

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID: NC-GWE-33PA Drill Depth From: 0 to 305 Page: 1 of 4

Driller: Bill Nelson/Ray Wilson Start Date/Time: 05/18/2010 @ 0828 End Date/Time: 05/24/2010 @ 1707

Drilling Equip./Method: Ford Bucket/Auger and Speedstar 50K /Conventional Air-Foam Sampling Equip. Method: Auger to 20 ft/Cyclone from 20 to 305 ft

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES	
10	17	(0 to 9 ft) Well-graded sand with gravel (SW): Light brown (5YR 6/4), approximately 15 to 20% fine to coarse gravel, rounded to sub-angular, 3% cobble up to 3 inches, strong HCl reaction, no cementation. A few boulder size clasts in hole.		Qal	Slightly moist from 0 to 10 ft.	
	49	(9 to 17 ft) Well-graded sand with silt (SW-SM) @ 9 ft: Color change to 5YR 5/6, 5 to 10% silt.			Pushing a boulder downhole from the 3.9 ft horizon. Silt at 9 ft and color change.	
	27	Increasing cobble content to 5-7%, up to 3 inches tuff composition, sub-angular to rounded, color is 5YR 6/4. Weakly cemented sand grains to gravel clasts.			Becomes dry at 10 ft. Increasing cobbles; First appearance of cement.	
	34	(17 to 20 ft) Silt with sand and gravel (SM): Very pale orange (10YR 8/2), 25% silt, 25% fine to coarse gravel, gravels are tuff and minor vesicular basalt, sub-angular, minor tuff cobbles to 3 inch, strong HCl reaction.			Silt increases @ 17 ft.	
20	11	(20 to 30 ft) Well-graded gravel with sand (GW): Dark reddish-brown (10R ¼), 65% fine to coarse gravel up to 1 inch, sub-rounded to sub-angular, clasts are composed of ash-flow tuff, reacts strongly to HCl, no cementation.			Casing set at 20 ft. Drilling with foam, EZ Mud Plus.	
	2					
30	5	(30 to 45 ft) Well graded sand (SW): Light brown (5YR 5/6), 10% gravel up to ½ inch, sub-angular, composed of ash-flow tuff.				
	5					
40	2	No recovery from 40 to 45 ft.				Drilling very fast.
	2	(45 to 80 ft) Well graded gravel with sand (GW): Dark reddish-brown (10YR 3/4), 65% fine to coarse gravel up to 1 inch, subround to subangular, composed of ashflow tuff, 35% sand, reacts strongly to HCl, no cementation.				
50	1	@ 50 ft: Gravel size decreases to ½ inch.				
	2	@ 55 ft: Grave size increases to 1 inch.				
60	5					
	4					
	4					
	6					
80	7	(80 to 100 ft) Well-graded sand with silt and gravel (SW-SM): Light brown (5YR 5/6), fine gravels ¼ inch, 40% gravel, 50% sand, reacts strongly to HCl, no cementation.				
	2					
90	3	Gravel increases to 60%.				
	2					

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID: NC-GWE-33PA Drill Depth From: 0 to 305 ft Page: 2 of 4

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES	
110	3	(100 to 300 ft) Well graded gravel with sand (GW): Moderate brown (5YR 3/4), 65% gravel up to 1/2 inch, sub-round to sub-angular, composed of ash-flow tuff, no cementation, strong reaction to HCl, 35% sand.		Qal ↓	Fine sand and silt is trapped in the foam.	
	4					
120	2	Minor clay at 110 ft. Less clay from 110 to 115 ft.				First appearance of clay.
	3	No clay, sand increases to 50%.				
130	2					
	3					
	8					From 130 to 135 ft: Drilling system wasn't lifting cuttings so no gravel in sample.
140	3					
	3	Fine gravel up to 3/8 inch.				
150	4					
	2	From 150 to 155 ft 5 % clay.				Clayey.
	4	@ 155 to 160 ft: Fine gravels up to 1/4 inch				
160	2	From 160 to 165 ft: 95% sand, 5% gravel, no clay.				Sandy.
	5	From 165 to 170 ft: Clayey gravel, 1 - 2% clay, fine gravels up to 3/4 inch, 35% sand.				Clayey.
170	3	Gravels become more coarse, up to 1 inch.				
	3					
180	3	Gravel size decreases to predominantly 1/4 inch.				Gravel size decreases.
	5	Coarser gravels, up to 1 inch, more rounding.				Gravel size increases.
190	2	Bad sample 190ft: More foam than sample.				
200	2					

PREPARED BY: Bob Wicoxon DATE: 05/24/2010 CHECKED BY: Jamie Walker DATE: 05/26/2010

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID: NC-GWE-33PA Drill Depth From: 0 to 305 ft Page: 3 of 4

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES	
210	3	Same well-graded gravel with sand (GW). Sample is still more foam than particles.		Qal	Water at 201 ft.	
	4	From 205 to 210 ft: All foam.				
220	2	Gravel up to ½ inch, some rounding.				Start letting samples settle so that grains will fall out.
	4					
230	2	Gravels increase to ¾ inch size.				
	7	From 225 to 245 ft: Sand increases to 30%.				
240	4	Gravels up to 1/2 inch in size.				
	2	Gravels are 1/4 to 3/8 inch in size.				
250	3					
	4	From 245 to 250 ft: Sand decreases to 5-10%, gravels are up to ½ inch.				@ 248.8 ft: Water in the hole.
260	1	From 250 ft: Sand content is 40%. Gravels are 1/4 inch.				
	4					
270	1	Gravels up to ¾ inch.				
	2					
280	2	Gravels become more coarse, up to 1 inch.				
	2					
290	3					
	4	From 285 to 305 ft (TD): Material is very coarse with gravels up to 1 ½ inch diameter and 2 inch in length, sand content is 20 to 25%.				
300	1	Bad sample 190ft: More foam than sample.		@ 290 ft: Hole is producing between 10 and 20 gpm water.		
	2	Coarse gravel fragments have fresh angular fracture surfaces indicating that the drill bit is cutting cobble-sized clasts.				

PREPARED BY: Bob Wicoxon DATE: 05/24/2010 CHECKED BY: Jamie Walker DATE: 05/26/2010

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID: NC-GWE-33PA Drill Depth From: 0 to 305 ft Page: 4 of 4

DEPTH (FEET)	Drilling Time (min/5 ft)	DESCRIPTION OF LITHOLOGY-PETROLOGY	GRAPHIC LOG	LITHOLOGIC UNIT	NOTES
305	2	From 300 to 305 ft: Material is same as described at 285 ft, very coarse with gravels up to 1 1/2 inch, 20 to 25% sand.		Qal	Hole making 10 to 20 gpm water. TD Hole at 305 ft.
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					
0					