-grained sand. Clay is largely absent in the interval except 3 thin zones from 156 – 157 ft, 204 to 206 ft, and 212 to 214 ft where clay content is less than 5%. Interval contains 3 very sandy zones each about 5 ft thick at 200 ft (100% sand), 210 ft (90% sand) and 225 ft (90% sand). Gravels are subrounded to subangular and composed of 80% light gray to medium brown to black dolomite and 20% pinkish-gray quartzite. No cement. Reacts strongly to 10% HCl. Samples are wet.			
150	2				
	2				@ 155 ft poor recovery.
	2				
160	1				
	3				
170	3				
	3				@ 175 ft poor recovery.
	3				
180	3				
	3	@ 180 to 220 ft gravel increases to 85% and up to 1" in size.			
190	3				
	3				
	3				

PREPARED BY: Jim Foster DATE: 1/5/2011 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
210	3	@ 204 – 206 ft clayey zone (< 5%).		Qal.	
	3				
	1	@ 212 to 214 ft clayey zone (<5%).			
	1				
220	2				
	3				
230	3	230 to 280 ft Clayey Gravel with Sand (GC): reddish-brown (5YR 4/4). Contains 45 to 95% fine to coarse gravel ranging in size from ¼ to 1 ½ inches, 5 to 35% fine to medium to coarse-grained sand, and 5 to 35% clay. Clay has high plasticity. Gravel clasts are subrounded to subangular and composed of 80% light gray to medium brown to black dolomite and 20% pinkish-gray quartzite. Clasts have thin coatings of calcium carbonate (1-2mm). No cement observed. Reacts strongly to 10% HCl. All samples are wet.			
	3				
240	5	@ 245 ft clay content is about 25%.			
	3				
250	3	@ 250 ft gravels increase to 95%. Clay decreases to 5%. Gravel increases in size to 1 ½".			
	3				
260	2	@ 265 ft gravels decreases to 65%, clay increases to 35%, gravels are 1" in size.			
	2				
270	3	@ 270 ft gravels increase to 85%. Clay decreases to 15%.			
	3				
280	7	@ 280 to 310 ft Dolomite: very dark grey (GLEY 3/N) and light grey (GLEY 3/N), light gray dolomite is massive and crystalline. Crystals are fine grained, the dark gray dolomite is calcitic. Dolomite is mottled with white calcitic crystals, fine grained, and displays occasional healed fractures. Fractures are filled with calcium carbonate. Fractures width (1-2 mm), contains sparse secondary oxide-staining and a few intraclasts of quartzite and limestone fragments. Rock is non-fossiliferous and has a recrystallized texture. Reacts moderately to 10% HCl when scratched. Samples are wet.		Oee	@ 280 ft Ely Springs dolomite and Eureka quartzite.
	2				
290	2				
	1				

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Borehole ID: NC-GWE-GF-4 Drill Depth From: 0.00' to 609.1' Page: 4 of 4

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
	4			Oee	
310	5	@ 310 to 318 ft Rubbelized quartzite: pinkish-gray (5YR 7/2), quartzite is crystalline, translucent, fine-grained, very hard, well cemented, banded with alternating pinkish-gray and dark gray banding, pinkish-gray is dominant and contains reddish oxide-staining on conchoidal fractures. The quartzite is composed of pure quartz crystals and displays an absence of other mineral impurities. No reaction to 10% HCl. Samples are wet.			
	7				
	6	318 TD.			
	5				
	4				
330	5				
	6				
340	3				
	3				
350	2				
	3				
360	3				
	3				
370	6				
	8				
380	8				
	8				
390	7				
	4				

PREPARED BY: Jim Foster DATE: 1/5/2011 CHECKED BY: Bob Wilcoxon DATE: 2/6/2011