NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID NC-EWDP-12 PA Drill Depth From 0 To 60 (T.D.= 390.0') Page 1 of 7

Driller BRYAN MORRIS Start Date/Time 3-21-00 / 1059 End Date/Time 3-23-00 / 1339

Drilling Equip./Method AP-1000 / HAMMER 9.5" CROWD-OUT BIT Samplinig Equip. Method CYCLONE

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
5	BCS0000 3776 2 MIN	SILTY SAND with minor gravel. Very pale orange (10YR8/2). Dry; moderately dense; gravels are fine (1/4") subangular to subrounded, gravels composed of a variety of welded tuff with a variety of color. Similar to surface.			Strong HCl reaction
	BCS0000 3777 2 MIN	silty sand as above.			No HCl reaction
10	BCS0000 3778 2 MIN	gravelly silty sand; very pale orange (10YR8/2), dry, well graded subangular gravels. Gravel size increases to 1". Gravel percentage increases to 25%.			weak HCl reaction
15	BCS0000 3779 2 MIN	gravelly silty sand as above. Color becomes slightly more yellow but still 10YR8/2. Gravels are pale red (10R6/2) Material contains well indurated silt fragments			weak HCl reaction
20	BCS0000 3780 1 MIN				No HCl reaction
25	BCS0000 3781 1 MIN	silty sand with minor fine gravel; grayish orange pink (5YR7/2) sand is fine-medium-coarse grained, well graded, dry. Minor gravel to 1/4". Gravels are pale red to medium gray (N5)			No HCl reaction
30	BCS0000 3782 1 MIN	silty sand with fine gravel as above sand coarsening and less silt (10-15%)			No HCl reaction
35	BCS0000 3783 1 MIN	silty sand with gravel as above, becomes moderate orange pink (10R7/4)			No HCl reaction
40	BCS0000 3784 1 MIN	silty sand with gravel as above			No HCl reaction
45	BCS0000 3785 1 MIN	silty sand with gravel as above			No HCl reaction
50	BCS0000 3786 1 MIN	silty sand with minor fine gravel, light brown (5YR6/4) well graded fine to medium to coarse grained; gravels up to 1/4"			No HCl reaction
55	BCS0000 3787 1 MIN	silty sand with gravel, light brown (5YR6/4) well graded sand; gravels to 1" subangular to subrounded. gravels are medium gray (N5) to very pale orange (10YR8/2)			No HCl reaction

Prepared By Bess Wilcoxon Date 3-21-00 Checked By ARTHUR J. MENEMA Date 3-24-00

QUALITY ASSURANCE RECORD
MAY 2 - 4 2000
THIS IS A RED STAMP
DO NOT REMOVE FROM FILE
REV. 1

6292

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 60 To 125 Page 2 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
65	BCS0000 3788 — 1 MIN	silty sandy gravel; Moderate orange pink (10R 7/4), well graded sand, dry; fine to medium gravel (1/2"). 50% gravel gravels are medium gray to pale orange, subangular			No HCl reaction
	BCS0000 3789 — 3 MIN	silty sandy gravel as above, gravels coarsening to 1"			No HCl reaction
70	BCS0000 3790	silty sandy gravel; moderate orange pink (10R 7/4), well graded sand with less silt than above (5%); medium gravels up to 1/2", subangular contains fragments of well cemented gravelly sands. The fragments effervesce with HCl			No HCl reaction on matrix Strong HCl reaction of well cemented fragments
75	3 MIN				
	BCS0000 3791 — 3 MIN	silty sandy gravel as above. 50% gravel			Strong HCl reaction both matrix sand and well cemented fragments
80	BCS0000 3792	silty sandy gravel as above with a trace of clay (less than 1%)			
85	2 MIN				
	BCS0000 3793 — 1 MIN	silty sandy gravel as above; absence of clay, 50% gravel, subrounded to subangular, up to 1";			HCl indeterminate because water injected
90	BCS0000 3794	well graded sand w/ fine to medium gravel (1"), gravels are rounded to angular; very little or no silt.			No HCl reaction
95	2 MIN				
	BCS0000 3795 — 4 MIN	well graded gravelly sand; Moderate yellowish brown (10YR 5/4); fine to medium gravel (3/4"), subrounded to sub angular; gravels are medium gray to pale orange			STRONG HCl reaction
100	BCS0000 3796	gravelly sand; light brown (5YR 5/6); fine gravels to 1/2". gravels are medium gray (N5) to very pale orange (10YR 8/2) subangular to subrounded; 15% gravel			Strong HCl reaction
105	3 MIN				
	BCS0000 3797 — 1 MIN	gravelly sand — as above			Strong HCl reaction
110	BCS0000 3798	silty gravelly sand; light brown (5YR 5/6); gravels increasing in size to 2"; subrounded to subangular; minor silt (1%)			No HCl reaction
115	2 MIN				
	BCS0000 3799 — 3 MIN	gravelly sand; light brown (5YR 5/6); well graded; gravels up to 2", subrounded to subangular; gravels are medium gray to very pale orange			No HCl reaction
120	BCS0000 3800	well graded gravelly sand; light brown (5YR 5/6); gravels up to 1/2", subrounded to subangular; 10-15% gravel, little or no silt			No HCl reaction
125	2 MIN				

Prepared By Bob Wilcoxon Date 3-21-00 Checked By Arthur J. Mendenhall Date 03-24-00

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NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 125 To 190 Page 3 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
	BCS0000 3801	gravelly sand; light brown (5YR6/4); fine gravels up to ½", subrounded to subangular, 10% gravel; little or no silt.			No HCl reaction
130	2 MIN				
	BCS0000 3802	gravelly sand as above with gravel size increasing to 1½"; 5-10% gravel.			No HCl reaction
135	2 MIN				
	BCS0000 3803	gravelly sand as above with gravels coarsening to 2".			No HCl reaction
140	2 MIN				
	BCS0000 3804	gravelly sand as above with trace of fines; fine to medium gravels (1"); 10-12% gravel; subrounded to subangular			No HCl reaction
145	3 MIN				
	BCS0000 3805	gravelly sand as above with little or no fines; 5-10% gravel, subrounded to subangular			No HCl reaction
150	4 MIN				
	BCS0000 3806	clayey sandy gravel; light brown (5YR6/4); 50% gravel, subangular to subrounded; 10% clay, high plasticity; slower drill rate.			No HCl reaction
155	6 MIN				
	BCS0000 3807	fine silty sand with minor fine gravel; moderate yellowish brown (10YR5/4); very fine gravels (¼"), subrounded to subangular 5-10% gravel; no clay			No HCl reaction
160	5 MIN				
	BCS0000 3808	gravelly clayey sand; light brown (5YR6/4); minor fine gravels up to ¼"; clay is soft with high plasticity, 50% clay			No HCl reaction
165	3 MIN				
	BCS0000 3809	fine gravelly clayey sand; light brown (5YR6/4), <5% very fine gravels (⅛"), decreasing clay content (25-30%), high plasticity, soft			No HCl reaction
170	5 MIN	▼ 3-23-00, 0737			
	BCS0000 3810	gravelly clayey sand as above with gravels increasing in size (1½") and content (10%); highly plastic soft clay (50% clay content)			No HCl reaction
175	4 MIN				
	BCS0000 3811	gravelly clayey sand as above ▼ 3-22-00, 0715			No HCl reaction
180	3 MIN				
	BCS0000 3812	gravelly clayey sand as above with gravels to 3/4" ▼ 3-21-00, 1536 (1ST WATER)			No HCl reaction; 1st WATER at 181.5'
185	3 MIN				
	BCS0000 3813	gravelly sandy clay as above with increasing clay content (60-70%) ▼ 3-21-00, 1518 (WATER 1ST OBSERVED DURING DRILLING)			No HCl reaction; 3-21-00 / 1519
190	3MIN				

Prepared By Bob Wilcox Date 3-21-00 Checked By Arthur J. Mennen Date 03-24-00

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NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 190 To 255 Page 4 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
195	BCS0000 3814	clayey gravelly sand; light brown (5YR6/4); poorly graded sand; fine to medium gravels up to 3"; subrounded to subangular; 10% gravel; gravels composed of a variety of welded tuff clasts; 5% clay, low plasticity			3-22-00 0821 No HCl reaction
	3 MIN				
	BCS0000 3815	gravelly clayey sand; light brown (5YR6/4); poorly graded sand; 10% fine gravels (3/4"), subrounded to subangular; 25% clay content, high plasticity			No HCl reaction
200	5 MIN				
	BCS0000 3816	gravelly clayey sand as above with gravels fining to 1½".			No HCl reaction
205	2 MIN				
	BCS0000 3817	gravelly clayey sand; light brown (5YR6/4), medium to coarse grained sand; 25% fine gravels to (3/4"), subrounded to subangular; 20% clay, high plasticity			No HCl reaction
210	1 MIN				
	BCS0000 3818	gravelly clayey sand as above with clay content increasing to 30-40%			No HCl reaction
215	2 MIN				
	BCS0000 3819	gravelly clayey sand as above with gravel size (1/8") decreasing and clay content increasing			No HCl reaction
220	1 MIN				
	BCS0000 3820	sandy clay; light brown (5YR6/4); medium and coarse grained poorly graded sand; 40% sand, 55% clay; minor fine gravels (1/8")			No HCl reaction
225	2 MIN				
	BCS0000 3821	sandy clay; light brown (5YR6/4) as above with sand content increasing to 50%, medium and coarse grained sand; poorly graded; minor gravel 45% clay, 5% fine gravel			No HCl reaction
230	2 MIN				
	BCS0000 3822	gravelly sandy clay as above with fine gravels increasing to 10%			No HCl reaction
235	2 MIN				
	BCS0000 3823	silty sandy clay; light brown (5YR6/4); 20% fine to medium sand; 5% fine gravel (1/2"), subrounded to subangular; 75% clay, high plasticity			No HCl reaction
240	1 MIN				
	BCS0000 3824	silty sandy clay; light brown (5YR6/4); 10% fine sand; 80% clay; absence of gravel; highly plastic clay; soft			No HCl reaction
245	1 MIN				
	BCS0000 3825	sandy clay; light brown (5YR6/4); 5% fine sand; 95% clay; high plasticity; no gravel			No HCl reaction
250	2 MIN				
	BCS0000 3826	sandy clay as above			No HCl reaction
55	1 MIN				

Prepared By Bob Wilcox Date 03-22-00 Checked By Arthur J. Mendenhall Date 03-24-00

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NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 255 To 320 Page 5 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
	BCS0000 3827	sandy clay; light brown (5YR6/4); 5% fine to medium sand; 95% clay with trace of fine granels (1/4"); clay has high plasticity and is soft, no odor or staining present.			no HCl reaction
260	2 MIN				
	BCS0000 3828	sandy clay as above with medium and coarse grained sand increasing to 30%; 5% fine granels (1/2")			no HCl reaction
265	2 MIN				
	BCS0000 3829	sandy clay as above with fine sand content decreasing to 10%; no odor, no staining			No HCl reaction
270	1 MIN				
	BCS0000 3830	sandy clay; light brown (5YR6/4); 20% medium to coarse grained sand; less than 5% fine granel (1/2"); 80% clay; moderate plasticity; no odor, no staining			NO HCl reaction
275	3 MIN				
	BCS0000 3831	sandy clay as above; trace of fine granel (1/4")			No HCl reaction
280	3 MIN				
	BCS0000 3832	sandy clay as above, trace of fine granel (1/4")			No HCl reaction
285	2 MIN				
	BCS0000 3833	sandy clay as above, trace of fine granel (1/4")			No HCl reaction
290	2 MIN				
	BCS0000 3834	sandy clay as above with sand content increasing to 30%; medium and coarse grained sand; clay has low plasticity; minor granel; no odor, no staining			No HCl reaction
295	2 MIN				
	BCS0000 3835	gravelly sandy clay; light brown (5YR6/4); 30% medium and coarse grained sand; 20% fine to coarse granel up to 2"; subangular to subrounded; mono lithic granel clasts, moderate orange pink weathering orange,			No HCl Reaction
300	2 MIN				
	BCS0000 3836	gravelly sandy clay as above; less than 5% fine granel (1/8 - 1/4"); only slight variability of tuff types			No HCl reaction
305	3 MIN				
	BCS0000 3837	gravelly sandy clay as above			No HCl Reaction
310	5 MIN				
	BCS0000 3838	fine sandy silty clay; PALE OLIVE (10Y6/2), 15% fine sand; 35% silt; 50% clay; contains well indurated fragments of siltstone; No gravel; olive green color is very distinctive; clay has low to moderate plasticity			No HCl Reaction
315	3 MIN				
	BCS0000 3839	as above			
320	3 MIN				

Prepared By Bob Wilcoxon Date 03-22-00 Checked By Arthur J. Mendenhall Date 03-24-00

REV: 1

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 320 To 385 Page 6 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
	BCS0000 3840	MUDFLOW TUFF & ASH: Conglomeritic, predom pebble size, abundant lithics, pumice rich & glassy clasts. Some thin white ash beds. Gray orange (10YR 7/4). Some green clasts.			No HCl reaction from 320-385'
325	10 MIN				
	BCS0000 3841	Pale - dark yel orange (10YR 6/6). Phenocrysts of sanidine & biotite. Pumice matrix with 10-15% lithics.			
330	16 MIN				
	BCS0000 3842	MUDFLOW TUFF: Conglomeritic, subrounded cobbles with weathered clayey rind & purplish rind permeating fabric, abundant lithics.			
335	14 MIN				
	BCS0000 3843	Well rounded fragments.			
340	21 MIN				
	BCS0000 3844	Pale red (10R 6/2). Densely welded clasts with 1:10 flattening ratio, banded texture. Limonitic weathering of pumice.			Clear return water
345	11 MIN				
	BCS0000 3845	Increased sand size fragments.			Dark, muddy return water
350	7 MIN				
	BCS0000 3846	TUFFACEOUS SANDSTONE: Fine grained, 95% pumice supported, absence of flow features & welding. possibly bedded. Orange pink (10R 7/4).			
355	18 MIN				
	BCS0000 3847	More massive. Very pale orange (10YR 8/2) matrix & gray orange pink - mod orange pink (10R 8/2 - 7/4) grains.			
360	37 MIN				3-22-00, 1625
	BCS0000 3848				3-23-00, 0749
365	52 MIN				
	BCS0000 3849	Some thin conglomeritic beds. Variegated with increased redness. Mod red (5R 5/4 - 4/6) & white (N9) - med. lt gray (N7)			
370	41 MIN				
	BCS0000 3850	PYROCLASTIC FLOW: Very coarse grained, angular, abundant lithics, some black "sooty" smears of Mn Ox. Yel gray (5Y 8/1 - 7/2).			
375	27 MIN				
	BCS0000 3851	PYROCLASTIC FLOW: Fine - medium grained, some fine biotite and mafics. Very pale orange (10YR 8/2).			
380	21 MIN				
	BCS0000 3852	Gray orange pink (10R 8/2). Fragments of fine botryoidal Mn Ox on fractures			
385	52 MIN				

Prepared By BOB WILCOXON / KEN DONNELSON (REVISED BY) Date 3-22-00 / 4-3-00 Checked By JAMIE WALKER Date 5/23/00

REV. 1

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG — CONTINUATION

Borehole ID NC-EWDP-12PA Drill Depth From 385 To 390 Page 7 of 7

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
	BCS0000 3853	Pyroclastic Flow, as from 375'			No HCl reaction
390	39 MIN				3-23-00, 1339
					T.D.

Prepared By KEN DONNELSON Date 3-23-00 Checked By JAMIE WALKER Date 5/23/00

REV. 1