

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

Borehole ID NC-EWDP-15D      Drill Depth From 0 To 607.0'      Page 1 of 6  
AUGER 3-11-00/0830 AUGER 03-11-00/0948  
Driller CHRIS THORNBURG / SHANNON EDWARDS Start Date/Time CABOT 04-01-00/0148      End Date/Time CABOT 04-03-00/2008  
Drilling Equip./Method CABOT / FLOODED REVERSE CIRCULATION      Sampling Equip. Method SAMPLE BOX

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
0					DRILLED WITH C-235 AUGER RIG (Not sampled)
40					DRILLED WITH CABOT RIG, NOT SAMPLED. FOR LITHOLOGY, SEE NC-EWDP-15P. (40-290')
290					
	BCS 0000 6651 26MIN	TUFFACEOUS SANDSTONE, PALE YELLOWISH BROWN (10YR 6/2), POORLY SORTED SANDSTONE IN A TUFF MATRIX, POSSIBLE PUMICE CLAST (DEVITRIFIED), ABRADED BIOTITE, DENSELY WELDED TUFF COBBLES. (FROM 290 - start of sampling to 525')			STARTED SAMPLING. DRILLER NOTED A CHANGE AT 290 FT., DRILLING HARDNESS INCREASED AT 293 FT.
295	BCS 0000 6652 35MIN	TUFFACEOUS SANDSTONE, AS ABOVE (NO COBBLES).			
300	BCS 0000 6653 28MIN	TUFFACEOUS SANDSTONE, AS ABOVE, WITH ~1% MnO <sub>2</sub> (BLACK NI).			
305	BCS 0000 6654 37MIN	TUFFACEOUS SANDSTONE, AS ABOVE, AND DENSELY WELDED ASH FLOW TUFF COBBLES (PALE REDDISH BROWN 10R 5/4) OR GRAYISH RED SR 4/2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ABUNDANT UP-HOLE CONTAMINATION PROBABLY FROM ADDING DRILL PIPE #5
310	BCS 0000 6655 31MIN	TUFFACEOUS SANDSTONE AND DENSELY WELDED ASH FLOW COBBLES, AS ABOVE	0 0 0 0 0 0 0 0 0 0 0 0		
315	BCS 0000 6656 30MIN	70% TUFFACEOUS SANDSTONE, PALE RED 10R 6/2 OR PALE YELLOWISH BROWN (10YR 6/2), 30% DENSELY WELDED ASH FLOW TUFF COBBLES, PALE REDDISH BROWN 10R 5/4 OR GRAYISH RED SR 4/2	0 0 0 0 0 0 0 0 0 0 0 0		
320	BCS 0000 6657 29MIN	60% TUFFACEOUS SANDSTONE, AS ABOVE, AND 40% DENSELY WELDED ASH FLOW TUFF COBBLES, AS ABOVE.	0 0 0 0 0 0 0 0 0 0 0 0		
325	BCS 0000 6658 26MIN	80% TUFFACEOUS SANDSTONE, PALE YELLOWISH BROWN (10YR 6/2) OR MODERATE REDDISH ORANGE 10R 6/6 INTERBEDDED WITH DENSELY WELDED ASH FLOW TUFF COBBLES (20%), AS ABOVE.	0 0 0 0 0 0 0 0 0 0 0 0		
330	BCS 0000 6659 29MIN	80% TUFFACEOUS SANDSTONE, PALE RED (10R 6/2), POORLY SORTED, FINE GRAINED, BIOTITE ABRADED & THRASHED, 10% PUMICE YELLOWISH GRAY SR 8/1, DEVITRIFIED, 10% DENSELY WELDED ASH FLOW TUFF COBBLES, PALE REDDISH BROWN (10R 5/4) OR DARK GRAY (N3)	0 0 0 0 0 0 0 0 0 0 0 0		
335	BCS 0000 6660 22MIN	80% TUFFACEOUS SANDSTONE, AS ABOVE, 10% PUMICE, AS ABOVE, 10% DENSELY WELDED ASH FLOW COBBLES, AS ABOVE.	0 0 0 0 0 0 0 0 0 0 0 0		DOWN HOLE DEVIATION AT 337 FT 0.3°.
340					

Prepared By ARTHUR J. MENDELL Date 04-02-00      Checked By BENT ARQUIST Date 04-05-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-15D      Drill Depth From 340 To 405      Page 2 of 6

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
345	BCS 0000 6661 22MIN	TUFFACEOUS SANDSTONE, PALE RED (10R 6/2), POORLY SORTED, FINE GRAINED, BIOTITE ABRAIDED & TARNISHED.			
350	BCS 0000 6662 21MIN	TUFFACEOUS SANDSTONE, AS ABOVE, WITH 30% PUMICE, GRAYISH YELLOW (5Y 8/4), DEVITRIFIED, COARSE SAND SIZE.	+		
355	BCS 0000 6663 25MIN	TUFFACEOUS SANDSTONE, AS ABOVE, WITH 5% PUMICE, AS ABOVE.	+		
360	BCS 0000 6664 27MIN	TUFFACEOUS SANDSTONE, AS ABOVE, WITH 1% PUMICE, AS ABOVE.	+		
365	BCS 0000 6665 25MIN	TUFFACEOUS SANDSTONE, AS ABOVE, VERY FINE GRAINED			
370	BCS 0000 6666 22MIN	Tuffaceous Sandstone; as above, pale yellowish-brown (10YR 6/2)			
375	BCS 0000 6667 23MIN	Tuffaceous Sandstone; fine-medium grain, 2-3% pumice frags <1% biotite, pale yellowish-brown (10YR 6/2)			
380	BCS 0000 6668 21MIN	Tuffaceous Sandstone; medium-coarse grain, 5-8% pumice frags 1-2% biotite, pale yellowish-brown (10YR 6/2) 3-5% rock cobbles			
385	BCS 0000 6669 30MIN	Tuffaceous Sandstone; as above, coarse grain 5-8% rock cobbles			
390	BCS 0000 6670 17MIN	Tuffaceous Sandstone. as above			
395	BCS 0000 6671 7MIN	Tuffaceous Sandstone, as above			
400	BCS 0000 6672 14MIN	Tuffaceous Sandstone; med-fine grain <1% pumice frags <1% biotite, pale yellowish-brown (10YR 6/2)			
405	BCS 0000 6673 35MIN	Tuffaceous Sandstone; as above			

Prepared By ARTHUR J. MENDENHALL Date 04-02-00      Checked By BENT ARQUIST Date 04-05-00  
 WALTER J. SLACK      04-03-06

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-15D      Drill Depth From 405 To 470      Page 3 of 6

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
405	RCS 0000 6674	Tuffaceous Sandstone, pale yellowish-brown (10YR 6/2) fine-red grain, 21% porosity 1-2% light green bleaching to very pale orange (10YR 8/2)			
410	BMIN RCS 0000 6675	Tuffaceous Sandstone as above			
415	BMIN RCS 0000 6676	Tuffaceous Sandstone as above			
420	BMIN RCS 0000 6677	Tuffaceous Sandstone, pale yellowish-brown (10YR 6/2) fine-red grain, 21% porosity 1-2% light green			
425	BMIN RCS 0000 6678	Tuffaceous Sandstone as above			
430	BMIN RCS 0000 6679	Tuffaceous Sandstone as above			
435	BMIN RCS 0000 6680	Tuffaceous Sandstone as above			
440	BMIN RCS 0000 6681	Tuffaceous Sandstone as above			
445	BMIN RCS 0000 6682	Tuffaceous Sandstone as above			
450	BMIN RCS 0000 6683	Tuffaceous Sandstone as above			
455	BMIN RCS 0000 6684	Tuffaceous Sandstone as above			
460	BMIN RCS 0000 6685	Tuffaceous Sandstone as above			
465	BMIN RCS 0000 6686	Tuffaceous Sandstone, gradual bleaching to very pale orange (10YR 8/2)			
470	BMIN RCS 0000 6687				

Prepared By W. Slack      Date 04/03/00      Checked By ARTHUR J. MENDENHALL      Date 04-03-00

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CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-15D    Drill Depth From 470 To 535    Page 4 of 6

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
470	PCS 0000	Tuffaceous Sandstone, very pale orange (10YR 10/2) fine grain 41% pumice frags, 41% biotite, Tr pyrite w/ tanish.			
475	6687 24 MIN				
	PCS 0000	Tuffaceous Sandstone      as above			
480	6688 23 MIN				
	PCS 0000	Tuffaceous Sandstone      as above			
485	6689 13 MIN				
	PCS 0000	Tuffaceous Sandstone      as above			
490	6690 8 MIN				
	PCS 0000	Tuffaceous Sandstone      as above			
495	6691 16 MIN				
	PCS 0000	Tuffaceous Sandstone      as above			
500	6692 23 MIN				
	PCS 0000	Tuffaceous Sandstone, very pale orange (10YR 10/2) fine-rich grain, light brown fuff cobbles (STR 5/6) clay - possible regolith			
505	6693 18 MIN				
	PCS 0000	Tuffaceous Sandstone, pale yellowish brown (10YR 6/2), abundant clay, light brown fuff cobbles (STR 5/6) Sandstone bridges as above, few Qtz frags w/ dendrites and shollen surface			
510	6694 14 MIN				
	PCS 0000	Tuffaceous Sandstone      very pale orange (10YR 10/2) medium - coarse grain, rubble from Fault Bx			
515	6695 25 MIN				
	PCS 0000	Tuffaceous Sandstone      very pale orange (10YR 10/2) medium - grain 41% pumice 41% biotite silica flooding			
520	6696 30 MIN				
	PCS 0000	TUFFACEOUS SANDSTONE: AS ABOVE			
525	6697 35 MIN				
	PCS 0000	525-607.0 T.D. PUMICE - 50% CRYSTAL RICH, YELLOWISH GRAY (5Y 7/2), QUARTZ, FLOW OR ABANDON BIOTITE, & SANDINE, 50% CRYSTAL POOR, YELLOWISH REWORKED TUFF GRAY (5Y 8/1).			
530	6698 26 MIN				
	PCS 0000	PUMICE - REWORKED, 70% CRYSTAL RICH, AS ABOVE, 20% DENSELY FLOW WELDED ASH FLOW COBBLES, 10% CRYSTAL POOR PUMICE, AS ABOVE			
535	6699 26 MIN				

DOWN HOLE DEVIATION AT 487FT  
0.3°

lost circulation  
Clay-rich  
Zone - possible  
regolith/  
weathering surface  
Slowed  
Drilling Penetration Rate  
Slows from 20'/hr to  
8'/hr

528 FT. DRILLING CHANGE

NOTE: 510-530 VERY LIKELY  
REWORKED PUMICE.

Prepared By W. Slack    Date 04/03/00    Checked By BENT ARQUIST    Date 04-05-00  
 ARTHUR J. MENDENHALL    04-03-00

NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE

CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-FWDP-15D Drill Depth From 535 To 600 Page 5 of 6

DEPTH (Feet)	Top/Bottom of Cuttings Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
540	BCS 0000 6700 24MIN	PUMICE, REWORKED, 70% CRYSTAL RICH, YELLOWISH GRAY (5Y 7/2), FLOW QUARTZ, ABRADED BIOTITE, + SANDWINE, 10% CRYSTAL POOR, YELLOWISH GRAY (5Y 8/1), 10% DENSELY WELDED ASH FLOW COBBLES.	+ 0 + + + + + + 0 + + 0 + + + + + + 0 +		ABOUT 30% OF PUMICE IS ALTERED TO CLAY.
545	BCS 0000 6701 29MIN	PUMICE, REWORKED, AS ABOVE, 70% CRYSTAL RICH, 10% CRYSTAL POOR, 20% DENSELY WELDED ASH FLOW TUFF COBBLES,	0 + + + 0 + + + 0 + + + + 0 + + 0 + + + 0 + + +		LAST TWO FEET DRILLING HARDER. 20% OF PUMICE ALTERED TO CLAY.
550	BCS 0000 6702 30MIN	PUMICE, REWORKED, AS ABOVE, 65% CRYSTAL RICH, 5% CRYSTAL FLOW POOR, 30% DENSELY WELDED ASH FLOW COBBLES.	+ + 0 + 0 + + + 0 + + 0 0 + + + + 0 + +		30% OF PUMICE ALTERED TO CLAY. BEDDING VARIES FROM 1/8" TO 1/2" T.
555	BCS 0000 6703 44MIN	PUMICE, REWORKED, AS ABOVE, POSSIBLY MORE DENSELY WELDED FLOW ASH FLOW TUFF COBBLES.	+ 0 + + + + + 0 + 0 + 0 0 + + + + + 0 +		20% OF PUMICE ALTERED TO CLAY.
560	BCS 0000 6704 33MIN	PUMICE, REWORKED, AS ABOVE. FLOW	+ + + 0 + + + 0 0 + + + 0 + + + + 0 0 +		50% OF PUMICE ALTERED TO CLAY.
565	BCS 0000 6705 30MIN	PUMICE, REWORKED, AS ABOVE, 75% CRYSTAL RICH, 5% CRYSTAL POOR, FLOW 20% DENSELY WELDED ASH FLOW COBBLES.	+ + 0 + + + + 0 + + + + 0 + + + + 0 + +		50% OF PUMICE ALTERED TO CLAY.
570	BCS 0000 6706 26MIN	PUMICE, REWORKED, AS ABOVE, 85% CRYSTAL RICH, 5% FLOW CRYSTAL POOR, 10% DENSELY WELDED ASH FLOW COBBLES.	+ + + + + + + 0 + + + + + + + 0 + + + +		60% OF PUMICE ALTERED TO CLAY.
575	BCS 0000 6707 26MIN	PUMICE, REWORKED, AS ABOVE, FLOW	+ 0 + + + + + + + + + + 0 + + + + + + +		60% OF PUMICE ALTERED TO CLAY.
580	BCS 0000 6708 28MIN	PUMICE, REWORKED, AS ABOVE. FLOW	+ + 0 + + + + + + + + + + + + + 0 + + +		80% OF PUMICE ALTERED TO CLAY. DOWN-HOLE DEVIATION AT 577FT: 0.10"
585	BCS 0000 6709 13MIN	PUMICE, REWORKED, AS ABOVE. FLOW	+ + + + + + 0 + + + + + 0 + + + + + + +		80% OF PUMICE ALTERED TO CLAY. DENSELY WELDED ASH FLOW COBBLES COULD BE COARSER.
590	BCS 0000 6710 21MIN	PUMICE, REWORKED, AS ABOVE. FLOW	+ + + + + + 0 + + + + + 0 + + + + + + +		80% OF PUMICE ALTERED TO CLAY. DENSELY WELDED ASH FLOW COBBLES PROBABLY FINER THAN ABOVE.
595	BCS 0000 6711 25MIN	PUMICE, REWORKED, AS ABOVE. FLOW	+ + 0 + + + + + + + + + + + + + + + 0 +		80% OF PUMICE ALTERED TO CLAY.
600	BCS 0000 6712 20MIN	PUMICE, REWORKED, AS ABOVE, 90% CRYSTAL RICH, 5% FLOW CRYSTAL POOR, 5% DENSELY WELDED ASH FLOW COBBLES.	+ + + 0 + + + + + + + + + + + + + + + +		90% OF PUMICE ALTERED TO CLAY.

Prepared By ARTHUR J. MENDENHALL Date 04-03-00 Checked By BENT ARQUIST Date 04-05-00

**NYE COUNTY NUCLEAR WASTE REPOSITORY PROJECT OFFICE**

## CUTTINGS SAMPLE LOG

CONTINUATION

Borehole ID NC-EWDP-15D Drill Depth From 600 To 607 Page 6 of 6

DEPTH (Feet)	Top/Bottom of Cuttings Sample Interval	Description of Lithology - Petrology	GRAPHIC LOG	LITHOLOGIC UNIT	Notes
600	BCS 0000 0713 22MIN	PUMICE, REWORKED, 90% CRYSTAL RICH, YELLOWISH GRAY (SY 7/2) FLOW QUARTZ, ABRADED BIOTITE, + SANIDINE, 5% CRYSTAL POOR, YELLOWISH GRAY (SY 8/1), 5% DENSELY WELDED ASH FLOW LOBBLES.	+ + 0 + + + + + + 0 + + + + + +		90% OF PUMICE ALTERED TO CLAY.
605	BCS 0000 0714 3MIN	PUMICE, REWORKED, AS ABOVE.	+ + 0 + + + + + +		80% OF PUMICE ALTERED TO CLAY.
607		T.D. = 607.0 04-03-00 2008			

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