

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID NC-EWDP-19D1 Drill Depth From 500 To 560 (T.D. 1447.95') Page 1 of 15
Driller CHAS THORNBURG/SHANNON EDWARDS Start Date/Time 04-13-00/1937 End Date/Time 4-16-00 1722
Drilling Equip./Method CABOT DRILL RIG/FLOODED REVERSE CIRCULATION-MUD Sampling Equip. Method SAMPLE BOX

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology <i>Note: Pilot hole drilled with 1R TSE reverse circulation (RD) air; hole "straightened" and opened to 26" with Cabot Flooded Mud RL (19D1). Sampling started at 500'</i>	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
500	BCS 0000 7026	GRAVEL, VOLCANIC SOURCE, 80% LIGHT BROWNISH GRAY (SYR 6/1) TO PALE REDDISH BROWN (IOR 5/4), 20% PALE YELLOWISH ORANGE (IOYR 8/6).	LARGEST CLAST 3/4"		CUTTINGS SAMPLING BEGINS NO HCL REACTION.
505	14 MIN				
505	BCS 0000 7027	GRAVEL, VOLCANIC, 70% LIGHT BROWNISH GRAY (SYR 6/1) TO PALE REDDISH BROWN (IOR 5/4), 20% PALE YELLOWISH ORANGE (IOYR 8/6).	LARGEST CLAST 3/8"		NO HCL REACTION
510	14 MIN				
510	BCS 0000 7028	GRAVEL, VOLCANIC, 35% MODERATE BROWN (SYR 3/4), 25% LIGHT BROWNISH GRAY (SYR 6/1), 25% MODERATE RED (SYR 4/6), AND 25% VERY PALE ORANGE (IOYR 8/2).	LARGEST CLAST 1/2"		NO HCL REACTION
515	14 MIN				
515	BCS 0000 7029	GRAVEL, VOLCANIC, 70% GRAYISH BROWN (SYR 3/2), 20% PALE YELLOWISH BROWN (IOYR 6/2), 9% MODERATE RED (SYR 4/6), AND 1% SANDY SILT-LIGHT BROWN (SYR 5/6).	LARGEST CLAST 7/8"		NO HCL REACTION
520	14 MIN				
520	BCS 0000 7030	GRAVEL, VOLCANIC, 50% GRAYISH BROWN (SYR 3/2), 40% MODERATE RED (SYR 4/6), AND 10% VERY PALE ORANGE (IOYR 8/2).	LARGEST CLAST 1 1/8"		NO HCL REACTION
525	7 MIN				
525	BCS 0000 7031	GRAVEL, VOLCANIC, 80% PALE BROWN (SYR 5/2), 15% MODERATE RED (SYR 4/6), AND 5% WHITE (N9).	LARGEST CLAST 7/8"		NO HCL REACTION
530	10 MIN				
530	BCS 0000 7032	GRAVEL, VOLCANIC, 80% PALE BROWN (SYR 5/2), 10% MODERATE RED (SYR 4/6), AND 10% VERY PALE ORANGE (IOYR 8/2).	LARGEST CLAST 1"		VERY POOR SAMPLE RECOVERY NO HCL REACTION
535	8 MIN				
535	BCS 0000 7033	GRAVEL, VOLCANIC, 60% PALE BROWN (SYR 5/2), 30% VERY PALE ORANGE (IOYR 8/2), AND 10% MODERATE RED (SYR 4/6).	LARGEST CLAST 1 1/8"		NO HCL REACTION
540	11 MIN				
540	BCS 0000 7034	GRAVEL, VOLCANIC, 50% DUSKY RED (SYR 3/4), 30% MED. DARK GRAY (N4), 15% PINKISH GRAY (SYR 8/1), AND 5% SANDY SILT-LIGHT BROWN (SYR 5/6).	LARGEST CLAST 1 1/4"		NO HCL REACTION
545	9 MIN				
545	BCS 0000 7035	GRAVEL, VOLCANIC, 80% GRAYISH RED (IOR 4/2), 10% MODERATE REDDISH ORANGE (IOR 6/6), 5% SANDY SILT-LIGHT BROWN (SYR 5/6), 5% SILT (REWORKED PUMICE?) VERY LIGHT GRAY (N8).	LARGEST CLAST 7/8"		NO HCL REACTION
550	11 MIN				
550	BCS 0000 7036	GRAVEL, VOLCANIC, 80% MEDIUM GRAY (N5) TO GRAYISH RED (IOR 4/2), 5% VERY PALE ORANGE (IOYR 8/2), AND 10% SANDY SILT-LIGHT BROWN (SYR 5/6), + 5% SILTY SANDSTONE-LIGHT BROWN (SYR 5/6).	LARGEST CLAST 1 3/16"		NO HCL REACTION
555	7 MIN				
555	BCS 0000 7037	GRAVEL, VOLCANIC, 80% MEDIUM GRAY (N5) TO GRAYISH RED (IOR 4/2), 15% MODERATE REDDISH ORANGE (IOR 6/6), AND 5% SANDY SILT-LIGHT BROWN (SYR 5/6).	LARGEST CLAST 1"		NO HCL REACTION
560	7 MIN				

QUALITY ASSURANCE RECORD

APR 26 2000

Prepared By ARTHUR J. MENDENHALL Date 04-13-00 Checked By JAMIE WALKER

THIS IS A RED STAMP
DO NOT REMOVE FROM FILE

2587

REV. 1a

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NYC-EWDP-1971 Drill Depth From 560 To 625 Page 2 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
560	BCS 0000 7038	GRAVEL, VOLCANIC, 80% PALE REDDISH BROWN (10R 5/4), 15% VERY PALE ORANGE (10YR 8/2), AND 5% SANDY SILT, MODERATE REDDISH BROWN (10R 4/6).	LARGEST CLAST 1 1/4"		NO HCL REACTION
565	10 MIN BCS 0000 7039	GRAVEL, VOLCANIC, 50% GRAYISH RED (10R 4/2), 30% MODERATE REDDISH ORANGE (10R 6/6), AND 20% SANDY SILT-LIGHT BROWN (5YR 5/6).	LARGEST CLAST 1"		NO HCL REACTION
	7 MIN BCS 0000 7040	GRAVEL, VOLCANIC, 40% MEDIUM GRAY (N5) TO GRAYISH RED (10R 4/2), 40% GRAYISH BLACK (N2), AND 20% WHITE N9.	LARGEST CLAST 1 1/4"		NO HCL REACTION
575	9 MIN BCS 0000 7041	GRAVEL, VOLCANIC, 90% BROWNISH GRAY (5YR 4/1), 5% LIGHT OLIVE GRAY (10YR 6/2), 5% SANDY SILT-LIGHT BROWN (5YR 6/4).	LARGEST CLAST 7/8"		NO HCL REACTION
580	8 MIN BCS 0000 7042	GRAVEL, VOLCANIC, 30% MODERATE BROWN (5YR 4/4), 30% PALE YELLOWISH BROWN (10YR 6/2), 10% LIGHT OLIVE GRAY (5Y 6/1), 30% GRAYISH ORANGE PINK (10R 8/2) TO WHITE (N9).	LARGEST CLAST 7/8"		NO HCL REACTION
585	7 MIN BCS 0000 7043	GRAVEL, 55% GRAYISH RED PURPLE (5RP 4/2), 10% LIGHT BROWNISH GRAY (5YR 6/1), 5% MODERATE REDDISH BROWN (10R 4/6), small frags mixed volcanics.	LARGEST CLAST 3/4"		No HCL reaction
590	9 MIN BCS 0000 7044	GRAVEL, 65% GRAYISH RED PURPLE (5RP 4/2) w/ purple inclusions, 10% LIGHT BROWNISH GRAY (5YR 6/1), 5% MODERATE REDDISH BROWN (10R 4/6), small frags GRAYISH ORANGE PINK (10R 8/2), small frags mixed volcanics.			No HCL reaction
595	10 MIN BCS 0000 7045	GRAVEL, As above w/ frags Dark reddish brown (10R 3/4)			No HCL reaction
600	9 MIN BCS 0000 7046	GRAVEL, As above.			No HCL reaction
605	7 MIN BCS 0000 7047	GRAVEL, As above w/ 4/7 to 4/8 frags			No HCL reaction DP reddish
610	~ MIN BCS 0000 7048	GRAVEL, 70% GRAYISH RED PURPLE (5RP 4/2), 10% LIGHT BROWNISH GRAY (5YR 6/1), small frags dark reddish brown (10R 3/4)			No HCL reaction smaller cuttings
615	9 MIN BCS 0000 7049	GRAVEL, As above			No HCL reaction
620	6 MIN BCS 0000 7050	GRAVEL, As above			No HCL reaction
	12 MIN				

Prepared By ARTHUR J. MENDENHALL Date 04-13-00 Checked By JAMIE WALKER Date 4-17-00
 n. Slack

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-19D1 Drill Depth From 625 To 690 Page 3 of 14

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
625	BCS 0000 7054	Gravel 760% Grayish red (5R 4/2) 8-10% Dusky red (5R 3/4) angular frags (1/4") small frags mixed volcanics			No HCl reaction
630	6 MIN BCS 0000 7052	Gravel 775% Grayish red (5R 4/2) 8-10% Dusky red (5R 3/4) small frags mixed volcanics			No HCl reaction
635	9 MIN BCS 0000 7053	Gravel As Above			Small sample No HCl reaction D.P. Added
640	~ MIN BCS 0000 7054	Gravel As Above			No HCl reaction
645	16 MIN BCS 0000 7055	Gravel As Above			No HCl reaction
650	11 MIN BCS 0000 7056	Gravel As Above			No HCl reaction
655	13 MIN BCS 0000 7057	Gravel As Above w/tn qtz frags			No HCl reaction
660	11 MIN BCS 0000 7058	Gravel 750% Blackish red (5R 2/2) 75% Pale reddish brown (10R 5/4) porous w/ qtz 8-10% Dusky red (5R 3/4) small frags mixed volcanics			No HCl reaction
665	11 MIN BCS 0000 7059	Gravel 75% Grayish red (5R 4/2) 8-10% Dusky red (5R 3/4) small frags mixed volcanics			D.P. added No HCl reaction
670	~ MIN BCS 0000 7060	Gravel As Above			No HCl reaction
675	16 MIN BCS 0000 7061	Gravel As Above			No HCl reaction
680	14 MIN BCS 0000 7062	No Sample			No Recovery Drilling Stopped Passing NC-EWDP-19D Dagles
685	20 MIN BCS 0000 203	Gravel ~90% red gray (N4) to Dark yellowish brown (10YR 4/2) 1% Pinkish gray (5YR 8/1) small frags mixed volcanics			No HCl reaction
	22 MIN				

Prepared By W. Smith Date 04/14/00 Checked By ARTHUR J. Mendenhall Date 04-17-00

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NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID DMC-FMPD-1901 Drill Depth From 690 To 755 Page 4 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
690	PCS 0000 7061	Gravel ~90% red gray (M4) to Dark yellowish brown (10YR 4/2) ~10% pinkish gray (5YR 8/1) ~10% grayish olive green (5GY 3/2) lignen clast (1/8") small frags mixed volcanics			No HCl reaction Drilled Stanglet post deflection point ~ full diameter snappers from this point
695	16 mins PCS 0000 7065	Gravel As Above			No HCl reaction
700	~ mins PCS 0000 7066	Gravel As Above			No HCl reaction
705	20 mins PCS 0000 7067	Gravel and Coarse Sands ~90% red gray (M4) to Dark yellowish brown (10YR 4/2) ~10% pinkish gray (5YR 8/1) ~10% grayish olive green (5GY 3/2) small frags / grains mixed volcanics			No HCl reaction
710	10 mins PCS 0000 7068	Gravel and Coarse Sands As Above			No HCl reaction
715	17 mins PCS 0000 7069	Gravel and Coarse Sands As Above			No HCl reaction
720	14 mins PCS 0000 7070	Gravel and Coarse Sands As Above			No HCl reaction
725	18 mins PCS 0000 7071	Gravel and Coarse Sands As Above			No HCl reaction D.P. added
730	~ mins PCS 0000 7072	Gravel and Coarse Sands As Above			No HCl reaction
735	14 mins PCS 0000 7073	Gravel and Coarse Sands As Above			No HCl reaction
740	14 mins PCS 0000 7074	Gravel and Coarse Sands As Above			No HCl reaction
745	14 mins PCS 0000 7075	Gravel and Coarse Sands As Above			No HCl reaction
750	15 mins PCS 0000 7076	Gravel and Coarse Sands As Above			No HCl reaction
755	17 mins				

Prepared By W. Slack Date 04/14/00 Checked By ARTHUR J. MENDENHALL Date 04-17-00

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NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-19D Drill Depth From 755 To 820 Page 5 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
755	RLS 0000 7077	Gravel and Coarse Sand 85% medium gray (M4) & Dark yellowish brown (10YR 4/2) 41% pink gray (5YR 8/1) 1-2% dusky red (5R 3/4) small fangs and grains mixed volcanics			DP added Drilled into on sample 755-762 762-765
762	RLS 0000 7078	Gravel and Coarse Sand			
765	10 fms RLS 0000 7079	As Above Gravel and Coarse Sand As Above			
770	12 fms RLS 0000 7080	Gravel and Coarse Sand As Above			
775	20 fms RLS 0000 7081	Gravel and Coarse Sand As Above			
780	19 fms RLS 0000 7082	Gravel and Coarse Sand As Above			
785	16 fms RLS 0000 7083	Gravel and coarse sand (finer fractions removed by drilling mud). Maximum clast size ~1". 60% reddish clasts (5R 4/2); ~30% lt. brownish gray (5YR 6/1)			
790	12 fms RLS 0000 7084	Gravels and coarse sand as above; obvious pale green (5G 4 7/2) clasts ~5% and gray volcanic clasts			
795	12 fms RLS 0000 7085	Gravels and coarse sand as above.			
800	13 fms RLS 0000 7086	Gravel and sand interbedded with consolidated clayey sandstone. Approximately 50% brownish gray (5YR 4/1) gravel and 50% moderate brown (5YR 4/4) clayey fine sandstone.			
805	13 fms RLS 0000 7087	Gravel and coarse sand (finer fraction lost to drill mud). Max clast size ~3/4". 50% reddish clasts (5R 4/2), ~25% mod. reddish brown (10R 4/6) 25% brownish gray (5YR 4/1), also sandstone from above.			
810	15 fms RLS 0000 7088	Gravel and coarse sand as above; max clast size ~1"; ~10% pinkish gray (5YR 8/1) clasts.			
815	12 fms RLS 0000 7089	Gravel and coarse sand as above. Maximum clast size 3/4". Mixed lithologies as described 805-810.			
820	13 fms				

Prepared By Walter Slack/Jamie Walker Date 4.14.00 Checked By JAMIE WALKER Date 4.17.00
ANTHONY J. MENDENHALL Date 04-17-00

CONTINUATION

of 15

Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID DAC-FUDD-1901 Drill Depth From 885 To 950 Page 7 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
885	BCS 0000 7103 17 min	Ash flow tuff, non-welded, pale greenish yellow (10Y8/2) Gritty texture, local white pumice to 1cm. Aphyric to 1% quartz porphyritic. Unit appears to be interbedded with dk reddish gravels and sands. ^{local beds of clay-red tuff, alt. ash beds.} 885-890 Ash flow tuff, tr. gravel, ~5% clayey tuff, trace pumice.	++++ ++++ ++++ ++++		
890	BCS 0000 7104 18 min	890-895 Ash flow tuff, as above, 1% gravel to 1/4", ~5% clayey tuff. Manganese oxide veinlets and coating on fractures ~1%.	++++ ++++ ++++ ++++		
895	BCS 0000 7105 18 min	895-900 Ash flow tuff, homogenous tuff, tr. gravel, tr. ~1% clayey tuff.	++++ ++++ ++++ ++++		
900	BCS 0000 7106 11 min	900-905 Ash flow tuff, as 895-900	++++ ++++ ++++ ++++		Tuff sample has larger pieces; poss less fractured
905	BCS 0000 7107 17 min	905-910 Ash flow tuff, tr. gravel, 2% clayey tuff, ~1% quartz crystal frags to 0.5mm, no pumice.	++++ ++++ ++++ ++++		Losing circulation Driller reports zone as fractured.
910	BCS 0000 7108 17 min	910-915 Ash flow tuff, 1% purple-grey gravel to 1/4", 2% clayey tuff	++++ ++++ ++++ ++++		910-915 - small sample ~2 lbs.
915	BCS 0000 7109 17 min	915-920 Ash flow tuff, as above, no gravel, ~5% clayey tuff	++++ ++++ ++++ ++++		Lost circulation zone worsening.
920	BCS 0000 7110 14 min	920-925 Ash flow tuff as above, tr. gravel, tr. clayey tuff, ~1/2% Mn oxide, gritty texture.	++++ ++++ ++++ ++++		
925	BCS 0000 7111 13 min	925-930 Ash flow tuff, tr. gravel, tr. clayey tuff, tr Mn Oxides. Monolithic from ~895'	++++ ++++ ++++ ++++		still fighting lost circulation water level down approx. 3' in return pit.
930	BCS 0000 7112	930-936 Ash flow tuff, no gravel, 1% clayey tuff, ~1/2% Mn Oxides, tr. of silty clay and brown clay	++++ ++++ ++++ ++++		
935	BCS 0000 7113 15 min	936-940 Ash flow tuff, ~1% gravel to 1/4", ~1% fine pumice, no clayey tuff	++++ ++++ ++++ ++++		
940	BCS 0000 7114 16 min	940-945 Ash flow tuff, <1% gravel to 1/4", tr. pumice, no clayey tuff.	++++ ++++ ++++ ++++		
945	BCS 0000 7115 15 min	945-950 Ash flow tuff, ~1% light colored gravel, no clayey tuff	++++ ++++ ++++ ++++		

Prepared By JAMIE WALKER Date 4-14-00 Checked By ARTHUR J. MENDELMAN Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-191 Drill Depth From 950 To 1015 Page 8 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
950	RCS 0000 7114	Ash Flow TuB; non welded, pale greenish yellow (10Y 8/2) no gravel 21% porosity	+ +		Small sample
955	10 pins RCS 0000 7117	As above w/ Ta porosity	+ +		
960	8 pins RCS 0000 7118	As above	+ +		
965	5 pins RCS 0000 7119	As above w/ Ta porosity	+ +		Intermittent Drilling Circulation Problems Unit or water
970	11 pins RCS 0000 7120	Ash Flow TuB, as above w/ small Qtz frags	+ +		
975	~ pins RCS 0000 7121	As above	+ +		
980	34 pins RCS 0000 7122	As above w/ Ta porosity? (ultramicro porosity)	+ +		
985	30 pins RCS 0000 7123	As above w/ 21% clay	+ +		
990	33 pins RCS 0000 7124	As above w/ 21% porosity	+ +		Small sample
995	33 pins RCS 0000 7125	Ash Flow TuB: non welded, pale greenish yellow (10Y 8/2) Ta litho 21% gravel dark reddish brown (10R 3/4) Few Qtz frags	+ +		Small sample lost Circulation Drilling Stopped
1000	~ pins RCS 0000 7126	Ash Flow TuB: non welded, pale greenish yellow (10Y 8/2) grainy texture Ta litho MnOx, FeOx stain 21% gravel dark reddish brown (10R 3/4) Few Qtz frags	+ +		Small sample added 100 of air line for open ended circulation
1005	27 pins RCS 0000 7127	Ash Flow TuB: non welded, pale greenish yellow (10Y 8/2) grainy texture, Ta litho, small Qtz porosity inclusions 21% gravel as above	+ +		Small sample
1010	26 pins RCS 0000 7128	As Above	+ +		logged 21% gravel 995 and down may be uphole contamination
1015	26 pins		+ +		

Prepared By W. Shick Date 04/15/00 Checked By ARTHUR J. MENDENHALL Date 04-17-00

REV

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

NC-ERDP-1901

Borehole ID
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DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1015	RCS 0000 7129	Ash Flow Tuff: non-welded, pale greenish/yellow (10Y 8/2) granitic texture, Tr Liths, small Qtz & Pumice inclusions ~1% gravel dark reddish brown (10R 3/4) few Qtz frags	+++++ +++++ +++++ +++++ +++++		logged 4 1% gravel 995' and down may be uphole confirmation
1020	26 MIN RCS 0000 7130	As Above w/ MnO ₂ & FeO ₂ on fractures	+++++ +++++ +++++ +++++ +++++		
1025	23 MIN RCS 0000 7131	As Above	+++++ +++++ +++++ +++++ +++++		Added 16 bags of H-Seal Paper Lost Circulation Material (LCM)
1030	24 MIN RCS 0000 7132	As Above	+++++ +++++ +++++ +++++ +++++		
1035	23 MIN RCS 0000 7133	Ash flow tuff, pale greenish yellow, tr ~1% pale brown "cherty" lithic fragments to 5mm, ~1% gravel, ~2% pale green lithics (cognate) or pumice to 5mm; tr. MnO ₂ .	+++++ +++++ +++++ +++++ +++++		trace of paper in sample (LCM)
1040	22 MIN RCS 0000 7134	Ash flow tuff, as above, 2% < 1cm pale reddish brown (10R 5/6) lithic fragment ("attached" to tuff cuttings), 2% fine gravel, ~1% ~5mm quartz, ~1% sl. darker green-yellow pumiceous frag- ments to 1cm.	+++++ +++++ +++++ +++++ +++++		
1045	29 MIN RCS 0000 7135	Ash flow tuff as 1040-1045. <u>possible fracture - losing circulation</u> Ash flow tuff, dusky yellow, (5Y 6/4) 3in. to above, 5% < 1cm tabe pumice, gritty, ~1% angular Qtz phenos to 0.5mm.	+++++ +++++ +++++ +++++ +++++		
1050	23 MIN RCS 0000 7136	Ash flow tuff as 1048-1050, dusky yellow (5Y 6/4), lithic (lasts (2-3%) of white porp. rhyolite to 2-3cm, 2% gravel	+++++ +++++ +++++ +++++ +++++		Sub contact Tuff becomes more "lithic". increase in quartz content and darker in color.
1055	25 MIN RCS 0000 7137	Ash flow tuff, dusky yellow, ~1% 0.5-1mm subhedral quartz phenocrysts, trace pumice, trace of dark red-ben lithic frags to 1cm.	+++++ +++++ +++++ +++++ +++++		
1060	18 MIN RCS 0000 7138	Ash flow tuff, as 1055-1060, no obvious lithics, 1% gravel, 2% pale green pumice to 6-8mm, quartz content decreasing	+++++ +++++ +++++ +++++ +++++		quartz content decreasing.
1065	23 MIN RCS 0000 7139	Ash flow tuff, as 1055-1060.	+++++ +++++ +++++ +++++ +++++		
1070	20 MIN RCS 0000 7140	Ash flow tuff, no lithics, trace pumiceous material, tr. Qtz. pheno's.	+++++ +++++ +++++ +++++ +++++		Drill rate slowing ~10'/hr.
1075	33 MIN RCS 0000 7141	Ash flow tuff, as above, ~1% pumiceous material, no obvious lithics, tr. gravel, tr. MnOxides.	+++++ +++++ +++++ +++++ +++++		
1080	27 MIN		+++++		

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

NC-EWDP-AD1

Borehole ID _____ Drill Depth From 180 To 1145 Page 10 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1080	RCS 0000 7142	1080-1085 ASHFLOW TUFF AS ABOVE, GRAYISH YELLOW (5Y8/4), MODERATELY HARD, DEVITRIFIED, NONWELDED, PUMICE POOR, CONTAINS 10% LITHIC FRAGMENTS (LESS THAN 1mm diam), PALE GREENISH YELLOW (10Y8/2), ANGULAR, UNIT HAS TRACE MINOX	+++++		
1085	27 MIN RCS 0000 7143	1085-1090 ASHFLOW TUFF AS ABOVE, CONTAINS A TRACE OF DARK REDDISH BROWN (10R 3/4) LITHICS,	+++++		
1090	MIN RCS 0000 7144	1090-1095 ASHFLOW TUFF AS ABOVE	+++++		
1095	MIN RCS 0000 7145	1095-1100 ASHFLOW TUFF AS ABOVE	+++++		
1100	MIN RCS 0000 7146	1100-1105 ASHFLOW TUFF AS ABOVE	+++++		
1105	MIN RCS 0000 7147	1105-1110 ASHFLOW TUFF AS ABOVE	+++++		POOR RETURN LOST CIRCULATION PARTIAL SAMPLE
1110	MIN RCS 0000 7148	1110-1115 ASHFLOW TUFF AS ABOVE	+++++		POOR RETURN AS ABOVE
1115	MIN RCS 0000 7149	1115-1120 ASHFLOW TUFF AS ABOVE	+++++		
1120	MIN RCS 0000 7150	1120-1125 ASHFLOW TUFF AS ABOVE	+++++		
1125		1125-1130 ASHFLOW TUFF AS ABOVE	+++++		
1130		1130-1135 ASHFLOW TUFF AS ABOVE	+++++		POOR RETURN AS ABOVE
1135	RCS 0000 7153	1135-1140 ASHFLOW TUFF AS ABOVE	+++++		
1140	MIN RCS 0000 7154	1140-1145 ASHFLOW TUFF AS ABOVE	+++++		
1145	MIN		+++++		

Prepared By BOB WILLCOXON Date 4.15.00 Checked By JAMIE WALKER Date 4.17.00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

NC-EADP-19D1
Borehole ID

Drill Depth From 1145 To 1210 Page 11 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1145	PCS 0000 7155	1145-1150 ASHFLOW TUFF AS ABOVE	+++++		
1150	30 MIN PCS 0000 7156	Ash Flow Tuff: nonwelded dusky yellow (5Y6/4) In small lithics, small Qtz phenos, small purple fangs In gravel dark redish brown (10R3/4)	+++++		
1155	15 MIN PCS 0000 7157	As above	+++++		
1160	15 MIN PCS 0000 7158	As Above	+++++		small sample
1165	15 MIN PCS 0000 7159	As Above no gravel	+++++		
1170	21 MIN PCS 0000 7160	As Above	+++++		
1175	21 MIN PCS 0000 7161	Ash Flow Tuff: nonwelded dusky yellow (5Y6/4) Increased lithics ~1-2%, few Qtz phenos small purple fangs. Finer In gravel dark redish brown (10R3/4)	+++++		added DP.
1180	~ MIN PCS 0000 7162	Ash Flow Tuff As above w/ Cuttings of Banded Brownish gray (5YR 4/1) very pale orange (10YR 8/2) w/ dendritic MnOx No Gravel	+++++		small sample sample box reconfigured for larger sample
1185	20 MIN PCS 0000 7163	Ash Flow Tuff nonwelded dusky yellow (5Y6/4) In 1-2% lithics few Qtz phenos, small purple fangs some clayey tuff No gravel	+++++		small sample
1190	21 MIN PCS 0000 7164	As above no clay	+++++		"
1195	21 MIN PCS 0000 7165	As above	+++++		"
1200	21 MIN PCS 0000 7166	As above w/ MnOx on fracture small any Qtz xtl	+++++		"
1205	19 MIN PCS 0000 7167	As above no Qtz xtl's	+++++		added DP small sample
1210	~ MIN		+++++		

Prepared By W. Slack Date 04/16/00 Checked By J. Mendenhall Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

NO-ENTRY 19/01
 Borehole ID _____ Drill Depth From 1210 To 1275 Page 12 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1210	BCS 0000 7168	Ash Flow Tuff: non welded dusky yellow (5Y 6/4) Ta-10% liths, few qtz phenos, small porous lumps dendritic MnO ₂ on fractures	+++++		small sample
1215	13 MIN BCS 0000 7169	As above fewer liths	+++++		"
1220	17 MIN BCS 0000 7170	As Above	+++++		"
1225	19 MIN BCS 0000 7171	As Above	+++++		"
1230	17 MIN BCS 0000 7172	As Above	+++++		Good Sample
1235	19 MIN BCS 0000 7173	Ash Flow Tuff 60% Mixed Volcanic Gravels 40%	+++++		Add D.P. Add LCM
1240	17 MIN BCS 0000 7174	Ash Flow Tuff 80% Mixed Volcanic Gravels 20%	+++++		
1245	10 MIN BCS 0000 7175	Ash Flow Tuff 60% non welded pale greenish yellow (10Y 8/2) few liths Ash Flow Tuff 40% non welded dusky yellow (5Y 6/4)	+++++		
1250	11 MIN BCS 0000 7176	2% mixed volcanic gravel Ash Flow Tuff non welded dusky yellow (5Y 6/4) few liths, few qtz phenos, FeO _x staining grainy texture	+++++		
1255	14 MIN BCS 0000 7177	2% mixed volcanic gravels Ash Flow Tuff 60% as above 40% non welded clayey gangster orange pink (5YR 7/2) Few liths, FeO _x staining	+++++		
1260	7 MIN BCS 0000 7178	1% mixed volcanic gravels Brecciated Tuff pink reddish brown (10R 8/4) sandy-clayey texture. Thinly bedded siltstone Siltstones	+++++		Lithologic Contact?
1265	14 MIN BCS 0000 7179	As Above	+++++		Add D.P.
1270	14 MIN BCS 0000 7180	As Above	+++++		
1275	12 MIN	w/ increased clay & rounded gravels	+++++		

Prepared By W. Stark Date 04/16/00 Checked By ARTHUR J. MENDEHALL Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

AC-EUDD-19D1
 Borehole ID _____ Drill Depth From 1275 To 1340 Page 13 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1275	PCS 0000 7181	Coarse Gravel: Dusky yellow (5Y 6/4) clay cobbles & pebbles Dusky red (5R 3/4) silt cobbles & pebbles mixed volcanic coarse gravel & sand "calcareous clays"			mod HCl reaction
1280	8 MIN PCS 0000 7182	Coarse Gravel As Above			mod HCl reaction
1285	11 MIN PCS 0000 7183	Coarse Gravel As Above			mod HCl reaction
1290	12 MIN PCS 0000 7184	Coarse Gravel As Above			mod HCl reaction
1295	10 MIN PCS 0000 7185	Coarse Gravel: Dusky yellow (5Y 6/4) clay cobbles & pebbles Moderate greenish yellow (10Y 7/4) silt cobbles Brownish-black (5YR 2/1) clays "calcareous clays"			weak HCl Reaction Add P.P.
1300	~ MIN PCS 0000 7186	Coarse Gravel: Grayish orange (10YR 7/4) clayey, sandy			mod HCl reaction
1305	10 MIN PCS 0000 7187	Coarse Gravel As Above			mod HCl reaction
1310	6 MIN PCS 0000 7188	Coarse Gravel As Above slightly less clay			weak HCl Reaction Drill stopped for repairs
1315	~ MIN PCS 0000 7189	Coarse Gravel: very pale orange (10YR 8/2) sandy texture 30% dusky yellow (5Y 6/4) clay pebbles			weak HCl Reaction
1320	7 MIN PCS 0000 7190	Coarse Gravel As Above			weak HCl Reaction
1325	12 MIN PCS 0000 7191	No Sample			Drill Stopped Waiting for water
1330	~ MIN PCS 0000 7192	Coarse Gravel: very pale orange (10YR 8/2) sandy texture			MOD-STRONG HCL REACTION
1335	17 MIN PCS 0000 7193	Coarse Gravel As Above w/ thin bedded sandstone/siltstone			MOD-STRONG HCL REACTION
1340	14 MIN				

Prepared By W. Stock Date 04/16/00 Checked By ARTHUR J. MENDENHALL Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWD7-1971

Drill Depth From

1340

To

1405

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DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1340	ACS 0000 7194	Coarse Gravel: Dusky yellow (5Y 6/14) clayey cobbles & pebbles Coarse Gravel: Dusky red (5R 7/4) tuff cobbles & pebbles Pale greenish yellow (10Y 8/2) cobbles & pebbles Mixed volcanics			mod HCL reaction
1345	14 min				
1350	ACS 0000 7195	As Above ~50% finely laminated calcareous siltstone			strong HCL reaction
1355	16 min				
1360	ACS 0000 7196	Sandy clay, pale yellowish brown (5Y 7/6) ~70% of sample mixed with ~30% angular to rounded gravel clast to 3/4", trace amounts of laminated siltstone			mod. HCL
1365	14 min				
1370	ACS 0000 7197	Cemented sands, clayey sands with minor gravels. Cemented sands are medium grained, non-calcrete cemented, weakly friable. Clayey sands (~40%) are mod. plastic. Overall color is greyish orange (10Y 7/4)			wk. reaction to HCL
1375	16 min				
1380	ACS 0000 7198	1360-1365 Sandy clays, mod. plastic, yellowish gray (5Y 7/2) ~60%, mixed with (interbedded) dry laminated claystone ~40%, pale olive (10Y 6/2).			no HCL reaction
1385	16 min				
1390	ACS 0000 7199	1365-1370 Sandy clay, low plasticity, grayish orange pink (10Y 8/2) to very pale orange (10Y 8/2), homogeneous.			no HCL reaction
1395	17 min				
1400	ACS 0000 7200	40% sandy clay as above 60% laminated grayish orange (10Y 7/4) siltstone and pale olive (10Y 6/2) claystone			no HCL reaction
1405	17 min				
1410	ACS 0000 7201	Sandy clays, as 1365-1372; ~10% large 2" tuff contamination from overlying beds.			10% tuff contamination no HCL reaction
1415	13 min				
1420	ACS 0000 7202	1380-1385 Interbedded sandy clays, as 1365-1372 (~70%) with laminated siltstone/claystone as 1372-1375 (~30%)			no HCL reaction drilling rates changing with clay vs claystone see geolographs
1425	15 min				
1430	ACS 0000 7203	1385-1390 Sandy clays, as 1365-1372 with ~10% mixed coarse sand and fine gravel; ~2% tuff contamination			no HCL reaction 2% tuff contamination
1435	18 min				
1440	ACS 0000 7204	1390-1395 ~40% sandy clays as above (? 1390-1392) Coarse sand/fine gravel, angular, lt. brown (5Y 6/4), ~1/2% tuff contamination.			no HCL reaction
1445	14 min				
1450	ACS 0000 7205	1395-1400 ~20% coarse sand/fine gravel (? 1395-1396) ~80% sandy clay, as above			stopped drilling for 15 min to repair drill rig no HCL reaction
1455	21 min				
1460	ACS 0000 7206	1400-1405 Sandy clay, as above as 1365-1370; ~5-10% coarse sand.			very small sample 1 lb; no 4 MP sample
1465	13 min				

Prepared By W. Slack / J.S. Walker Date 4-16-00

Checked By ARTHUR J. MENENHALL Date 04-17-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG
CONTINUATION

Borehole ID NC-EWDP-1921 Drill Depth From 1405 To 1447.95 Page 15 of 15

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
1405	BCS 0000 7207	Sandy clay, predominant lithology from 1360'; med. plasticity, grayish orange pink (10R 8/2) to yellowish gray (5Y 7/2), ~30% fine to med. sand. 1405-1410 sample has ~5% coarse sand/fine gravel			Sand/gravel is likely contamination from above. no HCl reaction
1410	10 min BCS 0000 7208	1410-1415 ~20% sandy clay, as above (71410-1411) ~80% laminated claystone/siltstone dark yellowish brown (10YR 4/2) claystone to pale olive (10Y 6/2). Browner chips appear coarser. Unit is dry and chips are brittle			claystone has weak HCl reaction no HCl reaction
1415	11 min BCS 0000 7209	1415-1420 ~40% of sample is laminated claystone ~1417' ~60% of sample is sandy clays as 1405-1411			No HCl reaction very small sample; most of sample likely washed out of sample box during restart of circulation @ 1418'. very small sample (60g) no HCl reaction
1420	10 min BCS 0000 7210	1420-1425 Sandy clay, as 1405-1410			mod. HCl reaction
1425	8 min BCS 0000 7211	1425-1430 Sandy clay as above; some dark yellowish orange (10YR 6/6) oxidation ~20% of sample is lithified clay-claystone, pale yellowish brown (10YR 6/2).			wk HCl reaction
1430	14 min BCS 0000 7212	1430-1435 Sandy clay as above, ~20% lithified sand, ~20% cherty siltstone dark reddish brown (10R 3/4) to brownish gray (5YR 4/1).			drill rate slowing in harder lithologies.
1435	17 min BCS 0000 7213	1435-1440 Sandy clay as above, unit is becoming pale greenish yellow (10Y 8/2), sample contains 45% red cherty siltstone.			no HCl reaction
1440	15 min BCS 0000 7214	1440-1435 ~20% sandy clay as above ~80% Sandstone, poorly sorted, fine-med. grained, feldspathic, pale greenish yellow (10Y 8/2), sections oxidized ~20% dark yellow orange (10YR 6/6)			no HCl reaction
1445	15 min BCS 0000 7215 min	1445-1448 Sandy clay, distinct from clays above, yellowish gray (5Y 8/1); 30% fine sand, moderately plasticity			
		T.D. = 1447.95'			