

Enclosure 25 to
LTR-RAC-20-94
Date: December 18, 2020

Enclosure 25

Response to Request for Additional Information

Boring Logs

LOG OF BORING NO. SB-1

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS			
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
3	CLAYEY FINE TO MEDIUM SAND grayish brown, loose (Coastal Plain)			1	HS					
					SS		9			
	SANDY CLAY , light brownish gray, very stiff to hard	5	CL	2	SS		22	21		2200
				3	SS		35			4500*
8	CLAYEY FINE TO COARSE SAND light gray, medium dense			4	SS		16			2500*
		10			HS					
12	FINE TO COARSE GRAVEL with pieces of large root, gray and black, very loose			5	SS		2			
		15			HS					
17	SILTY CLAY , trace fine sand, light gray, stiff			6	SS		11			2500*
		20			HS					
22	SANDY CLAY , with fine gravel, grayish brown, very stiff			7	SS		17			4500*
		25			HS					
27	FINE TO COARSE SAND with silt, white, medium dense			8	SS		10			
		30			HS					
32	FINE TO COARSE SAND with silt, and fine gravel, light gray, loose			9	SS		9			
		35			HS					
37	SILTY CLAY , with coarse gravel, light brownish gray, very stiff			10	SS		14			2000*
		40			HS					
42	SANDY SILT , with clay, dark grayish brown, hard			11	SS		55			4500*
		45			HS					

65% Fines

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-10-08
BORING COMPLETED	7-10-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08



LOG OF BORING NO. SB-1

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
57	SILTY CLAY , trace fine sand, gray to brownish gray, hard to very stiff	50		12	SS		28		4000*
					HS				
67	SILTY CLAY , trace fine sand, gray, hard to very stiff	55		13	SS		13		1500*
					HS				
72	SILTY CLAY , trace fine sand, gray, hard to very stiff	60		14	SS		56		4500*
					HS				
75	CLAYEY FINE TO MEDIUM SAND light gray, very dense	65		15	SS		50/4"		4500*
					HS				
75	CLAYEY FINE TO MEDIUM SAND light gray, very dense	70		16	SS		57		4500*
					HS				
75	SILTY FINE TO MEDIUM SAND light gray, dense	75		17	SS		47		
	BORING TERMINATED								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-10-08
BORING COMPLETED	7-10-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

LOG OF BORING NO. SB-2

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS			
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
3	SILTY FINE SAND , light gray, medium dense (Coastal Plain)			1	SS		29	10		
5	CLAYEY FINE TO MEDIUM SAND , light brownish gray to tannish gray, dense to medium dense			2	SS		39			4000*
8				3	SS		25			4500*
10	SILTY CLAY , trace fine sand, light brownish gray, very stiff		CL	4	SS		17	28		1850
15				5	SS		20			4500*
17	SANDY CLAY , light grayish brown, hard			6	SS		29			4500*
22				7	SS		14			1500*
27	SILTY FINE SAND , light brownish gray, medium dense			8	SS		9			
32	FINE SAND , with silt, light tannish brown, loose			9	SS		20			
37	FINE TO MEDIUM SAND , trace silt, light gray, medium dense			10	SS		63			4500*
42	SILTY FINE SAND , grayish brown, very dense			11	SS		69			4500*
45	SILTY CLAY , trace fine sand, gray to dark gray, hard to very stiff				HS					

LL=39
PI=15

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL			



BORING STARTED	7-10-08
BORING COMPLETED	7-10-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08

BMC

LOG OF BORING NO. SB-2

CLIENT WESTINGHOUSE ELECTRIC COMPANY									
SITE 5801 BLUFF ROAD COLUMBIA, SOUTH CAROLINA		PROJECT WESTINGHOUSE FACILITY EXPANSION							
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS	
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
57	SILTY CLAY , trace fine sand, gray to dark gray, hard to very stiff	50		12	SS		45		4500*
					HS				
67	SILTY CLAY , trace fine sand, gray to dark gray, hard	55		13	SS		13		2000*
					HS				
72	SILTY FINE SAND , gray, very dense	60		14	SS		50		4500*
					HS				
75	SILTY CLAY , with fine sand, gray, hard	65		15	SS		50/4.5"		4500*
					HS				
		70		16	SS		50/5.5"		4500*
					HS				
		75		17	SS		50/5"		4500*
	BORING TERMINATED								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED		7-10-08	
BORING COMPLETED		7-10-08	
RIG	CME-55	FOREMAN	HW
APPROVED	ASZ	JOB #	73075078A

LOG OF BORING NO. SB-3

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION
0.2	TOPSOIL SANDY CLAY , light brownish gray, very stiff to hard (Coastal Plain)
5.5	SILTY FINE TO MEDIUM SAND orangish brown and brownish gray, dense
8	CLAYEY FINE TO MEDIUM SAND light gray, medium dense
12	SILTY CLAY , trace fine sand, light brownish gray, very stiff ▽
22	SILTY FINE TO MEDIUM SAND no, pale grayish brown, medium dense
27	SILTY FINE TO MEDIUM SAND with clay, pale gray, medium dense
32	FINE TO MEDIUM SAND with silt, pale brownish gray, medium dense
37	SILTY CLAY , trace fine sand, light gray, hard

DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS			
		NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
		1	SS		14			
		2	SS		30			3000*
		3	SS		33			
		4	SS		26			
		5	SS		16			4500*
		6	SS		15			4000*
		7	SS		21			
		8	SS		20			
		9	SS		18			
		10	SS		49			4000*
		11	SS		45			4000*

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	

BORING STARTED	7-14-08
BORING COMPLETED	7-14-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A



BMC

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08

LOG OF BORING NO. SB-3

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
52	SILTY CLAY , trace fine sand, light gray, hard	50		12	SS		41		3500*
57	CLAYEY SILT , with fine sand, dark gray, hard	55		13	SS		38		
67	SILTY CLAY , trace fine sand, gray, hard	60		14	SS		37		4000*
67		65		15	SS		65		
75	CLAYEY SILT , trace fine sand, light gray, hard	70		16	SS		68		
75	BORING TERMINATED	75		17	SS		50/5"		

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-14-08
BORING COMPLETED	7-14-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

LOG OF BORING NO. SB-4

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DEPTH, ft.	SAMPLES				TESTS			
		USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
0.2				HS					
3			1	SS		17			
5			2	SS		20	25		
8			3	SS		18			
10		MH	4	SS		15	29		4000*
12				HS					
15			5	SS		19			4500*
20			6	SS		30			3000*
22				HS					
25			7	SS		30			1250*
27				HS					
30			8	SS		16			4500*
32				HS					
35			9	SS		14			1750*
37				HS					
40			10	SS		15			
42				HS					
45			11	SS		42			4500*
47				HS					

DESCRIPTION

TOPSOIL

CLAYEY SILT, with fine sand, pale grayish brown, very stiff (Coastal Plain)

CLAYEY SILT, with fine sand, light brownish gray to light grayish orange, very stiff

SANDY CLAY, light brownish gray, very stiff

SILTY CLAY, with fine sand, light brownish gray, very stiff to hard

SANDY CLAY, light brownish gray, hard

SILTY CLAY, trace fine sand, light grayish brown, very stiff

SANDY CLAY, light gray, very stiff

FINE TO COARSE SAND with silt, light gray, medium dense

SILTY CLAY, trace fine sand, gray, hard

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-11-08
BORING COMPLETED	7-11-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08



LOG OF BORING NO. SB-4

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
52	SANDY SILT , dark gray, hard	50		12	SS		50/5"		
52	SILTY CLAY , trace fine sand, gray to light gray, very stiff to hard	55			HS				
55		55		13	SS		16		1250*
55		55			HS				
60		60		14	SS		29		3000*
60		60			HS				
65		65		15	SS		50/5.5"		4500*
65		65			HS				
70		70		16	SS		50/5"		4500*
70		70			HS				
75		75		17	SS		50/5.5"		4500*
75	BORING TERMINATED	75							

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-11-08
BORING COMPLETED	7-11-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

LOG OF BORING NO. SB-5

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DEPTH, ft.	USCS SYMBOL	SAMPLES				TESTS		
			NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf
0.3				HS					
TOPSOIL SANDY CLAY , light grayish brown, very stiff to hard (Coastal Plain)			1	SS		26	21		4500*
5.5			2	SS		25			3000*
SANDY CLAY , blackish brown, very stiff			3	SS		20			3000*
8			4	SS		19			2500*
SILTY CLAY , with fine sand, light brownish gray, very stiff			5	SS		30			4500*
12				HS					
SILTY CLAY , with fine sand, light grayish brown, hard			6	SS		73			
17				HS					
SANDY CLAY , blackish brown and grayish brown, hard			7	SS		15			
22				HS					
FINE TO COARSE SAND with silt, light tannish gray, medium dense			8	SS		21			3500*
27				HS					
SANDY CLAY , tannish brown, very stiff			9	SS		19			
37				HS					
FINE TO MEDIUM SAND with silt, tannish gray, medium dense			10	SS		26			
42				HS					
SILTY FINE SAND , dark brownish gray, very dense			11	SS		80			2000*
47				HS					

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL			



BORING STARTED	7-11-08
BORING COMPLETED	7-11-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08



LOG OF BORING NO. SB-5

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
	<p>SILTY CLAY, trace fine sand, light gray to gray, very stiff to hard</p>	50		12	SS		26		4500*
				HS					
		55		13	SS		25		
				HS					
		60		14	SS		37		
				HS					
		65		15	SS		73		
		HS							
70		16	SS		50/5"				
		HS							
75		17	SS		50/5.5"				
		HS							
	BORING TERMINATED	75							

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED	7-11-08
BORING COMPLETED	7-11-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

LOG OF BORING NO. SB-6

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	SAMPLES				TESTS		
			USCS SYMBOL	NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
0.3	TOPSOIL								
3	SANDY CLAY , light brownish gray, medium stiff (Coastal Plain)			1	SS		8		
3	SILTY CLAY , with fine sand, gray, hard			2	SS		33		4500*
8				3	SS		36		
8	SILTY FINE TO MEDIUM SAND brown, medium dense			4	SS		23		
12	SILTY CLAY , trace fine sand, light orangish brown and light grayish brown, very stiff			5	SS		16		3500*
22	SILTY CLAY , trace fine sand, light gray, very stiff			6	SS		14		3000*
27	SANDY CLAY , light gray, medium stiff			7	SS		13		2500*
32	FINE TO COARSE SAND and gravel, light tannish gray, medium dense			8	SS		10		
37	CLAYEY SILT , with fine sand, light gray, hard			9	SS		19		
42	SILTY CLAY , trace fine sand, light gray to dark gray, very stiff to hard			10	SS		58		
				11	SS		74		

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL			



BORING STARTED	7-14-08
BORING COMPLETED	7-14-08
RIG	CME-55
FOREMAN	HW
APPROVED	ASZ
JOB #	73075078A

TEST PIT LIBRARY 73075078A.GPJ GAGE TERRACON.GDT 8/29/08

BMC

LOG OF BORING NO. SB-6

CLIENT
WESTINGHOUSE ELECTRIC COMPANY

SITE
**5801 BLUFF ROAD
COLUMBIA, SOUTH CAROLINA**

PROJECT
WESTINGHOUSE FACILITY EXPANSION

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES			TESTS		
				NUMBER	TYPE	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf
	<p>SILTY CLAY, trace fine sand, light gray to dark gray, very stiff to hard</p>	50		12	SS		35		4500*
				HS					
		55		13	SS		37		4000*
				HS					
		60		14	SS		52		
				HS					
		65		15	SS		66		
				HS					
		70		16	SS		50/5.5"		
				HS					
75		17	SS		50/4.5"				

BORING TERMINATED

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*Calibrated Pocket Penetrometer

WATER LEVEL OBSERVATIONS, ft

WL	▽ 13	WL	▽
WL	▽	WL	▽
WL		WL	



BORING STARTED		7-14-08	
BORING COMPLETED		7-14-08	
RIG	CME-55	FOREMAN	HW
APPROVED	ASZ	JOB #	73075078A



Test Boring Report

BORING NO. GP-1
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					<p>SAND (SW), gray, fine to coarse grained, trace mica, trace silt, well graded, saturated.</p> <p>SAND (SW), gray, fine to coarse grained, trace gravel, well graded, saturated.</p> <p>SAND (SW), as above with cobbles at 30'</p> <p>CLAY (CL) gray to brown to tan, stiff, plastic, damp.</p> <p>Boring terminated at 34'.</p>
21.0					
22.0					
23.0					
24.0					
25.0					
26.0					
27.0					
28.0					
29.0					
30.0					
31.0					
32.0					
33.0					
34.0					
35.0					
36.0					
37.0					
38.0					
39.0					
40.0					
41.0					
42.0					
43.0					
44.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-2
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/3/11
 DATE FINISH: 5/3/11
 DRILLER: J. Chiopazzi
 OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	TOTAL DEPTH	SAMPLING	CASING INSTALL	CASING DIA.	CASING DEPTH	TEMP / PERM	CASING TYPE	GROUT TYPE	HAMMER WT	HAMMER FALL
			<u>Direct Push</u>	<u>3.5"</u>	<u>31 ft</u>	<u>Unit Tube Coring</u>								

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					GRAVEL
					SAND (SP), brown, fine grained, trace clay, poorly graded, damp
5.0					SAND (SW), brown, fine to medium grained, trace clay, well graded, damp
10.0					SAND (SW), tan, fine to coarse grained, well graded, trace mica, trace clay, damp.
15.0					SAND (SW), as above with trace gravel, saturated.
					SAND (SW), tan, medium grained to gravel, well graded, trace mica, saturated.
20.0					SAND AND GRAVEL (SW), gray, medium grained to gravel, well graded, saturated

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					SAND (SW), tan, fine to medium grained, trace silt trace mica, well graded, saturated.
					SAND (SW) tan, medium to coarse grained, well graded, saturated
					SAND (SW), gray, fine to medium grained, trace clay, well graded, saturated.
25.0					SAND AND GRAVEL (25.5-26.5), gray, medium grained to gravel, well graded, saturated.
					SAND (SW), gray, fine to medium grained, well graded, saturated.
					SAND (SW), gray, medium to coarse grained, well graded, trace cobbles, saturated.
30.0					CLAY, CL (CL), brown, very stiff, dry to damp, slightly plastic
					Boring terminated at 31 ft
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GA-3
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/3/11
 DATE FINISH: 5/3/11
 DRILLER: J. Chiarazzi
 OVERSIGHT: C. Suddeth

GROUNDWATER | **DRILLING INFORMATION**

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	CASING INSTALL	TEMP / PERM
			<u>Wash</u>	<u>3.5"</u>		
				<u>32'</u>		
			<u>Wash Tube</u>			
					HAMMER WT	HAMMER FALL

FIELD CLASSIFICATION AND REMARKS
 SOIL CLASSIFICATION: USCS

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					<u>GRAVEL</u>
					<u>SAND (SW), tan, fine to medium grained, few clay, well graded, damp to moist.</u>
					<u>SILTY SAND (SP-SM), brown, fine grained, poorly graded, damp</u>
5.0					<u>SAND (SA), tan, fine grained, poorly graded, damp</u>
					<u>SAND (SW), tan, fine to coarse grained, trace gravel, well graded, damp</u>
					<u>SAND (SW), as above with few clay.</u>
10.0					<u>SAND (SW), gray, fine to coarse grained, well graded, trace clay, saturated.</u>
					<u>SAND (SW), gray, medium to coarse grained, few gravel, well graded, saturated.</u>
15.0					<u>SAND (SW), as above</u>
					<u>SAND (SW), gray, fine to medium grained, trace silt, trace mica, well graded, saturated.</u>
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-3
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					<p>SAND (sw), gray, fine to medium grained, trace silt, trace mica, well graded, saturated.</p> <p>SAND (sw), gray, fine to medium grained, little silt, few mica, well graded, saturated.</p> <p>SAND (sw), gray, fine to coarse grained, trace silt, well graded, saturated.</p> <p>SAND (sw), gray, fine to medium grained, trace mica, well graded, saturated.</p> <p>SAND (sw), gray, fine to coarse grained, trace gravel, well graded, saturated.</p> <p>No recovery 30-32. sudden refusal at 32'.</p> <p>Boring terminated at 32 ft</p>
20.5					
21.0					
21.5					
22.0					
22.5					
23.0					
23.5					
24.0					
24.5					
25.0					
25.5					
30.0					
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-4
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158 241
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/4/11
 DATE FINISH: 5/4/11
 DRILLER: J. Chiarelli
 OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	TOTAL DEPTH	SAMPLING	CASING INSTALL	CASING DIA.	CASING DEPTH	TEMP / PERM	CASING TYPE	GROUT TYPE	HAMMER WT	HAMMER FALL
			<u>Direct Push</u>	<u>3.5"</u>	<u>31 FT</u>	<u>Dual tube coring</u>								

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					GRAVEL
					SAND (SW), tan, fine to medium grained, trace silt, trace clay, well graded, damp
					SILTY SAND (SPSM), brown, fine grained, poorly graded, damp
5.0					
					SAND (SW), tan to gray, medium to coarse grained, trace clay, well graded, damp
10.0					
					SAND (SP), tan, medium grained, poorly graded, dry to damp
					SAND (SW), gray, medium to coarse grained, trace clay, well graded, saturated
15.0					
					SAND (SW), tan to gray, medium to coarse grained, well graded, saturated.
20.0					
					SAND (SW), as above with few gravel

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-5
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158241
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/4/11
DATE FINISH: 5/4/11
DRILLER: J. Chiocozzi
OVERSIGHT: A. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA	TOTAL DEPTH	SAMPLING	CASING INSTALL	CASING DIA	CASING TYPE	TEMP / PERM	CASING DEPTH	GROUT TYPE	HAMMER WT	HAMMER FALL
			<u>Direct Push</u>	<u>3.5"</u>	<u>31.5'</u>	<u>Dual Tube Coring</u>								

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
					GRAVEL	
					SAND (sw), reddish brown, fine to medium grained, few clay, well graded, damp (fill)	
5.0					SAND (sw), tan, medium to coarse grained, well graded, damp	
					SAND (sw), tan to brown, fine to medium grained, trace clay, well graded, moist.	
					SAND (sw), tan to gray, medium to coarse grained, trace clay, well graded, damp.	
10.0					CLAYEY SAND (SC), tan to gray, medium to coarse grained, well graded, saturated	
					SILTY CLAY (CH), gray, soft, plastic, wet	
					CLAYEY SAND (SC), gray, fine to coarse grained, well graded, saturated	
15.0					SAND (sw), tan, medium to coarse grained, few clay, well graded, saturated.	
					SAND AND GRAVEL (sw), medium grained to gravel, well graded, saturated.	
20.0					SAND (sw), gray, medium to coarse grained, well graded, saturated.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					SAND (SW), as above
					SAND (SW), gray, medium to coarse grained, trace mica, well graded, saturated
25.0					SAND (SW), gray, medium to coarse grained, well graded, saturated
					SAND (SW), as above with trace gravel
30.0					SAND AND GRAVEL (SW), tan, medium grained to gravel, few clay, trace cobbles, well graded, saturated
					CLAY (CL), gray, stiff, friable, dry #
					Boring terminated at 31.5 ft (Refusal)
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-6
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/4/11
 DATE FINISH: 5/4/11
 DRILLER: J. Chiorazzi
 OVERSIGHT: A. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	<u>Direct Push</u>	CASING INSTALL	TEMP / PERM
			HOLE DIA	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>34.5'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Dual Tube Casing</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					GRAVEL
					SAND (sw), red, fine to medium grained, trace clay, well graded, damp
					SAND (sw), brown, medium to coarse grained, trace clay, well graded, damp
5.0					SILTY SAND (SPM), gray, fine grained, poorly graded, damp
					SANDY CLAY (CL), gray, medium stiff, plastic, moist
					SAND (sw), tan to gray, medium to coarse grained, trace clay, well graded, damp
10.0					SAND (sw), as above
					SAND (sw), gray, fine to coarse grained, well graded, saturated
15.0					SAND (sw), gray, medium grained, poorly graded, saturated
20.0					

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-7
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/4/11
 DATE FINISH: 5/4/11
 DRILLER: J. Chiarazzi
 OVERSIGHT: C. Suddeth

GROUNDWATER DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	TOTAL DEPTH	SAMPLING	CASING INSTALL	CASING DIA.	CASING TYPE	TEMP / PERM	GROUT TYPE	HAMMER WT	HAMMER FALL
			<u>Direct Push</u>	<u>3.5"</u>	<u>33.5'</u>	<u>Dual Tube Logging</u>							

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					GRAVEL
					SAND (sw), red, fine grained, few silt, trace clay, well graded, damp
					SILTY SAND (sp-sm), gray, fine grained, well graded, damp
5.0					SAND (sw), tan to gray, medium to coarse grained, trace clay, well graded, damp
10.0					SAND (sw), tan to gray, medium to coarse grained, trace clay, well graded, saturated at \approx 11 ft.
15.0					SAND (sw), as above with less clay.
					SAND (sw), gray, medium to coarse grained, well graded
20.0					SAND (sw), as above with few gravel

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-7
 PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					SAND (SW), gray, medium to coarse grained, well graded, saturated.
					SAND (SW) is above with few gravel
25.0					SAND (SP), gray, fine grained, trace clay, poorly graded, saturated. No recovery 25'-28'
					SAND (SW), gray, medium to coarse grained, trace gravel, well graded, saturated.
30.0					SAND AND GRAVEL (SW), gray, medium grained to gravel, well graded, saturated Refusal at 33.5 ft
					Boring terminated at 33.5 ft.
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-8
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/4/11
DATE FINISH: 5/4/11
DRILLER: J. Chiorazzi
OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	<u>DP</u>	CASING INSTALL	TEMP / PERM
			HOLE DIA.	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>30'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Dual Tube Casing</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					GRAVEL
					SAND (SP), brown fine grained, trace silt, poorly graded, damp.
					SANDY SILT (ML), dark gray, stiff, fine sand, damp
5.0					SAND (SW), tan, fine to coarse grained, trace clay, well graded, damp
10.0					SAND (SW), gray, fine to coarse grained, few clay, well graded, saturated.
15.0					SAND AND GRAVEL (SW), gray, fine grained to gravel, well graded, saturated
					SAND AND GRAVEL (SW), as above
20.0					SAND (SP), gray, medium grained, poorly graded, saturated

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-8
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					<p>SAND(SP), as above</p> <p>SAND AND GRAVEL(SW), gray, fine grained to gravel, well graded, saturated</p> <p>SAND(SW), gray, fine to medium grained, trace clay, trace silt, well graded, saturated.</p> <hr/> <p>CLAYEY SAND(SW-S), gray, fine to medium grained, well graded, wet.</p> <hr/> <p>SAND(SW), gray, fine to medium grained, well graded, trace clay, saturated</p> <hr/> <p>Boring terminated at 30' (refusal)</p>
21.0					
22.0					
23.0					
24.0					
25.0					
26.0					
27.0					
28.0					
29.0					
30.0					
31.0					
32.0					
33.0					
34.0					
35.0					
36.0					
37.0					
38.0					
39.0					
40.0					
41.0					
42.0					
43.0					
44.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-9
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/5/11
DATE FINISH: 5/5/11
DRILLER: J. Chiopazzi
OVERSIGHT: C. Suddeth

GROUNDWATER			DRILLING INFORMATION											
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	TOTAL DEPTH	SAMPLING	CASING INSTALL	CASING DIA.	CASING DEPTH	TEMP / PERM	CASING TYPE	GROUT TYPE	HAMMER WT	HAMMER FALL
			DP	3.5"	35'	Dual Tube Coring								

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					CONCRETE
					GRAVEL
					SILT (ML), gray, medium stiff, few clay, damp
					SAND (SP), brown, fine grained, trace clay, poorly graded, damp
5.0					SAND (SW), gray, fine to coarse grained, trace clay, well graded, damp
					SAND (SW), brown, fine to medium grained, trace silt, well graded, damp
10.0					SAND (SW), gray, fine to coarse grained, trace clay, well graded, moist
					saturated at $\approx 12.5'$
					SAND (SW), as above with less clay.
15.0					SAND (SW), gray, fine to coarse grained, well graded, saturated
					SILTY SAND (SM), gray, fine to medium grained, well graded, saturated
20.0					SAND (SW), gray, medium to coarse grained, well graded, saturated

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-9
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					SAND AND GRAVEL (SW), gray gray, medium grained to gravel, well graded, saturated
					CLAYEY SAND AND GRAVEL (SC), gray, medium grained to gravel, well graded, moist
					SAND (SW), gray, fine to coarse grained, trace clay, well graded, saturated
25.0					SAND (SW), tan to gray, fine to medium grained, trace silt, well graded, saturated
30.0					SAND (SW), gray, medium to coarse grained, trace cobbles, well graded, saturated
					SAND (SW), as above with little cobbles
35.0					CLAY (CL), dark gray, medium stiff, slightly plastic, moist Boring terminated at 35'
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
20.0					SAND (SW), gray, medium to coarse grained, little gravel, well graded, saturated.	
					CLAY (CL), gray to green to tan, medium stiff to stiff, plastic, moist.	
25.0					CLAYEY SAND (SC), brown, fine to medium grained, well graded, saturated.	
					SAND (SW), tan to gray, fine to coarse grained, well graded, saturated.	
30.0					SAND AND GRAVEL (SW), gray, medium grained to gravel, well graded, saturated.	
					CLAY (CL), tan to gray, very stiff, slightly plastic, damp	
35.0					boring terminated at 35 ft	
40.0						
45.0						
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-12
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/5/11
 DATE FINISH: 5/5/11
 DRILLER: J. Chiorazzi
 OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	<u>DP</u>	CASING INSTALL	TEMP / PERM
			HOLE DIA.	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>31'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Open Tube Casing</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					SOIL & GRAVEL FILL
					SANDY SILT (ML), brown, medium stiff, fine sand, damp
5.0					SAND (sw), brown, fine to medium grained, trace clay, well graded, damp
					SAND (sw), brown to gray, fine to coarse grained, well graded, damp
					saturated ≈ 8.5 ft
10.0					SAND (sw), gray fine to medium grained, well graded, damp
					SILTY SAND (SM), gray fine grained, well graded, saturated
15.0					SAND (sw), gray, medium to coarse grained, few gravel, well graded, saturated
					SAND (sw), as above
20.0					

SOIL CLASSIFICATION: USCS

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-12
 PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					CLAY (CL), tan to gray, soft to medium stiff, plastic, wet
25.0					SILTY SAND (SM), gray, fine grained, poorly graded, saturated
					SAND (SW), gray, medium to coarse grained, well graded, saturated
30.0					SAND (SW), tan, as above with gravel, clay lens at 30 ft
					No recovery except 2 cobbles 30-31 clay on shoe clay (CL), stiff, gray to purple, slightly plastic (30.5-31) Boring terminated at 31 ft (refusal)
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY 50-100% WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME 30-45% NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE 15-25% UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW 5-10% NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE <5%
		31+	HARD			

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/6/11
DATE FINISH: 5/6/11
DRILLER: J. Chiorazzi
OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	<u>DP</u>	CASING INSTALL	TEMP / PERM
			HOLE DIA.	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>32.5'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Dust Tube Coring</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS SOIL CLASSIFICATION: USCS
					SAND AND GRAVEL (SW), Fill, brown, medium to coarse grained with crushed stone, damp
					SAND (SP), brown, fine grained, few silt, poorly graded, damp.
5.0					SAND (SW), gray, medium to coarse grained, trace clay, well graded, damp to moist.
10.0					SAND (SW), tan, fine to medium grained, trace clay, well graded, saturated
					SAND (SW), as above except fine to coarse grained
15.0					SAND (SW), gray, medium to coarse grained, well graded, saturated
					SAND (SW), tan, medium to coarse grained, well graded, sand & gravel zone 17'-17.5', saturated.
20.0					SAND (SW), gray, as above with dark staining decide to try to sample this

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-13
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					BLOWS/FT.	DENSITY
20.0						<p>CLAY (CH), gray, soft, plastic, trace silt, wet SILT (ML), tan, soft, trace fine sand, wet</p> <p>CLAY (CH), gray to green, soft, plastic, trace silt, wet</p>
25.0						<p>SAND (sw), gray, fine to coarse grained, well graded, saturated.</p> <p>SAND (sw), gray, as above with trace clay and trace gravel.</p>
30.0						No Recovery due to large cobble in sample tube
35.0						Boring terminated at 32.5' (refusal)
40.0						
45.0						
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-14
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/6/11
DATE FINISH: 5/6/11
DRILLER: J. Chiarelli
OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	<u>DP</u>	CASING INSTALL	TEMP / PERM
			HOLE DIA.	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>34'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Dual Tube Casing</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
					SOIL CLASSIFICATION: USCS
					SILTY SAND (SM), brown, fine grained, well graded, damp (FILL).
					SILTY SAND (SM), as above with bricks at 3.5'.
5.0					
					SAND (SW), tan, fine to coarse grained, well graded, trace clay, damp to moist.
					saturated at 9.5'
10.0					SAND (SW), tan, fine to medium grained, well graded, trace clay, saturated.
					SAND (SW), tan to gray, as above with no clay
15.0					SAND (SW), tan, fine to coarse grained, well graded, few gravel, saturated.
					SAND (SW), gray, as above.
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. 6P-15
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/6/11
 DATE FINISH: 5/6/11
 DRILLER: J. Chiarelli
 OVERSIGHT: C. Suddeth

GROUNDWATER			DRILLING INFORMATION			
DATE	HRS AFTER COMP	WATER	DRILL METHOD		CASING INSTALL	TEMP / PERM
			HOLE DIA.	<u>DP</u>		
			HOLE DIA.	<u>3.5"</u>	CASING DIA.	CASING TYPE
			TOTAL DEPTH	<u>33.5'</u>	CASING DEPTH	GROUT TYPE
			SAMPLING	<u>Dual Tube Spring</u>	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
5.0					SILTY SAND (SM), brown, fine grained, poorly graded, damp	
10.0					SAND (SW), tan to gray, fine to medium grained, trace clay, well graded, damp	
15.0					CLAYEY SAND (SC), gray, fine to medium grained, well graded, saturated	
					SAND (SW), gray, fine to coarse, trace clay, well graded, saturated	
					SAND (SW), gray, medium to coarse, trace gravel, well graded, saturated	
20.0					CLAY (CL), gray, stiff to very stiff, slightly plastic, damp	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY 50-100% WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME 30-45% NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE 15-25% UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW 5-10% NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE <5%
		31+	HARD			



Test Boring Report

BORING NO. GP-15
PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS		
20.0					CLAY, as above SAND (SP), tan, fine grained, poorly graded, saturated SAND (SW), tan & gray, fine to medium, trace mica, well graded, saturated.		
25.0					SAND AND GRAVEL (SW), tan, fine to coarse, well graded, trace cobbles, saturated.		
30.0					SILTY CLAY (CH), gray, soft, plastic, wet SILTY SAND (SM), gray, fine grained, moist SAND (SW) gray, fine to medium, well graded, saturated CLAY (CL), dark gray, very stiff, damp		
35.0					Boring terminated at 33.5 ft		
40.0							
45.0							
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS		NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE <5%	
		31+	HARD				



Test Boring Report

BORING NO. GP-18
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/7/11
DATE FINISH: 5/7/11
DRILLER: R. Freeman
OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	DP	CASING INSTALL	TEMP / PERM
			HOLE DIA.	3.5"	CASING DIA.	CASING TYPE
			TOTAL DEPTH	29.5'	CASING DEPTH	GROUT TYPE
			SAMPLING	Steel Tube Casing	HAMMER WT	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS SOIL CLASSIFICATION: USCS
					SAND (SW), brown, fine to medium grained, trace silt, well graded, damp, gravel (stone) at 0.5 ft
					SANDY SILT (ML), brown, soft to medium stiff, fine sand, damp to moist
5.0					SAND (SP), tan, fine grained few silt, poorly graded, moist
10.0					SAND (SW), tan to gray, fine to medium grained, trace silt, trace clay, well graded moist
15.0					SAND (SW) gray, fine to coarse grained, well graded, saturated.
20.0					SAND (SW) gray, medium to coarse grained, few gravel, well graded, saturated.

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
20.0					SAND (SW), as above	
25.0					SAND AND GRAVEL (SW), tan, medium to coarse gravel, well graded, saturated.	
					SAND (SW), tan to gray, fine to coarse, few gravel, trace clay, well graded, saturated.	
					SAND (SW), as above with increased gravel & few cobbles	
30.0					CLAY (CL), tan to purple, very stiff, non-plastic, dry	
					Boring terminated at 29.15 ft.	
35.0						
40.0						
45.0						
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. GP-19
PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: VERCO
EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
LOCATION: _____
ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE START: 5/7/11
DATE FINISH: 5/7/11
DRILLER: R. Freeman
OVERSIGHT: C. Suddeth

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS AFTER COMP	WATER	DRILL METHOD	HOLE DIA.	CASING DIA.	TEMP / PERM		
			DA	3.5"				
				TOTAL DEPTH	CASING DEPTH	GROUT TYPE		
				35.5'				
			SAMPLING		HAMMER WT	HAMMER FALL		
			Dual Tube Coring					

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION: USCS	
					SILTY SAND (SM), brown, fine, poorly graded	
5.0					SAND (SW), tan, fine to med, trace clay, well graded, damp	
					SAND & SILT (ML), reddish brown, stiff, fine sand, trace clay, moist to damp	
10.0					SILTY SAND (SM), reddish brown, fine grained, trace clay, well graded, few mica, moist	
					SAND (SW), tan, fine to coarse, well graded, damp	
15.0					SAND (SW), gray, fine to coarse, well graded, damp	
					situated at 17 ft.	
20.0						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					SAND (SW), gray, fine to coarse grained, well graded, saturated.
25.0					SAND (SW), as above except fine to medium grained.
					SAND (SW), gray, medium to coarse grained, well graded, trace gravel, saturated.
30.0					SILTY SAND (SP), gray, fine grained, poorly graded, saturated.
					CLAYEY SAND AND COBBLES (SW), tan, medium grained to cobbles, well graded, moist.
					SAND (SW), gray, fine to coarse grained, well graded, saturated.
35.0					SAND AND COBBLES (SW), dark tan, medium grained to cobbles, well graded, saturated.
					CLAY (CL), tan to gray, stiff, dry
					Boring terminated at 35.5 ft.
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY 50-100% WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME 30-45% NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE 15-25% UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW 5-10% NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE <5%
		31+	HARD			



Test Boring Report

BORING NO. GP-20
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: VERCO
 EQUIPMENT: Geoprobe DT-66

PROJECT NO: 60158741
 LOCATION: _____
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 5/7/11
 DATE FINISH: 5/7/11
 DRILLER: R. Freeman
 OVERSIGHT: C. Suddeth

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	DP	CASING INSTALL	TEMP / PERM
			HOLE DIA.	3.5"	CASING DIA.	CASING TYPE
			TOTAL DEPTH	28.5'	CASING DEPTH	GROUT TYPE
			SAMPLING	Dual Tube Cenlog	HAMMER WT.	HAMMER FALL

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE
0.0				
0.5				
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				
5.5				
6.0				
6.5				
7.0				
7.5				
8.0				
8.5				
9.0				
9.5				
10.0				
10.5				
11.0				
11.5				
12.0				
12.5				
13.0				
13.5				
14.0				
14.5				
15.0				
15.5				
16.0				
16.5				
17.0				
17.5				
18.0				
18.5				
19.0				
19.5				
20.0				

FIELD CLASSIFICATION AND REMARKS

SOIL CLASSIFICATION: USCS

SILT (ML), brown, (medium stiff), trace fine sand, damp

SILTY SAND (SW-SM), tan, fine to medium, well graded, damp to moist

SAND (SW), tan to gray, fine to coarse, trace clay, well graded, damp to moist

SAND (SW), gray, medium to coarse, well graded, saturated $\approx 11'$

SAND (SW) as above

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS			
20.0					SAND AND GRAVEL, gray, medium to gravel, well graded saturated			
					SILTY CLAY (CL), the light gray, stiff, plastic, moist			
25.0					SAND (SW), gray, fine to medium, trace silt, well graded, saturated			
					SAND (SP), gray, fine, trace silt, poorly graded, saturated			
					SAND AND GRAVEL (SW)			
					CLAY (CL), purple to gray, very stiff, non-plastic, dry			
30.0					Boring terminated at 28.5 ft.			
35.0								
40.0								
45.0								
BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY 50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME 30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE 15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW 5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE <5%		
		31+	HARD					

Table 4-3. Lithologic (Stratigraphic) Log of Westinghouse
 Test Hole No. TH~~W~~34

SPLIT SPOON NO.	SAMPLE NO.	SAMPLE DEPTH INTERVAL (FEET)	BLOW COUNTS	DESCRIPTION
1	1	1.5 - 2.0	2-2-3	Sand, moderate yellowish brown (10 YR 5/4), fine-very coarse, clayey; with very fine quartz gravel, slightly micaceous, dry.
1	1	2.0 - 2.5		Sand, dark yellowish brown (10 YR 4/2), fine to coarse, clayey, with fine quartz gravel; and clay, dark brown (5 YR 2/2), lignitic, dry.
2	3	4.0 - 4.5	4-5-3	Clay, very sandy, light brown (5 YR 5/6), moist, silty, plastic.
2	4	4.5 - 5.0		Sand, moderate yellowish brown (5 YR 5/4), fine to very coarse, with quartz gravel; and clayey, poorly sorted sand, moist.
2	5	5.0 - 5.5		Sand, same as above, grading downward into clay, moderate brown (5 YR 4/4), slightly moist, slightly micaceous, plastic.
3	6	9.0 - 10.0 (composite)	1-2-1	Silt, pale yellowish brown (10 YR 6/2), very micaceous, clayey, slightly plastic.
3	7	10.0 - 10.5		Silt, same as above.
4	8	14.0 - 15.5 (composite)	3-3-5	Clay, moderate brown (5 YR 4/4), micaceous, silty, moist.
5	9	18.0 - 18.5		Silty clay, moderate yellowish brown (10 YR 5/4) grading downward with sharp break into Sand, fine to medium, micaceous, quartzose, loose, moist, permeable.

continued
Table 4-3

SPLIT SPOON NO.	SAMPLE NO.	SAMPLE DEPTH INTERVAL (FEET)	BLOW COUNTS	DESCRIPTION
5	10	19.0 - 19.5		Sand, silty, slightly clayey, micaceous, very fine to fine, moist, permeable.
6	11	24.0 - 25.5 (composite)	4-5-4	Sand, coarse-very coarse micaceous, with fine gravel, quartzose, silty, not much clay. Moderate to high permeability.
7	12	29.0 - 30.5	3-3-5	Clay, medium gray (N5), very plastic, no bedding or laminae (massive), slightly moist. Very low permeability. P-Pl Tbr
8	13	34.0 - 35.5 (composite)	3-5-6	Clay, dark gray (N3), dry, massive. Very low permeability.
9	14	39.0 - 40.5 (composite)	4-7-11	Clay, medium gray (N5), massive, dry. Plastic when wet in lab. Very low permeability.
10	15	44.0 - 45.5 (composite)	4-5-7	Clay, medium dark gray (N4), dry, micaceous, massive. Plastic when wet in lab. Very low permeability.
11	16	49.0 - 50.5 (composite)	20-37-48	Shale, medium dark gray (N4), hard, blocky with conchoidal fracture, dry, lustrous sheen. Very low permeability.
12	17	54.0 - 55.3 (composite)	23-45- ⁵⁰ / ₄	Shale, same as above, except lighter color-medium gray (N5), Very low permeability.
13	18	59.0 - 59.5	35- ⁵⁰ / ₃ -	Clay, light gray (N7), slightly silty, micaceous, dry, plastic when wet. Very low permeability.
13	19	59.5 - 59.7		Clay, silty, light gray (N7) micaceous, plastic when wet. Very low permeability.

continued
Table 4-3

SPLIT SPOON NO.	SAMPLE NO.	SAMPLE DEPTH INTERVAL (FEET)	BLOW COUNTS	DESCRIPTION
14	20	64.0 - 64.5	12-25-32	Sand, very fine to fine, clayey, silty, dry. Overall high plasticity. Low permeability.
14	21	64.5 - 65.0		Silt, clayey, light gray (N7) micaceous, with sparse fine to medium sand grains, dry. Low permeability.
14	22	65.0 - 65.5		Clay, silty, medium gray (N5), micaceous, with some fine to medium sand grains; grading downward at 65.2 ft to: Clay, medium light gray (N6), massive, blocky. Very low permeability.
15	23	69.5 - 70.0	22-36- ⁵⁰ / ₅	Clay, light gray (N7), massive, not micaceous, no silt or sand. Very low permeability.
15	24	70.0 - 70.4		Clay, same as above.
16	25	74.0 - 74.8	28- ⁵⁰ / ₅ -	Clay, same as above.
17	26	79.0 - 79.5	14-23-31	Clay, same as above, slightly silty; low permeability.
17	27	79.5 - 81.0		Silt, same as above light gray. Low permeability.
18	28	84.0 - 84.8	31- ⁵⁰ / ₄	Claystone, medium gray, massive, blocky, dry. Very low permeability.

Total Depth 85.0 ft

Summary

0 - 27 OKEFENOKEE FORMATION - PLEISTOCENE
(TERRACE HYDROGEOLOGIC UNIT)

Alternating beds of poorly sorted, fine to coarse sands, silt, and clays with quartz gravels scattered throughout. Very fine to coarse quartzose sand from 18.5 - 27.0 ft most permeable. Screen was set at 18 - 23 ft in Well W-35.

27-- 85

BLACK MINGO FORMATION (HYDROGEOLOGIC UNIT II)

- 27-49 Beds of medium-gray to dark gray, massive, micaceous, CLAY. Plastic when wet. Very low permeability. Moist in upper few feet only; dry below.
- 49-57 Medium to medium dark gray SHALE, dry, blocky with conchoidal fracture, massive, with lustrous sheen when broken.
- 57-65.2 Light gray, micaceous CLAY and SILTY CLAY, with low permeability; with 1.0 ft bed of very fine to fine CLAYEY SILTY SAND and clayey, light-gray, micaceous SILT. Low permeability, plastic when wet, except for granular silt stratum (64.5 - 65.0 ft).
- 65.2-76 Light to medium light gray, non-micaceous, massive CLAY, dry in borehole, plastic when wet in lab. Essentially no permeability.
- 76-83 Light-gray, massive, non-micaceous CLAY and massive slightly SILTY CLAY, dry, low permeability. Plastic when wet in lab.
- 83-85 Medium gray, massive, dry CLAYSTONE, blocky, Very low permeability.

NOTES

1. Color designation Standard: Geol. Soc. of America, Rock-Color Chart, 1975.
2. Permeability (hydraulic conductivity) descriptions are qualitative estimates from visual field observation of drill cuttings and laboratory classification of split-spoon samples.
3. Standard Blow Count is number of blows required to drive 1 3/8 in I.D., 2 - in O.D. Split Barrel Sampler 6 inches with 140 Pound Hammer Falling 30 inches.

Field and Lab Analyses by
B. C. Spigner
Senior Hydrogeologist



Test Boring Report

BORING NO. W-60
PAGE 1 **OF** 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 137.25
NORTHING: 745,835.5835
EASTING: 2,023,286.8131

GROUNDWATER

DRILLING INFORMATION

DATE START: 10/08/18
DATE FINISH: 10/08/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0				0-7	SILTY SAND (SM), yellowish brown 10YR 5/6, fine grained, poorly graded, damp
	5.3				SILTY SAND (SM), as above
	1.1				
10.0				7-17	SAND (SP), light gray 10YR 7/1, fine to medium grained, few silt, few clay, poorly graded, damp
	11.9				
					CLAYEY SAND (SC), light yellowish brown 10YR 6/6, fine to coarse grained, little clay, well graded, moist
	0.0				
15.0					SAND (SW), strong brown 7.5YR 5/6, fine to coarse grained, few silt, well graded, chemical odor 14'-16', wet to saturated
	0.0				
	2.9				
20.0				17-27	SAND (SW), light gray 10YR 7/1, medium to coarse grained, few gravel, well graded, saturated
	0.3				

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-60

PAGE 2 OF 2

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0				17-27	SAND (SW), gray 10YR 7/1, medium to very coarse grained, few gravel, well graded, saturated
	0.3				
	0.2				
25.0					CLAY (CH), greenish gray GLEY2 6/1, stiff, high plasticity, moist
	0.1				
				27-37	SILTY SAND (SM), light greenish gray GLEY 1 7/1, fine to medium grained, poorly graded, saturated
	0.1				
30.0					SILT (ML), greenish gray GLEY1 6/1, soft, wet
					SAND (SW), light greenish gray GLEY1 8/1, fine to coarse grained, well graded, saturated
	0.1				SILTY CLAY (CH), greenish gray GLEY1 6/1, soft, moderate plasticity, wet
	0.3				SAND (SP), light greenish gray GLEY1 7/1, fine to medium grained, few silt, poorly graded, saturated
35.0					
	0.1				
				37-42	CLAY (CL), gray GLEY1 7/1,hard, low plasticity, dry
					CLAY (CL), greenish black GLEY1 2.5/1,hard, moderate plasticity, dry
40.0					
					Boring terminated at 42 feet
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	UR NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			
		31+	HARD			



Test Boring Report

BORING NO. W-61
PAGE 1 **OF** 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 137.34
NORTHING: 745,829.2570
EASTING: 2,023,288.2599

DATE START: 10/09/18
DATE FINISH: 10/09/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
5.0				0-7	SILTY SAND (SM), yellowish brown 10YR 5/6, fine grained, poorly graded, damp	
		18.5				
		3.4				SILTY SAND (SM), as above
10.0				7-17	SAND (SP), light gray 10YR 7/1, fine to medium grained, few silt, few clay, poorly graded, damp	
		15.8				
		9.8				CLAYEY SAND (SC), light yellowish brown 10YR 6/6, fine to coarse grained, little clay, well graded, moist
15.0						
		4.5				SAND (SW), strong brown 7.5YR 5/6, fine to coarse grained, few silt, well graded, chemical odor, wet to saturated (interpreted from W-60)
20.0				17-26	SAND (SW), light gray 10YR 7/1, medium to coarse grained, few gravel, well graded, saturated	
		0.1				

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-62
PAGE 1 **OF** 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 125.63
NORTHING: 745,485.4613
EASTING: 2,022,726.0792

GROUNDWATER

DRILLING INFORMATION

DATE START: 10/09/18
DATE FINISH: 10/09/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0				0-7	CLAYEY SILT (MH), strong brown 7.5YR 5/8, medium stiff, some clay, moderate plasticity, moist
		0.5			
10.0				7-12	gravel layer at 7 feet SAND (SW), pale brown 10YR 6/3, fine to coarse grained, well graded, moist
		0.5			
		0.7			
15.0				12-17	SAND (SW), very pale brown 10YR 7/4, fine to coarse grained, well graded, saturated
		1.2			
		0.7			
20.0				17-27	SAND (SP), light gray 10YR 7/1, fine grained, few silt, poorly graded, saturated
		1.2			

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-63
PAGE 1 **OF** 3

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 138.78
NORTHING: 745,098.1342
EASTING: 2,023,019.4184

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DATE START: 10/10/18
DATE FINISH: 10/10/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS														
5.0	0.2			0-7	CLAYEY SAND (SC), strong brown 7.5YR 5/8, fine to coarse grained, little clay, well graded, damp														
				7-17	CLAYEY SAND (SC), strong brown 7.5YR 5/8, fine to coarse grained, little clay, well graded, damp														
					CLAYEY SAND (SC), as above with gravel at 9.5 ft														
					15.0	1.0			17-27	SAND (SP), brownish yellow 10YR 6/8, coarse grained, poorly graded, wet									
										CLAYEY SAND (SC), light gray 7.5YR 7/1, fine to medium grained, little clay, damp									
										20.0	0.8				SAND (SW), light gray 10YR 7/1, fine to coarse grained, few silt, well graded, saturated				
															3.9				

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-63

PAGE 2 OF 3

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0	0.8			17-27	SAND (SW), light gray 10YR 7/1, fine to coarse grained, few silt, well graded, saturated
	0.8				SAND (SW), as above with few gravel
					SILTY SAND (SM), light gray 10YR 7/1, fine to medium grained, little silt, well graded, saturated
25.0	0.7				SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated
				27-37	SAND (SP), brownish yellow 10YR 6/8, medium to coarse grained, poorly graded, saturated
	0.8				SAND (SP), light gray 10YR 7/1, as above
30.0					
	0.8				
					SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated
35.0					
	0.7				
	0.6				
				37-47	SAND AND GRAVEL (SW), pale brown 2.5Y 7/3, medium grained to gravel, few cobbles, well graded, saturated
40.0					SAND AND GRAVEL (SW), yellow 2.5Y 7/6, as above
					CLAY (CH), gray 5Y 5/1, hard, moderate plasticity, damp
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-65
PAGE 1 **OF** 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 138.17
NORTHING: 745,693.7040
EASTING: 2,024,027.4543

DATE START: 10/12/18
DATE FINISH: 10/12/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

GROUNDWATER | **DRILLING INFORMATION**

DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
5.0	1.6			0-7	SILTY CLAY (CL), strong brown 7.5YR 5/8, stiff, little silt, moderate plasticity, damp	
10.0	1.5			7-17	CLAYEY SAND (SC), strong brown 7.5YR 5/8, fine to medium grained, little clay, few silt, well graded, damp	
					CLAYEY SAND (SC), light gray 10YR 7/1, fine to coarse grained, well graded, saturated	
					SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated	
15.0	3.4			17-27	SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated	
20.0	4.3					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-65

PAGE 2 OF 2

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0	7.4			17-27	SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated
					CLAYEY SAND (SC), yellowish brown 10YR 5/8, fine to medium grained, some clay, dense, well graded, moist
25.0	8.2				CLAYEY SAND (SC), light gray 10YR 7/1, fine to coarse grained, little clay, well graded, wet
	1.5			27-34	SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated
30.0	0.6				
	1.3				CLAY (CL), dark gray 10YR 4/1, hard, low, damp
35.0					Boring terminated at 34 feet
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-66
PAGE 1 **OF** 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: SAEDACCO
EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 138.01
NORTHING: 745,687.8186
EASTING: 2,024,027.1699

DATE START: 10/12/18
DATE FINISH: 10/12/18
DRILLER: B. Romec
OVERSIGHT: C. Suddeth

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS								
5.0	1.3			0-7	SILTY CLAY (CL), strong brown 7.5YR 5/8, stiff, little silt, moderate plasticity, damp								
				7-17	CLAYEY SAND (SC), strong brown 7.5YR 5/8, fine to medium grained, little clay, few silt, well graded, damp								
					CLAYEY SAND (SC), light gray 10YR 7/1, fine to coarse grained, well graded, damp								
					SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated								
				10.0	3.0								
								15.0	3.4				
20.0												17-22.5	SAND (SW), light gray 10YR 7/1, fine to coarse grained, well graded, saturated

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-67
 PAGE 1 OF 2

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
 CLIENT: Westinghouse Columbia Fuel Fabrication Facility
 CONTRACTOR: SAEDACCO
 EQUIPMENT: Geoprobe Sonic

PROJECT NO: 60585917
 LOCATION: Columbia, SC
 ELEVATION: 132.60
 NORTHING: 744,459.5852
 EASTING: 2,024,485.7938

GROUNDWATER

DRILLING INFORMATION

DATE START: 10/15/18
 DATE FINISH: 10/15/18
 DRILLER: B. Romec
 OVERSIGHT: C. Suddeth

DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Sonic	6.0 in	CASING DIA.	N/A	CASING TYPE	N/A
					CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0	0.0			0-7	SILTY CLAY (CL), reddish yellow 7.5YR 6/8, stiff, little silt, moderate plasticity, damp
				7-12	SILTY CLAY (CL), dark red 10R 3/4 and light blueish gray GLEY2 7/1 laminations, stiff, low plasticity, damp
				12-17	CLAYEY SAND (SC), light brown 7.5YR 6/4, fine to coarse grained, some clay, few silt, well graded, moist to wet
				17-27	CLAYEY SAND (SC), light brown 7.5Y 6/4, fine to coarse grained, some clay, few silt, well graded, moist to wet
					CLAYEY SAND (SC), light blueish gray GLEY2 8/1, fine to coarse grained, some clay, few cobbles, well graded, most
				10.0	0.0
15.0	3.0				
20.0	0.0				

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-67
 PAGE 2 OF 2

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0				17-27	CLAYEY SAND (SC), light blueish gray GLEY2 8/1, fine to coarse grained, some clay, few cobbles, well graded, most
					SAND (SW), gray 10YR 6/1, fine to coarse grained, few clay, well graded, wet
25.0	0.0				
				27-31	CLAYEY SAND (SC), light greenish gray GLEY2 8/1 to brownish yellow 10YR 6/8 mottled, fine to coarse grained, some clay, well graded, saturated
30.0	0.0				
					Boring terminated at 31 feet
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Test Boring Report

BORING NO. W-68
PAGE 1 **OF** 1

PROJECT: Westinghouse Columbia Fuel Fabrication Facility
CLIENT: Westinghouse Columbia Fuel Fabrication Facility
CONTRACTOR: Elite Techniques
EQUIPMENT: Geoprobe

PROJECT NO: 60585917
LOCATION: Columbia, SC
ELEVATION: 113.40
NORTHING: 745,329.2457
EASTING: 2,022,496.2174

GROUNDWATER

DRILLING INFORMATION

DATE	HRS AFTER COMP	WATER	DRILL METHOD	BORING DIAM	CASING INSTALL	N	TEMP / PERM	P
			Direct Push	3.0 in	CASING DIA.	N/A	CASING TYPE	N/A
			Auger	8.0 in	CASING DEPTH	N/A	GROUT TYPE	N/A
					HAMMER WT	N/A	HAMMER FALL	N/A

DATE START: 11/01/18
DATE FINISH: 11/01/18
DRILLER: D. Rogers
OVERSIGHT: C. Suddeth

DEPTH IN FEET	PID (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0				0-5	CLAY (CH), yellowish brown 10YR 5/4, soft, high plasticity, moist
	2.3				SILT (ML), strong brown 7.5YR 5/6, soft, trace fine sand, moist
					CLAY (CH), dark grayish brown 10YR 4/2, soft, high plasticity, moist
	2.6				SANDY SILT (MH), dark grayish brown 10YR 4/2, soft, high plasticity, wet
10.0				5-10	SILTY CLAY (CL-ML), very dark gray 7.5YR 3/1, soft, little silt, moderate plasticity, wet
	1.1				
	0.6				
15.0				10-15	SILTY CLAY (CL-ML), as above
	0.0				SILT (ML), dark gray 7.5YR 4/1, soft, low plasticity, wet
	0.0				
20.0				15-19	SAND (SW), dark reddish brown 5YR 3/4, ine to coarse grained, well graded, saturated
	0.1				CLAY (CL), very dark gray 7.5YR 3/1, very stiff, low plasticity, damp
					Boring terminated at 19 feet

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			