

APPENDIX B – BORING LOGS

APPENDIX B.1
BACKGROUND SOIL BORINGS

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Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
	Gravel
	Well Graded Gravel (GW)
	Poorly Graded Gravel (GP)
	Silty Gravel (GM)
	Silty, Clayey Gravel (GC-GM)
	Clayey Gravel (GC)
	Well Graded Gravel with Silt (GW-GM)
	Well Graded Gravel with Clay (GW-GC)
	Poorly Graded Gravel with Silt (GP-GM)
	Poorly Graded Gravel with Clay (GP-GC)
	Well Graded Sand (SW)
	Poorly Graded Sand (SP)
	Silty Sand (SM)
	Silty, Clayey Sand (SC-SM)
	Clayey Sand (SC)
	Well Graded Sand with Silt (SW-SM)
	Well Graded Sand with Clay (SW-SC)
	Poorly Graded Sand with Silt (SP-SM)
	Poorly Graded Sand with Clay (SP-SC)
	Silt (ML)
	Silty Clay (CL-ML)
	Lean Clay (CL)
	Organic Silt (OL)
	Elastic Silt (MH)
	Fat Clay (CH)
	Organic Clay (OH)
	Shale
	Siltstone
	Coal
	Limestone
	Sandstone

Other Graphics

Symbol	Description
	Denotes environmental analytical sample interval
	Denotes SS sample interval
	Denotes ST sample interval
	Denotes DP sample interval
	Denotes RS sample interval
	Denotes RC sample interval
	First water level reading
	Second water level reading

Common Abbreviations

Abbreviation	Definition
DP	Direct Push
HA	Hand Auger
HSA	Hollow Stem Auger
N/A	Not Applicable
NR	Not Recorded
RC	Rock Core
RQD	Rock Quality Designation
RS	Rotary Sonic
SS	Split Spoon
ST	Shelby Tube
WH	Weight of Hammer
WR	Weight of Rod

General Notes

The boring logs include sample numbering used during drilling. For assigned Environmental Analytical Sample ID numbers, see relevant Environmental Chain-of- Custody forms from the drilling date range listed on each log.

For pH readings and additional field data, see applicable field documentation (e.g., Soil pH Data Form) from the drilling date range listed on each log.

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-109	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 605,123.62 N; 1,413,243.55 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 382.8 ft </u> Elevation Datum <u> NGVD29 </u>	
Project Name <u> JOF TDEC Order </u>		Date Started <u> 6/19/19 </u> Completed <u> 6/20/19 </u>	
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u> Date/Time <u> N/A </u>	
Inspector <u> C. Burton </u> Logger <u> C. Burton </u>		Depth to Water <u> N/A </u> Date/Time <u> N/A </u>	
Drilling Contractor <u> Stantec Consulting Services Inc. </u>		Drill Rig Type and ID <u> CME 55T#1, #709 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 4-1/4" HSA, 2" SS w/o liners </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> 8-1/4" HSA overdrill of boring </u>		Overdrill Depth <u> 41.0 ft </u>	
Sampler Hammer Type <u> Automatic </u> Weight <u> 140 lb </u> Drop <u> 30" </u> Efficiency <u> N/A </u>			
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> L. Tucker </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	382.8	Top of Hole					
0.1	382.7		Topsoil			0.0 - 1.5	0.9	5-7-7
1.5	381.3		SILTY LEAN CLAY WITH SAND, CL, 2.5Y 8/3 (pale brown) to 2.5Y 8/2 (pale brown), non to low plasticity, medium firm, moist, [FILL]		SS01G	0.0 - 1.5		
2					SS02G	1.5 - 3.0	0.1	6-7-7
3					SS03G	3.0 - 4.5	0.5	3-2-2
4.5	378.3		CLAYEY SILT, CL-ML, 7.5YR 4/2 (brown), low plasticity, very soft to very hard, moist, [FILL]		SS04G	4.5 - 6.0	0.3	1-WH-WH
5					SS05G	6.0 - 7.5	0.3	WH-WH-1
7.7	375.1		SILTY LEAN CLAY WITH GRAVEL, CL, 7.5YR 5/6 (strong brown) to 10YR 5/1 (gray), non-plastic, hard, moist		SS06aG	7.5 - 7.7		
8					SS06bG	7.7 - 9.0	0.9	1-4-12
9	373.8		POORLY GRADED GRAVEL WITH CLAY, GC, 10YR 5/8 (yellowish brown) to 10YR 7/1 (light gray), non-plastic, very dense		SS07G	9.0 - 10.2	1.0	21-40-50/2"
10					SS08G	10.5 - 11.2	0.7	46-50/2"
11					SS09G	12.0 - 13.1	0.7	29-21-50/1"
12					SS10G	13.5 - 14.4	0.9	40-50/5"
13					SS11G	15.0 - 15.4	0.4	50/5"
14					SS12G	16.5 - 16.9	0.4	50/5"

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 8/27/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-109
Client	Tennessee Valley Authority	Boring Location	605,123.62 N; 1,413,243.55 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	382.8 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			POORLY GRADED GRAVEL WITH CLAY, GC, 10YR 5/8 (yellowish brown) to 10YR 7/1 (light gray), non-plastic, very dense (Continued)							
19				SS13G	18.0 - 19.5	1.3	40-47-48			
20				SS14G	19.5 - 21.0	1.3	41-31-30			
21				SS15G	21.0 - 22.5	0.6	42-32-34			
22				SS16G	22.5 - 24.0	0.6	14-29-49			
23				SS17G	24.0 - 25.2	0.8	48-42-50/2"			
24				SS18G	25.5 - 27.0	1.5	47-43-25			
25				SS19G	27.0 - 28.5	1.4	18-17-19			
26				SS20G	28.5 - 30.0	0.7	17-17-13			
27	27.0			355.8	POORLY GRADED GRAVEL WITH CLAY WITH SAND, GP-GC, 10YR 5/6 (yellowish brown) to 10YR 8/1 (white), very dense, moist					
28				SS21G		30.0 - 31.5	1.1	14-23-35		
29				SS22E		31.5 - 33.0	0.8	12-12-20		
30				SS23E		33.0 - 34.5	0.9	16-44-38		
31				SS24G		34.5 - 36.0	1.1	14-16-30		
32				SS25E		36.0 - 37.5	1.0	25-16-10		
33				SS26E		37.5 - 39.0	0.4	30-24-16		
34				SS27G		39.0 - 40.5	1.3	14-17-20		
35				SS28aG		40.5 - 41.1	1.1	15-14-7		
36		SS28bG	41.1 - 42.0							
37										
38										
39										
40										
41	41.1	341.7								
42										



TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/27/20

31.5/34.5-20190620

36.0/39.0-20190620

18.0-19.5 19.5-21.0 21.0-22.5 22.5-24.0 24.0-25.2 25.5-27.0 27.0-28.5 28.5-30.0 30.0-31.5 31.5-33.0 33.0-34.5 34.5-36.0 36.0-37.5 37.5-39.0 39.0-40.5 40.5-42.0

Client Borehole ID	N/A	Stantec Boring No.	JOF-109
Client	Tennessee Valley Authority	Boring Location	605,123.62 N; 1,413,243.55 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	382.8 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SANDY LEAN CLAY WITH GRAVEL, CL, 10YR 4/6 (dark yellowish brown) to 10YR 6/3 (pale brown), low to medium plasticity, very soft to very hard, moist <i>(Continued)</i>		SS29G	42.0 - 43.5	0.9	22-13-17
44	44.0	338.8				SS30aG	43.5 - 44.0	1.0
45			FAT CLAY, CH, 10R 5/3 (weak red), medium to high plasticity, very hard, moist, iron oxide staining, Color 5G 5/2 metallic appearance on 10R 5/3		SS30bG	44.0 - 45.0		
46	46.5	336.3				SS31G	45.0 - 46.5	1.3

No Refusal /
Bottom of Hole at 46.5 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 8/27/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-112	
Client	Tennessee Valley Authority	Boring Location	604,376.52 N; 1,412,991.02 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	389.8 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/27/19	Completed 8/27/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	S. Stanley	Logger	S. Stanley	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	30.9 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	J. Snider	Approved By	L. Tucker	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.8	Top of Hole					
0.5	389.3		Crushed stone					
1			SANDY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/8 (strong brown), low to medium plasticity, very hard, dry, [FILL] Rock in SS02 from 1.5' to 3.0'		SS01G	0.0 - 1.5	1.2	28-14-9
2					SS02G	1.5 - 3.0	0.4	8-7-6
3								
4	4.0	385.8			SS03G	3.0 - 4.5	1.0	7-3-4
4.5	385.3		SANDY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/2 (brown), low to medium plasticity, firm, moist		SS04G	4.5 - 6.0	1.2	4-2-3
5					SS05G	6.0 - 7.5	1.2	3-3-2
6								
7	7.2	382.6			SS06G	7.5 - 9.0	1.4	WH-1-WH
7.5	382.3		CLAYEY SILT TRACE SAND, CL-ML, 7.5YR 4/6 (strong brown), low to medium plasticity, firm, moist		SS07G	9.0 - 10.5	1.0	WH-WH-WH
8					SS08G	10.5 - 12.0	1.2	WH-WH-2
9	9.2	380.6			SS09aG	12.0 - 12.5		
10					SS09bG	12.5 - 13.5	1.5	10-19-35
11					SS10G	13.5 - 15.0	1.5	18-26-42
12	12.5	377.3			SS11G	15.0 - 16.5	1.5	11-20-20
13					SS12G	16.5 - 18.0	1.3	12-14-14
14								
15								
16								
17								
18								

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF.DIT 20190530.GDT 2/20/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-112
Client	Tennessee Valley Authority	Boring Location	604,376.52 N; 1,412,991.02 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	389.8 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/6 (strong brown), non-plastic, very hard, wet, limestone rock fragments (Continued)					
19				SS13G	18.0 - 19.5	1.0	9-5-8	
20				SS14E	19.5 - 21.0	1.3	10-10-15	
21				SS15E	21.0 - 22.5	1.1	16-14-11	
22				SS16E	22.5 - 24.0	1.5	9-7-5	
23				SS17E	24.0 - 25.5	0.9	12-16-43	
24				SS18E	25.5 - 26.9	1.4	27-37-50/5"	
25				SS19E	27.0 - 27.3	0.3	50/4"	
26				SS20E	28.5 - 28.9	0.4	50/5"	
27				SS21G	30.0 - 30.9	0.9	40-50/5"	

26.9 362.9
~~27.0 362.8~~
~~27.3 362.5~~

28 28.5 361.3
 28.9 360.9

30 30.0 359.8
 30.9 358.9

Auger without sampling

POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/6 (strong brown), non-plastic, very hard, wet, limestone rock fragments

Auger without sampling

POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/3 (brown), non-plastic, very hard, wet, limestone rock fragments

Auger without sampling

POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/3 (brown), non-plastic, very hard, wet, limestone rock fragments

Refusal /
 Bottom of Hole at 30.9 Ft.

Permanent monitoring well JOF-112 installed in this boring following over-drilling. See JOF-112 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC_SUBSURF.DT 20190530.GDT 2/20/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-119	
Client	Tennessee Valley Authority	Boring Location	598,645.87 N; 1,410,031.49 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	363.4 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	7/9/19	Completed 7/10/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	3.7 ft	Date/Time 7/10/19 15:38
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 55T#1, #709	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	45.0 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	J. Snider	Approved By	L. Tucker	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	363.4	Top of Hole					
1			Crushed stone mixed with clay, [FILL]		SS01G	0.0 - 1.5	0.3	2-1-2
2					SS02G	1.5 - 3.0	0.5	3-3-3
3	3.0	360.4	FAT CLAY, CH, 10YR 4/3 (brown) with 10YR 6/1 (gray), high plasticity, firm, iron oxide staining		SS03G	3.0 - 4.5	1.3	2-2-5
4					SS04G	4.5 - 6.0	0.8	4-6-6
5					SS05G	6.0 - 7.5	1.1	3-2-4
6					SS06G	7.5 - 9.0	1.4	2-2-2
7	7.5	355.9		SILTY FAT CLAY, CH, 10YR 5/4 (yellowish brown), medium to high plasticity, very soft to very hard		SS07G	9.0 - 10.5	1.3
8					SS08G	10.5 - 12.0	1.5	3-5-7
9					SS09G	12.0 - 13.5	1.5	3-3-5
10					SS10G	13.5 - 15.0	1.5	3-4-7
11					SS11G	15.0 - 16.5	1.5	4-4-5
12			SILTY FAT CLAY, CH, 10YR 5/3 (brown) to 2.5Y 6/3 (light yellowish brown), high plasticity, very soft		SS12G	16.5 - 18.0	1.3	2-3-6
13								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/27/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-119
Client	Tennessee Valley Authority	Boring Location	598,645.87 N; 1,410,031.49 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	363.4 ft
		Elevation Datum	NGVD29


Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			SILTY FAT CLAY, CH, 10YR 5/3 (brown) to 2.5Y 6/3 (light yellowish brown), high plasticity, very soft <i>(Continued)</i>							
19	19.5			343.9		SS13G	18.0 - 19.5	1.5	5-6-10	
20					FAT CLAY, CH, 7.5YR 4/6 (strong brown) with 10YR 6/1 (gray), high plasticity		SS14G	19.5 - 21.0	1.3	7-8-10
21							SS15G	21.0 - 22.5	1.5	7-7-9
22							SS16G	22.5 - 24.0	1.5	4-5-4
23					SS17G	24.0 - 25.5	1.3	5-4-6		
24					SS18G	25.5 - 27.0	1.5	4-2-3		
25	25.5	337.9			SS19G	27.0 - 28.5	1.5	2-2-2		
26			SILTY FAT CLAY, CH, 10YR 4/1 (dark gray) with 7.5YR 5/6 (strong brown), high plasticity		SS20G	28.5 - 30.0	1.5	WH-WH-2		
27					SS21aG	30.0 - 31.3	1.5	1-1-8		
28					SS21bG	31.3 - 31.5				
29					SS22G	31.5 - 33.0	1.5	9-15-31		
30					SS23G	33.0 - 34.5	1.0	10-14-21		
31	31.3	332.1			SS24E	34.5 - 36.0	1.4	18-23-26		
32					SS25E	36.0 - 37.5	1.3	13-19-31		
33					SS26G	37.5 - 39.0	1.5	15-12-15		
34					SS27E	39.0 - 40.5	1.5	9-10-12		
35					SS28E	40.5 - 42.0	1.3	11-18-19		
36										
37										
38										
39										
40										
41										
42										

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/27/20

34.587 5-20190710

39.042 0-20190710

Client Borehole ID	N/A	Stantec Boring No.	JOF-119
Client	Tennessee Valley Authority	Boring Location	598,645.87 N; 1,410,031.49 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	363.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			POORLY GRADED GRAVEL, GP, 7.5YR 4/6 (strong brown) to 7.5YR 5/4 (brown), fine to coarse, very dense, poorly graded (Continued)		SS29G	42.0 - 43.5	1.5	14-11-15
44				SS30G	43.5 - 45.0	1.5	9-13-18	
45	45.0	318.4						

No Refusal /
Bottom of Hole at 45.0 Ft.

Permanent monitoring well JOF-119 installed in this boring following over-drilling. See JOF-119 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/27/20

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-BG01
Client <u>Tennessee Valley Authority</u>	Boring Location <u>612,015.70 N; 1,422,736.85 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>402.7 ft</u> Elevation Datum <u>NGVD29</u>
Project Name <u>JOF TDEC Order</u>	Date Started <u>6/3/19</u> Completed <u>6/3/19</u>
Project Location <u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water <u>N/A</u> Date/Time <u>N/A</u>
Inspector <u>D. Mihalek</u> Logger <u>D. Mihalek</u>	Depth to Water <u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor <u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID <u>GEOPROBE 6610</u>
Overburden Drilling and Sampling Tools (Type and Size) <u>DT37 Dual Tube Soil Sampling System with 60" PVC Liners</u>	
Rock Drilling and Sampling Tools (Type and Size) <u>2" Direct Push Liner</u>	
Overdrill Tooling (Type and Size) <u>N/A</u> Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u> Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>	Approved By <u>P. Dunne</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	402.7		Top of Hole					
0.0	402.7		SILTY SAND, SM, 10YR 8/4 (very pale brown), fine to coarse, very loose, dry, sandstone pebbles throughout	HA ¹	HA01	0.0 - 0.5	0.5	N/A
1								
1.5			SILTY LEAN CLAY, CL, 2.5Y 8/4 (pale brown), medium plasticity, soft, moist, sandstone pebbles throughout	1.5/5.5-20190603	DP01	0.5 - 5.0	4.5	N/A
2								
3								
4.0	398.7		FAT CLAY WITH GRAVEL, CH, 10YR 7/6 (yellow), medium to coarse, high plasticity, soft, moist	6.5/8.5-20190603	DP02	5.0 - 9.8	4.8	N/A
4.5	398.2							
5								
6								
7								
8								
9.3	393.4		Sandstone, pale brown, very fine grained, hard, laminated, moist, flow banded, quartz					
9.8	392.9							

Bedrock Refusal /
Bottom of Hole at 9.8 Ft.

Top of Rock = 9.3 Ft.
Top of Rock Elevation = 393.4 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190603) sampled using hand auger

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190603.GDT 1/8/20



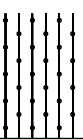

SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG02	
Client	Tennessee Valley Authority	Boring Location	604,594.94 N; 1,414,992.06 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	396.4 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	5/22/19	Completed 5/22/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	17.0 ft	Date/Time 5/22/19
Inspector	D. Mihalek	Logger	D. Mihalek	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	GEOPROBE 6610	
Overburden Drilling and Sampling Tools (Type and Size)	DT37 Dual Tube Soil Sampling System with 60" PVC Liners			
Rock Drilling and Sampling Tools (Type and Size)	2" Direct Push Liner			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	N/A	Weight	N/A	Drop N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	396.4						
			Top of Hole					
1	1.5	394.9	SILT, ML, 10YR 5/6 (yellowish brown), low plasticity, medium stiff, moist	HA ¹ 0.0/2.2-20190522	HA01	0.0 - 0.5	0.5	
2			FAT CLAY, CH, 10YR 4/1 (dark gray), medium to high plasticity, soft, moist		DP01	0.0 - 5.0	2.2	N/A
5	5.0	391.4	SILTY LEAN CLAY, CL, 10YR 5/6 (yellowish brown), very fine, low plasticity, medium stiff, moist	6.5/6.5-2-20190522	DP02	5.0 - 10.0	5.0	N/A
10	10.0	386.4	SANDY SILT, ML, 7.5YR 5/8 (strong brown), non-plastic, soft, moist	11.5/11.5-2-20190522	DP03	10.0 - 15.0	5.0	N/A
15	15.0	381.4	SILTY SAND, SM, 10YR 5/6 (yellowish brown), fine to medium, loose, wet, Groundwater encountered at 17 ft.	16.5/16.5-2-20190522	DP04	15.0 - 20.0	5.0	N/A

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190520.GDT 1/8/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG02
Client	Tennessee Valley Authority	Boring Location	604,594.94 N; 1,414,992.06 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	396.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILTY SAND, SM, 10YR 5/6 (yellowish brown), fine to medium, loose, wet, Groundwater encountered at 17 ft. (Continued)					
20	20.0	376.4						
21			POORLY GRADED GRAVEL, GP, 10YR 5/6 (yellowish brown), medium to coarse, loose, wet, poorly graded, Chert fragments	21.923.5-20190522	DP05	20.0 - 25.0	5.0	N/A
24	24.0	372.4						
25	25.0	371.4	Sandstone, dark brown, very fine grained, hard, wet, quartz, Sandstone bedrock. Refusal encountered at 25 ft.					

Bedrock Refusal /
Bottom of Hole at 25.0 Ft.

Top of Rock = 24.0 Ft.
Top of Rock Elevation = 372.4 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190524) sampled using hand auger

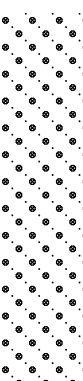

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 1/8/20

Client Borehole ID N/A Stantec Boring No. **JOF-BG03**
 Client Tennessee Valley Authority Boring Location 601,538.80 N; 1,415,655.31 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 392.0 ft Elevation Datum NGVD29
 Project Name JOF TDEC Order Date Started 5/29/19 Completed 5/29/19
 Project Location New Johnsonville, Humphreys Co., TN Depth to Water 23.0 ft Date/Time 5/29/19
 Inspector D. Mihalek Logger D. Mihalek Depth to Water N/A Date/Time N/A
 Drilling Contractor Geo Logic (Subcontractor) Drill Rig Type and ID GEOPROBE 6610
 Overburden Drilling and Sampling Tools (Type and Size) DT37 Dual Tube Soil Sampling System with 60" PVC Liners
 Rock Drilling and Sampling Tools (Type and Size) 2" Direct Push Liner
 Overdrill Tooling (Type and Size) N/A Overdrill Depth N/A
 Sampler Hammer Type N/A Weight N/A Drop N/A Efficiency N/A
 Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A
 Reviewed By K. Carey Approved By P. Dunne

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	392.0	Top of Hole					
1			SILT, ML, 7.5YR 4/4 (brown), non-plastic, soft, dry	HA ¹	HA01	0.0 - 0.5	0.5	
2	2.5	389.5	SILTY LEAN CLAY, CL, 10YR 5/6 (yellowish brown), medium plasticity, medium stiff, moist		DP01	0.5 - 5.0	4.3	N/A
3								
4			FAT CLAY, CH, 10YR 4/6 (dark yellowish brown), medium to high plasticity, soft, moist		DP02	5.0 - 10.0	5.0	N/A
5								
6								
7	7.0	385.0	SILTY GRAVEL, GM, 7.5YR 5/4 (brown), very fine to medium, loose, moist, Chert and sandstone fragments throughout.		DP03	10.0 - 15.0	5.0	N/A
8								
9								
10								
11	13.0	379.0			DP04	15.0 - 20.0	4.8	N/A
12								
13								
14	17.0	375.0						
15								
16								
17								
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 8/27/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG03
Client	Tennessee Valley Authority	Boring Location	601,538.80 N; 1,415,655.31 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	392.0 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			WELL GRADED GRAVEL WITH SILT, GW, 7.5YR 5/6 (strong brown), medium to coarse, loose, wet, Angular chert sandstone fragments throughout. <i>(Continued)</i>					
19								
20								
21								
22								
23								
24	24.0	368.0			DP05	20.0 - 24.7	NR	N/A
	24.7	367.3						

Bedrock Refusal /
Bottom of Hole at 24.7 Ft.

Top of Rock = 24.0 Ft.
Top of Rock Elevation = 368.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190529) sampled using hand auger

TVA/EIP BORING LOG - 175568286 - JOF - TDEC ORDER GPJ - TDEC SUBSURF DT 20190530.GDT 8/27/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-BG04	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>600,915.90 N; 1,416,080.08 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>405.6 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>JOF TDEC Order</u>		Date Started <u>5/29/19</u>	Completed <u>5/29/19</u>
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>27.0 ft</u>	Date/Time <u>5/29/19 12:53</u>
Inspector <u>D. Mihalek</u>	Logger <u>D. Mihalek</u>	Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Geo Logic (Subcontractor)</u>		Drill Rig Type and ID <u>GEOPROBE 6610</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>DT37 Dual Tube Soil Sampling System with 60" PVC Liners</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>2" Direct Push Liner</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>N/A</u>	Weight <u>N/A</u>	Drop <u>N/A</u>	Efficiency <u>N/A</u>
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	405.6						
	0.5	405.1			HA01	0.0 - 0.5	0.5	
1			SILT WITH GRAVEL, ML, 7.5YR 4/6 (strong brown), non-plastic, soft, dry, [FILL]					
2	2.0	403.6			DP01	0.0 - 5.0	NR	N/A
3			GRAVELLY SILT, ML, 7.5YR 4/6 (strong brown), non-plastic, soft, dry, [FILL]					
4			LEAN CLAY, CL, 7.5YR 4/6 (strong brown), low to medium plasticity, medium stiff, moist					
5	5.0	400.6			DP02	5.0 - 10.0	5.0	N/A
6			LEAN CLAY SOME GRAVEL, CL, 10YR 5/6 (yellowish brown), medium plasticity, stiff, moist					
7								
8								
9	9.0	396.6			DP03	10.0 - 15.0	NR	N/A
10			FAT CLAY, CH, 10YR 5/6 (yellowish brown), medium plasticity, soft, moist					
11	11.5	394.1			DP04	15.0 - 20.0	5.0	N/A
12			LEAN CLAY LITTLE SAND, CL, 2.5Y 7/2 (light gray), medium plasticity, stiff, moist					
13								
14								
15								
16	16.5	389.1						
17			LEAN CLAY, CL, 7.5YR 4/6 (strong brown), medium plasticity, stiff, moist, Angular sandstone fragments observed throughout.					
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 1/8/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG04
Client	Tennessee Valley Authority	Boring Location	600,915.90 N; 1,416,080.08 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	405.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			LEAN CLAY, CL, 7.5YR 4/6 (strong brown), medium plasticity, stiff, moist, Angular sandstone fragments observed throughout. (Continued)					
19								
20								
21								
22								
23	23.0	382.6		21.5/23.5-20.190529	DP05	20.0 - 25.0	5.0	N/A
24			SANDY LEAN CLAY SOME GRAVEL, CL, 10YR 5/8 (yellowish brown), medium plasticity, soft, moist, Groundwater encountered at 27 ft.					
25								
26								
27								
28	28.5	377.1		25.0/28.5-20.190529	DP06	25.0 - 29.8	NR	N/A
29	29.8	375.8						

Bedrock Refusal /
Bottom of Hole at 29.8 Ft.

Top of Rock = 28.5 Ft.
Top of Rock Elevation = 377.1 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190529) sampled using hand auger

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC_SUBSURF.DIT 20190530.GDT 1/8/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-BG05
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,036.57 N; 1,417,116.93 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 421.0 ft </u> Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>	Date Started <u> 5/24/19 </u> Completed <u> 5/24/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>	Depth to Water <u> N/A </u> Date/Time <u> N/A </u>
Inspector <u> D. Mihalek </u> Logger <u> D. Mihalek </u>	Depth to Water <u> N/A </u> Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>	Drill Rig Type and ID <u> GEOPROBE 6610 </u>
Overburden Drilling and Sampling Tools (Type and Size) <u> DT37 Dual Tube Soil Sampling System with 60" PVC Liners </u>	
Rock Drilling and Sampling Tools (Type and Size) <u> 2" Direct Push Liner </u>	
Overdrill Tooling (Type and Size) <u> N/A </u> Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> N/A </u> Weight <u> N/A </u> Drop <u> N/A </u> Efficiency <u> N/A </u>	
Borehole Azimuth <u> N/A </u> Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>	Approved By <u> P. Dunne </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	421.0	Top of Hole					
0.5	420.5		Topsoil	HA ⁴	HA01	0.0 - 0.5	0.5	
1			SILT, ML, 10YR 5/3 (brown), non-plastic, soft, moist	1.5/3.5-20190524	DP01	0.0 - 5.0	NR	N/A
7.5	413.5		SILTY GRAVEL WITH SAND, GM, 10YR 5/6 (yellowish brown), very fine to coarse, very loose, dry, well graded, Angular chert fragments included.	6.5/6.5-20190524	DP02	5.0 - 10.0	5.0	N/A
11.5			Sandstone, light orange, fine, hard, dry, chert present	11.5/11.5-20190524	DP03	10.0 - 14.0	4.0	N/A

Bedrock Refusal /
Bottom of Hole at 14.0 Ft.

Top of Rock = 13.5 Ft.
Top of Rock Elevation = 407.5 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190524) sampled using hand auger

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-BG06	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>599,714.21 N; 1,417,299.68 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>418.7 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>5/30/19</u> Completed <u>5/31/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>32.0 ft</u> Date/Time <u>5/31/19 10:55</u>	
Inspector <u>D. Mihalek</u> Logger <u>D. Mihalek</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Geo Logic (Subcontractor)</u>		Drill Rig Type and ID <u>GEOPROBE 6610</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>DT37 Dual Tube Soil Sampling System with 60" PVC Liners</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>2" Direct Push Liner</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>			
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	


Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	418.7	Top of Hole					
0.5	418.2		ORGANIC SILT, OL, 10YR 5/6 (yellowish brown), moist	HA ¹	HA01	0.0 - 0.5	0.5	
1.5	417.2		SILT, ML, 10YR 5/6 (yellowish brown), non-plastic, stiff, dry	1.5/3.5-20/190830	DP01	0.0 - 5.0	5.0	N/A
9.0	409.7		FAT CLAY, CH, 10YR 5/4 (yellowish brown), medium to high plasticity, stiff, moist	6.5/8.5-20/190830	DP02	5.0 - 10.0	5.0	N/A
11.5				11.5/13.5-20/190830	DP03	10.0 - 15.0	5.0	N/A

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 1/8/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
17			FAT CLAY, CH, 10YR 5/4 (yellowish brown), medium to high plasticity, stiff, moist (Continued)	16.5/18.5-20190530	DP04	15.0 - 20.0	5.0	N/A		
18										
19										
20										
21				Color change to 10YR 6/3 (pale brown), high plasticity at 20.0'						
22					21.5/23.5-20190530	DP05	20.0 - 25.0	5.0	N/A	
23										
24										
25	25.0		393.7							
26				SILTY LEAN CLAY, CL, 7.5YR 8/2 (pinkish white), low to medium plasticity, soft, moist						
27										
28					28.5/28.5-20190530	DP06	25.0 - 30.0	4.9	N/A	
29										
30	30.0		388.7							
31				FAT CLAY, CH, 10YR 8/4 (very pale brown), high plasticity, soft, wet, Groundwater encountered at 32 ft.						
32						31.5/33.5-20190531	DP07	30.0 - 35.0	4.6	N/A
33										
34										
35										
36										
37					36.5/38.5-20190531	DP08	35.0 - 40.0	3.2	N/A	
38										
39										

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-BG06
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>599,714.21 N; 1,417,299.68 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>418.7 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40								
41	41.0	377.7	Sandstone, brown, quartz grains throughout	40/041.5-20190531	DP09	40.0 - 41.5	1.5	N/A
	41.5	377.2						

Bedrock Refusal /
Bottom of Hole at 41.5 Ft.

Top of Rock = 41.0 Ft.
Top of Rock Elevation = 377.7 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190530) sampled using hand auger



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG07	
Client	Tennessee Valley Authority	Boring Location	599,183.13 N; 1,417,833.45 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	424.1 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	6/4/19	Completed 6/4/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	D. Mihalek	Logger	D. Mihalek	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	GEOPROBE 6610	
Overburden Drilling and Sampling Tools (Type and Size)		DT37 Dual Tube Soil Sampling System with 60" PVC Liners		
Rock Drilling and Sampling Tools (Type and Size)		2" Direct Push Liner		
Overdrill Tooling (Type and Size)		N/A	Overdrill Depth	N/A
Sampler Hammer Type	N/A	Weight	N/A	Drop N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	424.1						
	0.5	423.6						
0			Top of Hole					
1			SILT, ML, 7.5YR 5/4 (brown), non-plastic, very soft, dry	HA ¹	HA01	0.0 - 0.5	0.5	
2			SILTY LEAN CLAY, CL, 10YR 5/6 (yellowish brown), non to low plasticity, medium stiff, moist	1.5/6.5-20190604	DP01	0.0 - 5.0	4.4	N/A
3								
4								
5	5.0	419.1						
6			CLAYEY SILT, ML, 10YR 5/6 (yellowish brown), non-plastic, stiff, moist	6.5/6.5-20190604	DP02	5.0 - 10.0	5.0	N/A
7								
8								
9			Sandstone fragments present from 9.0' to 10.0'					
10								
11	11.5	412.6						
12			LEAN CLAY, CL, 5YR 4/6 (yellowish red), medium plasticity, very stiff, moist	11.5/13.5-20190604	DP03	10.0 - 15.0	4.2	N/A
13								
14								
15	15.0	409.1						
16			FAT CLAY, CH, 5YR 5/8 (yellowish red), medium to high plasticity, medium stiff, moist	16.5/13.5-20190604	DP04	15.0 - 20.0	5.0	N/A
17								
18								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190630.GDT 1/8/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG07
Client	Tennessee Valley Authority	Boring Location	599,183.13 N; 1,417,833.45 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	424.1 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			FAT CLAY, CH, 5YR 5/8 (yellowish red), medium to high plasticity, medium stiff, moist (Continued)					
19								
20								
21								
22					DP05	20.0 - 23.3	3.3	N/A
23	23.0 23.3	401.1 400.8						

Sandstone, dark brown, fine grained, hard, laminated, moist, quartz grains throughout

Bedrock Refusal /
Bottom of Hole at 23.3 Ft.

Top of Rock = 23.0 Ft.
Top of Rock Elevation = 401.1 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190604) sampled using hand auger



TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-BG08	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 598,957.44 N; 1,412,733.58 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 396.3 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 5/22/19 </u>	Completed <u> 5/22/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Inspector <u> D. Mihalek </u>	Logger <u> D. Mihalek </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>		Drill Rig Type and ID <u> GEOPROBE 6610 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> DT37 Dual Tube Soil Sampling System with 60" PVC Liners </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> 2" Direct Push Liner </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> N/A </u>	Weight <u> N/A </u>	Drop <u> N/A </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> P. Dunne </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	396.3						
Top of Hole								
1			SILT, ML, 5YR 5/6 (yellowish red), non-plastic, very stiff, dry	HA ¹	HA01	0.0 - 0.5	0.5	
2				1.5/3.5-20/190522	DP01	0.0 - 5.0	5.0	N/A
3								
4								
5	5.0	391.3						
LEAN CLAY, CL, 5YR 5/4 (reddish brown), non to low plasticity, very stiff, moist								
6				6.5/6.5-20/190522	DP02	5.0 - 10.0	5.0	N/A
7								
8								
9	8.5	387.8						
CLAYEY SILT, ML, 5YR 4/4 (reddish brown), low plasticity, stiff, moist								
10								
11								
12	12.5	383.8						
CLAYEY SAND, SC, 7.5YR 5/4 (brown), fine to medium, medium dense, moist, Fine chert fragments at 13 to 15 ft					DP03	10.0 - 15.0	5.0	N/A
13								
14								
15	15.0	381.3						
POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 5/4 (brown), very fine to coarse, loose, moist								
16								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-BG08
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 598,957.44 N; 1,412,733.58 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 396.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
16	16.5	379.8		15.0/17.0-20190522	DP04	15.0 - 17.0	NR	N/A
17	17.0	379.3						

Limestone, light gray, moist, Refusal encountered at 17 ft.

Bedrock Refusal /
Bottom of Hole at 17.0 Ft.

Top of Rock = 16.5 Ft.
Top of Rock Elevation = 379.8 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190524) sampled using hand auger

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-BG09
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>594,079.91 N; 1,416,560.06 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>408.9 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/23/19</u> Completed <u>8/23/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID	<u>Geoprobe 6610DT</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>Macro Core 2.0" OD with 60" PVC liners</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>N/A</u>	Weight	<u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>K. Carey</u>	Approved By	<u>P. Dunne</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	408.9	Top of Hole					
	0.4	408.5	Topsoil	HA ¹	HA01	0.0 - 0.5	0.5	
1			SILTY FAT CLAY, CH, 7.5YR 4/4 (brown) with 7.5YR 7/1 (light gray), high plasticity, hard, moist, iron oxide staining, disturbed material, [FILL]	1.5/6.5-20190823	DP01	0.0 - 5.0	5.0	N/A
2	2.5	406.4						
3			SILTY FAT CLAY, CH, 7.5YR 4/6 (strong brown) to 10YR 7/1 (light gray), high plasticity, hard, moist	5.9/7.9-20190823	DP02	5.0 - 8.8	3.8	N/A
4								
5								
6								
7								
8	8.8	400.1						

Bedrock Refusal /
Bottom of Hole at 8.8 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190823) sampled using hand auger

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/23/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-BG10	
Client	Tennessee Valley Authority	Boring Location	596,765.95 N; 1,415,886.62 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	374.6 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	5/23/19	Completed 5/23/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	K. Carey	Logger	M. Reynolds	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	GEOPROBE 6610	
Overburden Drilling and Sampling Tools (Type and Size)	DT37 Dual Tube Soil Sampling System with 60" PVC Liners			
Rock Drilling and Sampling Tools (Type and Size)	2" Direct Push Liner			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	N/A	Weight	N/A	Drop N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	374.6	Top of Hole					
1			CLAYEY SILT, ML, 7.5YR 4/6 (strong brown), non to low plasticity, medium stiff, moist	HA ⁴	HA01	0.0 - 0.5	0.5	
2					DP01	0.0 - 5.0	4.6	N/A
5	5.0	369.6	LEAN CLAY, CL, 7.5YR 3/2 (dark brown), low to medium plasticity, medium stiff, moist	6.5/8.5-20190523	DP02	5.0 - 10.0	4.6	N/A
6								
10			Very stiff, dry at 10.0'	11.5/13.5-20190523	DP03	10.0 - 15.0	4.5	N/A
11								
14.5	360.1		Shale, dark black brown, very fine grained, moderately hard, thin bedded, Refusal at 15 ft.					
15.0	359.6							

Bedrock Refusal /
Bottom of Hole at 15.0 Ft.

Top of Rock = 14.5 Ft.
Top of Rock Elevation = 360.1 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190524) sampled using hand auger

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-BG11
Client <u>Tennessee Valley Authority</u>	Boring Location <u>596,594.13 N; 1,414,502.93 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>369.9 ft</u> Elevation Datum <u>NGVD29</u>
Project Name <u>JOF TDEC Order</u>	Date Started <u>5/23/19</u> Completed <u>5/23/19</u>
Project Location <u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water <u>N/A</u> Date/Time <u>N/A</u>
Inspector <u>D. Mihalek</u> Logger <u>D. Mihalek</u>	Depth to Water <u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor <u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID <u>GEOPROBE 6610</u>
Overburden Drilling and Sampling Tools (Type and Size) <u>DT37 Dual Tube Soil Sampling System with 60" PVC Liners</u>	
Rock Drilling and Sampling Tools (Type and Size) <u>2" Direct Push Liner</u>	
Overdrill Tooling (Type and Size) <u>N/A</u> Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u> Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>	Approved By <u>P. Dunne</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	369.9	Top of Hole					
1			SILT, ML, 7.5YR 3/4 (dark brown), non-plastic to low plasticity, soft to stiff, moist, no staining	HA ¹	HA01	0.0 - 0.5	0.5	
2				1.5/6.5-20190523		DP01	0.0 - 5.0	NR
3			SILTY GRAVEL, GM, 7.5YR 5/8 (strong brown), very fine to coarse, very loose, dry, with chert fragments					
4				6.5/6.5-20190523		DP02	5.0 - 10.0	NR
5			Sandstone, light gray, very coarse grained, dry, quartz grains throughout					
6	6.0	363.9						
7								
8								
9	9.0	360.9						
10	10.0	359.9						

Bedrock Refusal /
Bottom of Hole at 10.0 Ft.

Top of Rock = 9.0 Ft.
Top of Rock Elevation = 360.9 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190524) sampled using hand auger

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 1/8/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-BG12	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>594,931.66 N; 1,416,266.42 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>398.7 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>6/4/19</u> Completed <u>6/4/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Inspector <u>D. Mihalek</u> Logger <u>D. Mihalek</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Geo Logic (Subcontractor)</u>		Drill Rig Type and ID <u>GEOPROBE 6610</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>DT37 Dual Tube Soil Sampling System with 60" PVC Liners</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>2" Direct Push Liner</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>			
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	398.7						
0.5	398.2		Top of Hole					
1			SILT, ML, 7.5YR 6/6 (reddish yellow), non-plastic, very soft, dry	HA ⁴	HA01	0.0 - 0.5	0.5	
2			SILTY GRAVEL, GM, 7.5YR 4/6 (strong brown), fine to coarse, loose, dry	1.5/3 5-20 190604	DP01	0.5 - 5.0	3.5	N/A
3								
4								
5								
6								
7								
8								
9	9.0	389.7		6.5/6 5-20 190604	DP02	5.0 - 10.0	2.6	N/A
10			SILTY SAND, SM, 7.5YR 5/8 (strong brown), fine to coarse, very loose, moist					
11								
12								
13	13.5	385.2		11.5/13 5-20 190604	DP03	10.0 - 13.6	2.6	N/A

Limestone, white, very fine grained, hard, moist, calcareous

No Refusal /
Bottom of Hole at 13.6 Ft.

Top of Rock = 13.5 Ft.
Top of Rock Elevation = 385.2 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface
- 4: Grab sample (0.0/0.5-20190604) sampled using hand auger

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/27/20

APPENDIX B.2
GEOTECHNICAL BORINGS

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SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B01	
Client	Tennessee Valley Authority	Boring Location	605,223.87 N; 1,412,307.14 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	389.5 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/21/19	Completed 8/23/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	M. Pritt	Logger	M. Pritt	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Depth Ft ³	Elevation		Graphic	Rock Core:	RQD %	Run Ft	Rec. Ft
0	0.0	389.5						
0.1	389.4		Topsoil			0.0 - 1.5	0.4	10-10-10
1			LEAN CLAY WITH SAND, CL, 10YR 3/3 (dark brown) and 10YR 7/1 (light gray), fine, low to medium plasticity, hard, dry, [FILL]		SS01G	0.0 - 1.5	0.4	10-10-10
2								
3	3.6	385.9			SS02aG	2.5 - 3.6	1.5	7-9-12
4			SILTY SAND WITH CLAY, SM, 5YR 3/1 (very dark gray) and 10YR 4/4 (dark yellowish brown), fine to coarse, non-plastic to low plasticity, medium dense, moist, [CCR]		SS02bG	3.6 - 4.0		
5					ST01	5.0 - 5.1	0.0	900
6					SS03G	5.1 - 6.6	1.5	10-10-12
7								
8	7.5	382.0			SS04G	7.5 - 9.0	1.5	6-8-7
9			SILTY SAND LITTLE GRAVEL, SM, 2.5Y 3/2 (very dark grayish brown) to 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, loose to medium dense, moist to wet, [CCR]					
10					SS05G	10.0 - 11.5	1.4	5-6-7
11								
12								
13					ST02G	12.5 - 14.0	1.2	1300
14								
15								
16					SS06G	15.0 - 16.5	1.5	6-5-4
17								
18								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190830.GDT 4/6/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILTY SAND LITTLE GRAVEL, SM, 2.5Y 3/2 (very dark grayish brown) to 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, loose to medium dense, moist to wet, [CCR] (Continued) Wet at 18.0'		SS07G	17.5 - 19.0	1.5	4-6-9	
19						SS08G	20.0 - 21.5	1.5	17-14-8
20									
21									
22	22.5		367.0						
23				SILTY SAND, SM, 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, medium dense, moist to wet, [CCR]		SS09G	22.5 - 24.0	1.5	11-22-23
24									
25	25.0		364.5						
26				SILTY SAND WITH GRAVEL, SM, 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, medium dense, moist to wet, [CCR]		SS10G	25.0 - 26.5	1.5	7-8-5
27									
28						SS11aG	27.5 - 28.5	1.5	6-7-6
29				Interbedded with gravelly lean clay, 5YR 6/8 (reddish yellow), fine to coarse, non-plastic to low plasticity below 28.5'		SS11bG	28.5 - 29.0	1.5	
30									
31						ST03G	30.0 - 32.0	1.2	750
32	32.0		357.5						
33				LEAN CLAY WITH SAND, CL, 5YR 6/4 (light reddish brown) to 5YR 5/6 (yellowish red), medium to high plasticity, firm, moist to wet		SS12G	32.5 - 34.0	1.5	1-3-4
34									
35									
36						SS13G	35.0 - 36.5	1.5	WH-1-3
37									
38						SS14G	37.5 - 39.0	1.3	2-3-4
39									
40									
41	41.1	348.4			SS15aG	40.0 - 41.1	1.5	8-15-15	
42					SS15bG	41.1 - 41.5			

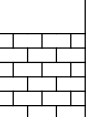
TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B01
Client	Tennessee Valley Authority	Boring Location	605,223.87 N; 1,412,307.14 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	389.5 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
42.5	347.0		CLAYEY GRAVEL, GC, 10YR 7/4 (very pale brown), fine to coarse, non to low plasticity, medium dense, wet (Continued)		SS16G	42.5 - 44.0	1.5	4-4-4
44			SILTY FAT CLAY, CH, 5YR 6/4 (light reddish brown) to 5YR 5/6 (yellowish red), very fine to fine, medium to high plasticity, firm, moist to wet		SS17G	45.0 - 46.5	1.5	6-7-8
47			Gravel seam at 47.0'					
47.9	341.6		CLAYEY GRAVEL WITH SAND, GC, 10YR 7/4 (very pale brown), fine to coarse, high plasticity, medium dense, wet		SS18aG SS18bG	47.5 - 47.9 47.9 - 49.0	1.5	9-11-14
50.0	339.5		GRAVELLY FAT CLAY WITH SAND, CH, 5YR 6/4 (light reddish brown) to 5YR 5/6 (yellowish red), very fine to fine, medium to high plasticity, firm to hard, moist to wet		SS19G	50.0 - 51.5	1.5	6-7-9
52					SS20G	52.5 - 54.0	1.5	9-13-13
55					SS21G	55.0 - 56.5	1.5	9-9-13
57.5	332.0				SS22G	57.5 - 57.5	0.0	Begin Core
58			Limestone (95%) With Shale (5%)					
59			Limestone, light gray with dark gray, fine grained, thin bedded, slightly weathered, 0° bedding angle					
60			Gravel and clay seam at 58.0', 59.7', 60.3'		69	57.6 - 62.7 5.1	5.0	98
62								
63								
64								
65					68	62.7 - 67.7 5.0	5.0	100
66								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DIT 20180530.GDT 4/6/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B01
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 605,223.87 N; 1,412,307.14 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 389.5 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
67	67.7	321.8						

Bottom of Hole at 67.7 Ft.

Top of Rock = 57.5 Ft.

Top of Rock Elevation = 332.0 Ft.

Begin Core = 57.6 Ft.

Vibrating wire piezometers installed. See installation log for details.

1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)

G = Geotechnical Sample Custody

2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

3: Depths are reported in feet below ground surface

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-B02	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,227.76 N; 1,412,431.27 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>394.3 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>8/5/19</u> Completed <u>8/6/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>25.0 ft</u> Date/Time <u>8/5/19 16:16</u>	
Inspector <u>M. Pritt</u> Logger <u>M. Pritt</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>NQ-3 Wireline, Split Barrel, Impregnated Bit</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>A. Welshans</u>		Approved By <u>M. Aplin</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	394.3	Top of Hole					
0.5	393.8		Topsoil					
1			FAT CLAY SOME GRAVEL, CH, 7.5YR 7/8 (reddish yellow), medium plasticity, firm, dry, [FILL]		SS01G	0.0 - 1.5	1.3	7-8-5
2.5	391.8		CLAYEY SAND WITH GRAVEL, SC, 7.5YR 7/8 (reddish yellow), fine to coarse, medium plasticity, loose, moist, angular, [FILL]		SS02G	2.5 - 4.0	1.5	4-5-7
5					SS03G	5.0 - 6.5	1.2	3-3-2
7.5					SS04G	7.5 - 9.0	1.0	2-1-4
10.0	384.3		SILTY SAND WITH GRAVEL, SM, 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, dense, moist, [CCR]		SS05G	10.0 - 11.5	1.5	2-4-10
12.5					ST01	12.5 - 12.8	0.0	1100
15.0					SS06G	15.0 - 16.5	1.5	15-23-22

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190830.GDT_4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B02
Client	Tennessee Valley Authority	Boring Location	605,227.76 N; 1,412,431.27 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	394.3 ft Elevation Datum NGVD29







Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILTY SAND WITH GRAVEL, SM, 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, dense, moist, [CCR] (Continued)		SS07G	17.5 - 19.0	1.3	9-11-11	
19					SS08G	20.0 - 21.5	1.4	5-5-7	
20						SS09G	22.5 - 24.0	1.5	21-22-23
21					Wet at 23.0'				
22									
23									
24									
25									
26									
27	27.5			366.8					
28			SANDY SILT, ML, 2.5Y 3/1 (very dark gray), fine, non-plastic, loose, wet, [CCR]		SS11G	27.5 - 29.0	1.5	1-1-7	
29									
30	30.5	363.8							
31			SANDY SILT SOME GRAVEL, ML, 2.5Y 3/1 (very dark gray), fine to coarse, non-plastic, loose, moist, [CCR]		SS12G	30.0 - 31.5	1.5	4-4-4	
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/6/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43	43.0	351.3	LEAN CLAY WITH SAND, CL, 2.5Y 7/1 (light gray), medium plasticity, very soft, moist		SS16G	42.5 - 44.0	1.5	WH-WH-WH
44					SS17G	45.0 - 46.5	0.9	WR-WR-WR
45					SS18aG	47.5 - 48.5	1.3	2-5-4
46			CLAYEY SAND WITH GRAVEL, SC, 10YR 6/8 (brownish yellow), fine to coarse, medium plasticity, medium dense, moist		SS18bG	48.5 - 49.0		
47					ST03G	50.0 - 52.0	1.7	800
48	48.8	345.5			SS19G	52.5 - 54.0	1.5	5-6-7
49					SS20G	55.0 - 56.5	0.7	5-5-8
50					SS21G	57.5 - 59.0	1.5	4-9-11
51					SS22G	60.0 - 61.5	1.5	5-9-11
52			LEAN CLAY WITH SAND, CL, 10YR 7/8 (yellow), fine to coarse, medium plasticity, hard, moist		SS23G	62.5 - 63.4	0.9	4-50/5" Began Core
53								
54								
55								
56	57.5	336.8	Limestone, light gray, medium grained, thin, slightly weathered to moderately weathered, iron oxide staining, Vuggy with shale stringers		70	63.0 - 68.0	4.9	98
57								
58								
59								
60								
61	63.0	331.3						
62								
63								
64								
65								
66								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DIT 20180530.GDT 4/6/21

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-B02
Client <u>Tennessee Valley Authority</u>	Boring Location <u>605,227.76 N; 1,412,431.27 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>394.3 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
67			Limestone, light gray, medium grained, thin, slightly weathered to moderately weathered, iron oxide staining, Vuggy with shale stringers (Continued)						
68									
69									
70									
71						90	68.0 - 73.1 5.1	5.1	100
72									
73	73.1	321.2							

Bottom of Hole at 73.1 Ft.

Top of Rock = 63.0 Ft.
 Top of Rock Elevation = 331.3 Ft.
 Begin Core = 63.0 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 4/6/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B03	
Client	Tennessee Valley Authority	Boring Location	605,219.67 N; 1,412,610.05 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	400.8 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/1/19	Completed 8/2/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	27.7 ft	Date/Time 8/1/19
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Depth Ft ³	Elevation		Graphic	Rock Core:	RQD %	Run Ft	Rec. Ft
0	0.0	400.8						
	0.3	400.5	Topsoil					
1			SANDY LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 2.5YR 4/8 (red), medium plasticity, firm to very hard, moist, with fine gravel and fine to coarse sand, [FILL]		SS01G	0.0 - 1.5	0.8	6-5-4
2								
3					SS02G	2.5 - 4.0	1.3	5-6-19
4			With chert from 3.8' to 13.7'					
5								
6					SS03G	5.0 - 6.5	0.9	3-4-6
7								
8					SS04G	7.5 - 9.0	0.8	2-3-3
9								
10								
11					SS05G	10.0 - 11.5	0.8	3-2-2
12								
13	13.7	387.1			SS06aG	12.5 - 13.7	1.4	3-5-9
14			FAT CLAY WITH GRAVEL, CH, 7.5YR 5/6 (strong brown) with 7.5YR 6/1 (gray), medium plasticity, firm to very hard, moist, [FILL]		SS06bG	13.7 - 14.0		
15	15.4	385.4			SS07aG	15.0 - 15.4		
16	16.2	384.6	LEAN CLAY, CL, 10YR 5/4 (yellowish brown) to 10YR 6/2 (light brownish gray), medium plasticity, hard, moist, with fine gravel and fine to coarse sand, [FILL]		SS07bG	15.4 - 16.2	1.4	3-5-14
17	16.5	384.3			SS07cG	16.2 - 16.5		
18			GRAVELLY SILT, ML, 2.5Y 4/1 (dark gray) to 2.5Y					

TVA EIP BORING LOG 175568286 JOF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/3/20

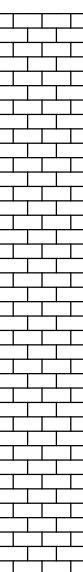
Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			3/1 (very dark gray), very fine to fine, non-plastic, moist, [CCR] SILTY SAND, SM, 10YR 3/1 (very dark gray), fine to coarse, dense to very dense, moist, [CCR] <i>(Continued)</i>		ST01G	17.5 - 18.3	0.8	1000		
19										
20										
21							SS08G	20.0 - 21.5	1.5	44-41-46
22										
23							SS09G	22.5 - 23.4	0.9	41-50/5"
24										
25										
26							SS10G	25.0 - 26.5	1.2	11-12-18
27										
28							SS11G	27.5 - 29.0	1.1	21-27-31
29										
30										
31							SS12G	30.0 - 31.5	0.8	1-1-2
32	32.5			368.3						
33					SILT, ML, 7.5YR 3/1 (very dark gray), non-plastic, very soft, moist, with fine sand, [CCR]		SS13G	32.5 - 34.0	1.5	1-1-1
34										
35										
36						SS14G	35.0 - 36.5	1.5	1-WH-WH	
37										
38						SS15G	37.5 - 39.0	1.5	1-1-WH	
39										
40										
41						SS16G	40.0 - 41.5	1.5	WH-WH-WH	
42										

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/3/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43	43.4	357.4	SILT, ML, 7.5YR 3/1 (very dark gray), non-plastic, very soft, moist, with fine sand, [CCR] (Continued)		SS17aG	42.5 - 43.4	1.5	WH-WH-WH
44				SS17bG	43.4 - 44.0			
45			LEAN CLAY, CL, 5Y 5/2 (olive gray) to 5Y 5/1 (gray), medium plasticity, soft to firm, moist		SS18G	45.0 - 46.5	1.5	2-3-6
46								
47								
48	48.5	352.3	CLAYEY GRAVEL WITH SAND, GC, 10YR 4/6 (dark yellowish brown) to 10YR 5/1 (gray), fine to coarse, medium dense to dense, moist		ST02G	47.5 - 49.5	2.0	900
49								
50			CLAYEY GRAVEL WITH SAND, GC, 10YR 4/6 (dark yellowish brown) to 10YR 5/1 (gray), fine to coarse, medium dense to dense, moist		SS19G	50.0 - 51.5	1.5	18-23-26
51								
52								
53								
54			Color change to 2.5Y 5/4 (light olive brown) at 60.5'		SS20G	52.5 - 54.0	1.5	19-17-21
55								
56								
57			Color change to 2.5Y 5/4 (light olive brown) at 60.5'		SS21G	55.0 - 56.5	1.5	16-18-12
58								
59			Color change to 2.5Y 5/4 (light olive brown) at 60.5'		SS22G	57.5 - 57.8	0.3	50/4"
60								
61			Color change to 2.5Y 5/4 (light olive brown) at 60.5'		SS23aG	60.0 - 60.5	1.5	11-28-16
62								
63	63.0	337.8	FAT CLAY, CH, 10YR 4/4 (dark yellowish brown) to 5Y 6/1 (gray), very hard, moist		SS23bG	60.5 - 61.5		
64								
65	64.6	336.2	Limestone, light gray, medium grained, thin, moderately weathered to slightly weathered, iron oxide staining, Vuggy with shale stringers		SS24G	62.5 - 64.0	1.4	7-8-12
66								Began Core

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/3/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B03
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 605,219.67 N; 1,412,610.05 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 400.8 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
67			Limestone, light gray, medium grained, thin, moderately weathered to slightly weathered, iron oxide staining, Vuggy with shale stringers <i>(Continued)</i>		14	64.7 - 68.2 3.5	64.7 - 68.2	2.3	66	
68										
69										
70										
71							68	68.2 - 73.2 5.0	68.2 - 73.2	4.8
72										
73										
74										
75	75.4	325.4			82	73.2 - 75.4 2.2	73.2 - 75.4	2.2	100	

Bottom of Hole at 75.4 Ft.

Top of Rock = 64.6 Ft.
 Top of Rock Elevation = 336.2 Ft.
 Begin Core = 64.7 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/3/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B04	
Client	Tennessee Valley Authority	Boring Location	600,412.00 N; 1,414,600.80 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	392.5 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/14/19	Completed 8/15/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	M. Pritt	Logger	M. Pritt	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	392.5	Top of Hole					
0.2	392.3		Topsoil			0.0 - 1.5	0.8	7-7-4
1			SANDY LEAN CLAY, CL, 7.5YR 5/8 (strong brown) with 7.5YR 6/3 (light brown), medium plasticity, firm, dry, with fine to coarse sand		SS01G	0.0 - 1.5	0.8	7-7-4
2					SS02G	2.5 - 4.0	0.7	3-2-2
3								
4								
5	5.0	387.5	SANDY LEAN CLAY WITH GRAVEL, CL, 5YR 5/8 (yellowish red), fine to coarse, medium plasticity, soft, moist		SS03G	5.0 - 6.5	1.5	3-2-4
6								
7								
8	8.0	384.5	WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 5YR 5/8 (yellowish red), fine to coarse, medium dense to very dense, moist to wet		ST01	7.5 - 8.2	0.0	1300
9								
10								
11					SS04G	10.0 - 11.5	1.5	14-24-32
12								
13					SS05G	12.5 - 14.0	1.5	20-28-33
14								
15								
16					SS06G	15.0 - 16.5	1.5	17-17-14
17								
18								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 4/6/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 5YR 5/8 (yellowish red), fine to coarse, medium dense to very dense, moist to wet <i>(Continued)</i>		SS07G	17.5 - 19.0	0.9	13-8-12	
19									
20									
21				Wet at 21.0'		SS08G	20.0 - 21.5	0.9	10-14-19
22	22.5		370.0						
23				SILT WITH SAND, ML, 7.5YR 5/8 (strong brown) with 7.5YR 4/4 (brown), fine to medium, medium plasticity, very hard, moist		SS09G	22.5 - 24.0	1.5	10-10-20
24									
25						ST02	25.0 - 25.3	0.0	1500
26				Color change to 10YR 7/1 (light gray) at 26.3'		SS10aG	25.3 - 26.3	1.5	20-25-29
27							SS10bG	26.3 - 26.8	
28						SS11G	27.5 - 29.0	1.5	10-21-46
29									
30									
31						SS12G	30.0 - 31.3	1.3	13-14-50/4"
32									
33						SS13G	32.5 - 34.0	1.5	14-21-37
34									
35	35.5	357.0			SS14aG	35.0 - 35.5			
36			SILT, ML, 10YR 7/1 (light gray) with 10R 4/8 (red), medium plasticity, very hard, moist		SS14bG	35.5 - 36.5	1.5	16-17-25	
37									
38					SS15G	37.5 - 39.0	1.5	16-23-39	
39									
40									
41					SS16G	40.0 - 41.5	1.5	23-24-36	
42									

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20180530.GDT 4/6/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B04
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,412.00 N; 1,414,600.80 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 392.5 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT, ML, 10YR 7/1 (light gray) with 10R 4/8 (red), medium plasticity, very hard, moist <i>(Continued)</i>		SS17G	42.5 - 44.0	1.5	21-25-38
44					SS18G	45.0 - 46.5	1.5	18-28-34
45					SS19aG	47.5 - 48.0	1.5	8-30-42
46			Shale, very dark gray to black, fine grained, thin bedded, highly weathered to completely weathered, moist, 15° bedding angle		SS19bG	48.0 - 49.0	1.5	8-30-42
47					SS20G	50.0 - 51.5	1.5	33-22-45
48	48.0	344.5			SS21G	52.5 - 54.0	1.5	44-35-47
49)))))			SS22G	55.0 - 56.3	1.3	20-32-50/4"
50)))))			SS23G	57.5 - 58.4	0.9	45-50/5"
51)))))						
52)))))						
53)))))						
54)))))						
55)))))						
56)))))						
57)))))						
58	58.4	334.1						

No Refusal /
Bottom of Hole at 58.4 Ft.

Top of Rock = 48.0 Ft.
Top of Rock Elevation = 344.5 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 4/6/21

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-B05	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 599,914.17 N; 1,415,010.79 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 456.4 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 11/6/19 </u>	Completed <u> 11/13/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> 74.0 ft </u>	Date/Time <u> 11/12/19 08:28 </u>
Inspector <u> C. Burton </u>	Logger <u> C. Burton </u>	Depth to Water <u> 67.9 ft </u>	Date/Time <u> 11/13/19 15:01 </u>
Drilling Contractor <u> Stantec Consulting Services Inc. </u>		Drill Rig Type and ID <u> CME 1050, #952 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> NQ-3 Wireline, Split Barrel, Surface Set Bit </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> Automatic </u>	Weight <u> 140 lb </u>	Drop <u> 30" </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> A. Welshans </u>		Approved By <u> M. Aplin </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
0	0.0	456.4							
1			Top of Hole						
1			SANDY FAT CLAY, CH, 10YR 5/6 (yellowish brown) with 10YR 6/1 (gray), soft, moist, [FILL]		SS01G	0.0 - 1.5	0.5	1-2-2	
2									
3	2.7	453.7	SILTY SAND TRACE GRAVEL, SM, 10YR 3/1 (very dark gray), fine to medium, medium dense to very loose, dry, [CCR]		SS02G	2.5 - 4.0	1.3	8-17-9	
4									
5									
6						SS03G	5.0 - 6.5	0.5	1-2-3
7									
8					SS04G	7.5 - 9.0	0.2	1-1-1	
9									
10									
11					SS05G	10.0 - 11.5	0.3	1-WH-WH	
12									
13									
14					SS06G	12.5 - 14.0	0.3	WH-WH-WH	
14	14.5	441.9	SILT, ML, 10YR 3/1 (very dark gray), non-plastic, firm to hard, dry, [CCR]						
15									
16						SS07G	15.0 - 16.5	0.6	2-3-5
17									
18									

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 10/30/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-B05
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,914.17 N; 1,415,010.79 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>456.4 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILT, ML, 10YR 3/1 (very dark gray), non-plastic, firm to hard, dry, [CCR] (Continued)		SS08G	17.5 - 19.0	1.4	3-3-5	
19									
20									
21						SS09G	20.0 - 21.5	0.9	5-5-7
22									
23						SS10G	22.5 - 24.0	1.5	4-5-6
24									
25									
26						SS11G	25.0 - 26.5	0.9	5-4-6
27									
28						SS12G	27.5 - 29.0	1.5	3-4-6
29									
30									
31						SS13G	30.0 - 31.5	0.9	4-6-6
32									
33						SS14G	32.5 - 34.0	1.3	3-4-6
34									
35									
36					SS15G	35.0 - 36.5	0.9	5-6-6	
37									
38			Moist at 37.5'		ST01G	37.5 - 39.5	2.0	350	
39									
40									
41					SS16G	40.0 - 41.5	1.2	3-5-6	
42									

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B05
Client	Tennessee Valley Authority	Boring Location	599,914.17 N; 1,415,010.79 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	456.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
43			SILT, ML, 10YR 3/1 (very dark gray), non-plastic, firm to hard, dry, [CCR] (Continued)		SS17G	42.5 - 44.0	1.0	4-6-8	
44					SS18G	45.0 - 46.5	1.4	3-4-4	
45									
46									
47									
48						SS19G	47.5 - 49.0	1.5	3-5-3
49									
50									
51						SS20G	50.0 - 51.5	0.9	3-2-3
52	52.7	403.7							
53			SILT, ML, 10YR 3/1 (very dark gray) to 2.5Y 3/1 (very dark gray), non-plastic, very soft, wet, [CCR]		SS21G	52.5 - 54.0	1.5	1-WH-2	
54									
55									
56						SS22G	55.0 - 56.5	1.5	1-WH-WH
57									
58			very hard from 59.5' to 64.5'		SS23G	57.5 - 59.0	1.5	WR-WR-1	
59									
60									
61						SS24G	60.0 - 61.5	1.5	13-17-21
62									
63					SS25G	62.5 - 64.0	1.5	9-8-8	
64									
65									
66					ST02G	65.0 - 67.0	2.0	200	

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 10/30/20















SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B05
Client	Tennessee Valley Authority	Boring Location	599,914.17 N; 1,415,010.79 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	456.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
67			SILT, ML, 10YR 3/1 (very dark gray) to 2.5Y 3/1 (very dark gray), non-plastic, very soft, wet, [CCR] <i>(Continued)</i>					
68					SS26G	67.5 - 69.0	1.5	WR-WR-1
70					SS27G	70.0 - 71.5	1.5	WR-WR-WR
73					SS28aG	72.5 - 73.8	1.5	WR-WR-11
74	73.8	382.6		SS28bG	73.8 - 74.0			
75			WELL GRADED GRAVEL WITH SAND, GW, 5YR 6/6 (reddish yellow), medium to coarse, dense, wet		ST03G	75.0 - 75.4	0.0	1000
76					SS29G	75.5 - 77.0	1.3	8-18-25
77	77.5	378.9						
78	78.6	377.8	SILT, ML, 7.5YR 4/4 (brown), very soft, moist, laminated, trace shale fragments		SS30aG	77.5 - 78.6	1.5	1-WH-1
79			SILT, ML, 7.5YR 8/2 (pinkish white), medium plasticity, very soft, moist, trace shale fragments		SS30bG	78.6 - 79.0		
80					ST04G	80.0 - 81.3	1.3	300
82	82.5	373.9	SILT TRACE SAND, ML, 7.5YR 8/2 (pinkish white) with 7.5YR 4/4 (brown), medium plasticity, very hard, dry Color change to 10YR 3/1 from 83.5' to 83.8'		SS31G	82.5 - 84.0	1.5	23-31-31
84	84.1	372.3						Began Core
85			Soil, no recovery					
86					0	84.1 - 87.7 3.6	0.4	11
87								
88								
89								
90								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 10/30/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B05
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 599,914.17 N; 1,415,010.79 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 456.4 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
90.7	365.7		LEAN CLAY WITH SILT, CL-ML, 7.5YR 8/2 (pinkish white) with 7.5YR 4/4 (brown), low to medium plasticity, very hard, dry		0	89.0 - 92.5	1.8	51
91.5	364.9					3.5		
92.7	363.7		Shale, very dark gray to black, soft to moderately hard, laminated to very thin bedded, slightly weathered, calcareous, Trace of light gray limestone partings					
93			Shale, very dark gray to gray red, soft, laminated, moderately weathered to highly weathered, calcareous, Claystone-like characteristics		46	92.5 - 97.5	5.0	100
94								
95								
96								
97								
98								
99.2	357.2		Shale, very dark gray to black, soft to moderately hard, laminated to very thin bedded, calcareous, 0° bedding angle, Trace of light gray limestone partings		23	97.5 - 101.9	3.9	89
100								
101								
101.9	354.5							

Bottom of Hole at 101.9 Ft.


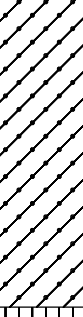
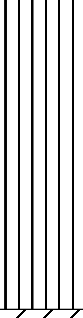

Top of Rock = 91.5 Ft.
 Top of Rock Elevation = 364.9 Ft.
 Begin Core = 84.1 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/30/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-B06	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>598,974.24 N; 1,414,747.55 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>407.6 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>JOF TDEC Order</u>		Date Started <u>8/13/19</u>	Completed <u>8/14/19</u>
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>27.0 ft</u>	Date/Time <u>8/14/19 09:34</u>
Inspector <u>M. Pritt</u>	Logger <u>M. Pritt</u>	Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>NQ-3 Wireline, Split Barrel, Impregnated Bit</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>Automatic</u>	Weight <u>140 lb</u>	Drop <u>30"</u>	Efficiency <u>N/A</u>
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>A. Welshans</u>		Approved By <u>M. Aplin</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	407.6		Top of Hole					
0.2	407.4		Topsoil					
1			SANDY SILT, ML, 5Y 5/1 (gray), very fine to fine, low plasticity, medium dense, moist, [CCR]		SS01G	0.0 - 1.5	1.0	3-9-15
2.7	404.9		CLAYEY SAND WITH GRAVEL, SC, 5YR 5/8 (yellowish red) to 10YR 6/2 (light brownish gray), fine to coarse, medium plasticity, medium dense, moist, [FILL]		SS02G	2.5 - 4.0	1.5	15-14-15
3					SS03G	5.0 - 6.5	1.1	7-9-9
7.7	399.9		SILT, ML, 5B 4/1 (dark bluish gray), fine to coarse, non-plastic, firm, moist, [CCR]		SS04G	7.5 - 9.0	1.5	3-4-5
8					ST01G	10.0 - 12.0	2.0	300
12.8	394.8		LEAN CLAY, CL, 7.5YR 6/8 (reddish yellow) to 5BG 7/1 (light greenish gray), medium plasticity, firm to hard, moist, [FILL]		SS05G	12.5 - 14.0	1.2	2-3-3
13					ST02G	15.0 - 16.5	1.5	1000

TVA EIP BORING LOG 175568286 JOF TDEC ORDER.GPJ TDEC SUBSURF DT 20190830.GDT 10/30/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B06
Client	Tennessee Valley Authority	Boring Location	598,974.24 N; 1,414,747.55 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	407.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			LEAN CLAY, CL, 7.5YR 6/8 (reddish yellow) to 5BG 7/1 (light greenish gray), medium plasticity, firm to hard, moist, [FILL] (Continued)		SS06G	17.5 - 19.0	1.5	3-7-12		
19										
20										
21							SS07G	20.0 - 21.5	1.5	6-11-9
22										
23					Color change to 7.5YR6/8 (reddish yellow) with 5BG 7/1 (light greenish gray) from 22.5' to 25.0'		SS08G	22.5 - 24.0	1.5	6-5-8
24										
25										
26							SS09G	25.0 - 26.5	1.5	6-7-21
27										
28	28.4			379.2			SS10aG	27.5 - 28.4	1.5	22-43-36
29					CLAYEY GRAVEL, GC, 5YR 5/8 (yellowish red), fine to coarse, low plasticity, medium dense, moist		SS10bG	28.4 - 29.0		
30	30.5	377.1								
31			LEAN CLAY, CL, 10YR 7/1 (light gray), medium plasticity, firm, moist, weathered shale fragments		SS11aG	30.0 - 30.5				
32						SS11bG	30.5 - 31.5	1.5	9-4-3	
33	32.7	374.9			SS12G	32.5 - 33.2	0.7	24-50/2" Began Core		
34			Shale, dark gray to black, fine grained, thin bedded, moderately weathered to highly weathered, damp, 0° to 15° bedding angle Clay and gravel seam, at 33.7'							
35										
36						0	33.2 - 37.7 4.5	3.0	67	
37										
38										
39										
40						0	37.7 - 42.7 5.0	3.1	62	
41										
42										

TVA/EIP BORING LOG 175568286 JOF TDEC ORDER GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B06
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 598,974.24 N; 1,414,747.55 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 407.6 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
42.7	364.9	~						

Bottom of Hole at 42.7 Ft.

Top of Rock = 32.7 Ft.

Top of Rock Elevation = 374.9 Ft.

Begin Core = 33.2 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20180530.GDT - 10/30/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B07	
Client	Tennessee Valley Authority	Boring Location	599,004.79 N; 1,414,968.95 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	445.9 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/7/19	Completed 8/8/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	M. Pritt	Logger	M. Pritt	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	445.9	Top of Hole					
0.5	445.4		Topsoil					
1			LEAN CLAY, CL, 5YR 6/8 (reddish yellow), low to medium plasticity, firm to hard, dry, [FILL]					
3	3.0	442.9	SILT WITH SAND, ML, 7.5YR 3/1 (very dark gray), fine to coarse, non-plastic, hard to very hard, moist, [CCR]		SS01aG	2.5 - 3.0		
4					SS01bG	3.0 - 4.0	1.4	7-12-12
6					ST01G	5.0 - 7.0	2.0	1200
8					SS02G	7.5 - 9.0	0.6	13-15-16
10					SS03G	10.0 - 11.5	1.5	4-5-6
13					SS04G	12.5 - 14.0	1.5	7-9-9
16					SS05G	15.0 - 16.5	1.5	9-14-15
17.5			Decreased sand content at 17.5'					

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF DT 20190530.GDT 4/6/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B07
Client	Tennessee Valley Authority	Boring Location	599,004.79 N; 1,414,968.95 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	445.9 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILT WITH SAND, ML, 7.5YR 3/1 (very dark gray), fine to coarse, non-plastic, hard to very hard, moist, [CCR] (Continued)		SS06G	17.5 - 19.0	1.4	17-19-21
20.0	425.9							
21	21.0		LEAN CLAY SOME GRAVEL, CL, 7.5YR 6/8 (reddish yellow), fine, low to medium plasticity, hard, moist		SS07G	20.0 - 21.5	1.5	8-12-17
22			SANDY SILT, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, hard, moist, [CCR]		SS08G	22.5 - 24.0	1.5	5-7-6
26.0	419.9							
27	27.5		SANDY SILTY GRAVEL, GM, 5YR 2.5/1 (black), fine to coarse, non-plastic, medium dense, moist, [CCR]		SS09G	25.0 - 26.5	1.4	3-6-7
28			SILT, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, hard to firm, moist, [CCR]		SS10G	27.5 - 29.0	1.5	5-4-5
30								
31					SS11G	30.0 - 31.5	1.5	4-2-4
32					SS12G	32.5 - 34.0	1.5	1-2-3
33					SS13G	35.0 - 36.5	1.5	3-3-3
34					SS14G	37.5 - 39.0	1.5	3-2-3
40	40.4		SILTY SAND, SM, 5YR 2.5/1 (black), fine to coarse, non-plastic to low plasticity, loose, moist, [CCR]		SS15G	40.0 - 41.5	1.5	4-3-4
41								
42								

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B07
Client	Tennessee Valley Authority	Boring Location	599,004.79 N; 1,414,968.95 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	445.9 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
42.5	403.4		SILT TRACE SAND, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, firm to very hard, moist, [CCR]		SS16G	42.5 - 44.0	1.5	3-4-3
45.6			Clayey silt seam from 45.6' to 46.0'		SS17G	45.0 - 46.5	1.5	3-4-5
47.5					SS18G	47.5 - 49.0	1.5	3-3-3
50.0					SS19G	50.0 - 51.5	1.5	3-3-5
52.5			Clayey silt seam from 53.4' to 54.0'		SS20aG	52.5 - 53.4	1.5	3-2-2
53.4					SS20bG	53.4 - 54.0		
55.0					SS21G	55.0 - 56.5	1.5	18-22-21
56.4			Wet at 56.4'					
57.5					SS22G	57.5 - 59.0	1.5	15-12-13
60.0					SS23G	60.0 - 61.5	1.5	5-5-4
62.5					SS24aG	62.5 - 63.4	1.5	2-18-25
63.4	382.5		WELL GRADED GRAVEL WITH CLAY AND SAND, GW-GC, 7.5YR 7/8 (reddish yellow), fine to coarse, low to medium plasticity, dense to very dense, wet		SS24bG	63.4 - 64.0		
65.0					SS25G	65.0 - 66.5	1.3	23-39-39




TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20180530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B07
Client	Tennessee Valley Authority	Boring Location	599,004.79 N; 1,414,968.95 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	445.9 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
67			WELL GRADED GRAVEL WITH CLAY AND SAND, GW-GC, 7.5YR 7/8 (reddish yellow), fine to coarse, low to medium plasticity, dense to very dense, wet <i>(Continued)</i>					
68				SS26G	67.5 - 69.0	1.3	20-24-17	
69								
70	70.6	375.3						
71	70.8	375.1	SANDY SILT, ML, 2.5Y 7/1 (light gray), very fine to fine, non-plastic, very hard, moist		SS27G	70.0 - 71.5	1.0	4-5-28
72			Shale, dark gray to black, fine grained, thin bedded, slightly weathered to highly weathered, 15° bedding angle		SS28G	72.5 - 73.4	0.9	21-50+/5" Began Core
73								
74					0	73.4 - 75.1	0.2	12
75						1.7		
76			Clay seams present throughout from 76.4' to 76.9', 78.8' to 79.8', 80.0' to 80.5'.		21	75.1 - 78.0	2.6	90
77							2.9	
78								
79								
80					8	78.0 - 83.0	4.5	90
81						5.0		
82								
83								
84								
85					0	83.0 - 86.7	0.1	3
86						3.7		
87					0	86.7 - 88.0	1.2	92
88						1.3		
89								
90								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B07
Client	Tennessee Valley Authority	Boring Location	599,004.79 N; 1,414,968.95 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	445.9 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
91			Shale, dark gray to black, fine grained, thin bedded, slightly weathered to highly weathered, 15° bedding angle (Continued)		40	88.0 - 93.0	4.8	96
92						5.0		
93	93.0	352.9						

Bottom of Hole at 93.0 Ft.

Top of Rock = 70.8 Ft.
 Top of Rock Elevation = 375.1 Ft.
 Begin Core = 73.4 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 4/6/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B08	
Client	Tennessee Valley Authority	Boring Location	599,016.05 N; 1,415,076.77 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	448.6 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/8/19	Completed 8/13/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	M. Pritt	Logger	M. Pritt	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	448.6	Top of Hole					
	0.4	448.2	Topsoil					
1			LEAN CLAY, CL, 5YR 6/8 (reddish yellow), very fine to fine, medium plasticity, firm, dry, [FILL]					
2								
3	2.8	445.8	SANDY SILT, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, hard to very hard, dry to moist, [CCR]		SS01aG	2.5 - 2.8		
4					SS01bG	2.8 - 4.0	1.1	5-11-19
5								
6					SS02G	5.0 - 6.5	1.5	12-17-20
7								
8				SS03G	7.5 - 9.0	1.5	6-12-15	
9								
10				SS04G	10.0 - 11.5	1.5	5-9-15	
11								
12								
13				ST01G	12.5 - 13.6	1.1	1300	
14								
15								
16				SS05G	15.0 - 16.5	1.5	7-8-6	
17								
18								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 11/3/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B08
Client	Tennessee Valley Authority	Boring Location	599,016.05 N; 1,415,076.77 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	448.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SANDY SILT, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, hard to very hard, dry to moist, [CCR] (Continued)		SS06G	17.5 - 19.0	1.5	10-13-17
19								
20								
21			LEAN CLAY SOME GRAVEL, CL, 7.5YR 4/4 (brown), very fine to coarse, medium plasticity, firm, moist, [FILL]		SS07G	20.0 - 21.5	1.5	7-9-11
22								
23	23.5	425.1			SS08aG	22.5 - 23.5	1.5	10-12-14
24					SS08bG	23.5 - 24.0		
25	25.0	423.6	SILT WITH SAND, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, soft to hard, dry to moist, [CCR]					
26					SS09G	25.0 - 26.5	1.5	5-6-7
27								
28			Increase of moisture at 36.0'		SS10G	27.5 - 29.0	1.5	6-7-6
29								
30								
31					SS11G	30.0 - 31.5	1.5	5-4-5
32								
33					SS12G	32.5 - 34.0	1.5	4-3-5
34								
35								
36					SS13G	35.0 - 36.5	1.5	3-3-3
37								
38					SS14G	37.5 - 39.0	1.5	5-4-4
39								
40								
41					SS15G	40.0 - 41.5	1.5	6-4-3
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/3/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-B08
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,016.05 N; 1,415,076.77 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>448.6 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT WITH SAND, ML, 7.5YR 3/1 (very dark gray), very fine to fine, non-plastic to low plasticity, soft to hard, dry to moist, [CCR] (Continued)		SS16G	42.5 - 44.0	1.5	6-4-6
44								
45			Decreased sand content at 45.0'					
46					SS17G	45.0 - 46.5	1.5	4-3-5
47								
48					SS18G	47.5 - 49.0	1.5	5-2-3
49								
50			Clayey seam from 50.5' to 51.1'					
51					SS19G	50.0 - 51.5	1.5	1-4-3
52								
53				Clayey seam from 53.0' to 53.5'		SS20G	52.5 - 54.0	1.5
54								
55				Clayey seam from 56.0' to 56.5'		SS21G	55.0 - 56.5	1.5
56								
57								
58					SS22G	57.5 - 59.0	1.5	4-4-5
59								
60			Wet at 60.5'					
61					SS23G	60.0 - 61.5	1.5	14-14-15
62								
63					SS24G	62.5 - 64.0	1.5	2-1-1
64								
65					SS25aG	65.0 - 66.1	1.5	WH-WH-18
66	66.1	382.5						

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 11/3/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B08
Client	Tennessee Valley Authority	Boring Location	599,016.05 N; 1,415,076.77 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	448.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
67			POORLY GRADED GRAVEL WITH CLAY AND SAND, GP-GC, 7.5YR 7/6 (reddish yellow), fine to coarse, medium plasticity, medium dense to dense, wet to wet (Continued)		SS25bG	66.1 - 66.5			
68					ST02G	67.5 - 67.8	67.5 - 67.8	0.0	1300
69									
70									
71					SS26G	70.0 - 71.5	70.0 - 71.5	1.5	21-11-14
72	72.5	376.1							
73			Shale, dark gray to light gray, fine grained, thin bedded, slightly weathered to completely weathered, moist to wet, 15° bedding angle		SS27G	72.5 - 73.5	72.5 - 73.5	1.0	3-8-50/0.0' Began Core
74									
75									
76					44	73.5 - 77.8 4.3	73.5 - 77.8	2.4	56
77			Cored faster from 76.5' to 79.8'						
78	77.8	370.8							
79			Mudstone, light gray and pale brown, fine grained, thin, highly weathered, moist, 0° bedding angle Clay seam at 78.3'						
80	79.6			369.0					
81			Shale, dark gray to black, fine grained, thin bedded, moderately weathered to highly weathered, 0° bedding angle		30	77.8 - 82.8 5.0	77.8 - 82.8	4.9	98
82	81.3			367.3					
83			Mudstone, light gray and pale brown, fine grained, thin, highly weathered, moist, 0° bedding angle						
84	84.0			364.6					
85			Shale, dark gray to black, fine grained, thin bedded, moderately weathered to highly weathered, moist, 15° to 45° bedding angle		12	82.8 - 87.8 5.0	82.8 - 87.8	2.4	48
86									
87									
88									
89									
90					16	87.8 - 92.8	87.8 - 92.8	2.5	50

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF.DT 20180530.GDT 11/3/20

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-B08
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,016.05 N; 1,415,076.77 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>448.6 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
91		⌋	Shale, dark gray to black, fine grained, thin bedded, moderately weathered to highly weathered, moist, 15° to 45° bedding angle <i>(Continued)</i> Clay and shale gravel from 92.0' to 97.2'			5.0			
92		⌋							
93		⌋							
94		⌋							
95		⌋				0	92.8 - 97.2 4.4	1.5	34
96		⌋							
97		⌋							
98		⌋				0	97.2 - 99.3 2.1	1.3	62
99		⌋							
100		⌋							
101		⌋			20	99.3 - 102.8 3.5	2.1	60	
102		⌋	45 degree bedding from 101.8' to 102.8'						
102.8	345.8	⌋							

Bottom of Hole at 102.8 Ft.

Top of Rock = 72.5 Ft.

Top of Rock Elevation = 376.1 Ft.

Begin Core = 73.5 Ft.

Vibrating wire piezometers installed. See installation log for details.

1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)

G = Geotechnical Sample Custody

2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 11/3/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B09	
Client	Tennessee Valley Authority	Boring Location	599,950.27 N; 1,416,160.44 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	405.2 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	9/23/19	Completed 9/24/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	21.8 ft	Date/Time 9/24/19 09:20
Inspector	M. McDonald	Logger	M. McDonald	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	405.2	Top of Hole					
0.2	405.0		Topsoil					
1			SILTY SAND, SM, 10YR 4/1 (dark gray), very fine to fine, loose to very loose, moist to wet, [CCR]		SS01G	0.0 - 1.5	1.5	1-2-3
2					SS02G	2.5 - 4.0	1.4	1-1-1
5.0	400.2		SILT, ML, 10YR 4/1 (dark gray), non to low plasticity, very soft, moist, [CCR]		ST01G	5.0 - 7.0	1.8	100
8					SS03G	7.5 - 9.0	1.5	1-WH-WH
11.0	394.2		SANDY LEAN CLAY WITH GRAVEL, CL, 7.5YR 5/6 (strong brown) to 2.5YR 6/6 (light red), low to medium plasticity, very soft to soft, moist		SS04aG	10.0 - 11.0	1.5	1-1-1
12					SS04bG	11.0 - 11.5		
13					SS05G	12.5 - 14.0	0.5	1-1-2
16					SS06G	15.0 - 16.5	1.1	1-1-1












TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190930.GDT 10/30/20

Client Borehole ID N/A Stantec Boring No. **JOF-B09**
 Client Tennessee Valley Authority Boring Location 599,950.27 N; 1,416,160.44 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 405.2 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18	18.7	386.5			ST02G	17.5 - 19.3	1.0	500
19			FAT CLAY TRACE SAND, CH, 2.5YR 4/6 (red), medium to high plasticity, firm to hard					
20	20.0	385.2			SS07G	20.0 - 21.5	1.5	22-22-18
21			WELL GRADED GRAVEL WITH CLAY AND SAND, GW-GC, 2.5YR 4/6 (red), fine to coarse, dense to medium dense, moist to wet					
22					SS08G	22.5 - 24.0	0.9	9-8-9
23								
24								
25	25.0	380.2			SS09G	25.0 - 26.5	1.2	14-20-18
26			WELL GRADED GRAVEL WITH CLAY AND SAND, GW-GC, 7.5YR 5/8 (strong brown), medium dense to dense, wet, traces of clay lenses					
27								
28					SS10G	27.5 - 29.0	0.8	7-12-8
29								
30								
31	31.1	374.1			SS11aG	30.0 - 31.1	1.2	3-22-11
32					SS11bG	31.1 - 31.5		
33			SILT, ML, 7.5YR 5/8 (strong brown) to 2.5Y 2.5/1 (black), medium plasticity, hard, laminated, highly weathered shale					
34	33.7	371.5			SS12G	32.5 - 34.0	1.5	6-7-13
35	34.3	370.9			SS13G	34.0 - 34.3	0.3	Begin Core
36			Shale, dark gray to black, very fine grained, soft, laminated, moderately weathered, argillaceous					
37			Shale, black to very dark green black, very fine grained, soft, laminated to thin bedded, moderately weathered, carbonaceous, friable		0	34.3 - 38.1 3.8	0.8	21
38	38.1	367.1						
39			Shale, black to very dark gray brown, very fine grained, soft, laminated to thin bedded, moderately weathered, carbonaceous, friable, with clay seams throughout					
40					0	38.1 - 43.1 5.0	1.0	20
41								
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B09
Client	Tennessee Valley Authority	Boring Location	599,950.27 N; 1,416,160.44 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	405.2 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
42.5	362.7		Shale, black to very dark gray brown, very fine grained, soft, laminated to thin bedded, freshly weathered to slightly weathered, carbonaceous, trace of carbonaceous sandstone and calcite partings						
43									
44									
45					0	43.1 - 48.1	43.1 - 48.1	3.7	74
46						5.0			
47									
48									
49									
50									
51					0	48.1 - 53.1	48.1 - 53.1	3.2	64
52					5.0				
53	53.1	352.1							

Bottom of Hole at 53.1 Ft.

Top of Rock = 33.7 Ft.

Top of Rock Elevation = 371.5 Ft.

Begin Core = 34.3 Ft.

Vibrating wire piezometers installed. See installation log for details.

1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)

G = Geotechnical Sample Custody

2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples

3: Depths are reported in feet below ground surface

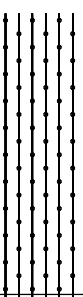
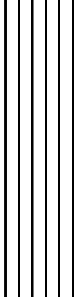
TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/30/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-B10A	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,233.33 N; 1,412,221.75 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>383.6 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>9/25/19</u> Completed <u>9/25/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>11.8 ft</u> Date/Time <u>9/25/19 10:31</u>	
Inspector <u>M. McDonald</u> Logger <u>M. McDonald</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>A. Welshans</u>		Approved By <u>M. Aplin</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.6	Top of Hole					
	0.3	383.3	Topsoil			0.0 - 1.5	0.7	4-5-5
1			SILTY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 6/8 (reddish yellow) to 10YR 5/4 (yellowish brown), low to medium plasticity, firm, moist, traces of fine subangular gravel, [FILL]		SS01G	0.0 - 1.5		
2								
3	3.0	380.6	SILTY SAND WITH GRAVEL, SM, 5YR 3/4 (dark reddish brown), fine to coarse, medium dense to very dense, moist, [CCR]		SS02aG	2.5 - 3.0		
4					SS02bG	3.0 - 4.0	1.5	8-13-13
5								
6			SILTY SAND TRACE GRAVEL, SM, 10YR 3/1 (very dark gray), fine, medium dense, moist, [CCR]		SS03G	5.0 - 6.3	1.2	15-50-50/4"
7								
8	7.7	375.9	SILTY SAND TRACE GRAVEL, SM, 10YR 3/1 (very dark gray), fine, medium dense, moist, [CCR]		SS04G	7.5 - 9.0	1.5	12-10-12
9								
10	10.2	373.4	SILTY WELL GRADED SAND TRACE GRAVEL, SW, 5YR 3/4 (dark reddish brown), fine to medium, loose, moist, [CCR]		SS05G	10.0 - 11.5	1.1	8-4-4
11								
12	12.5	371.1	SILTY SAND, SM, 10YR 3/1 (very dark gray), fine to coarse, medium dense, wet, [CCR]		SS06G	12.5 - 14.0	0.9	1-4-8
13								
14								
15			SILTY SAND, SM, 10YR 3/1 (very dark gray), fine to coarse, medium dense, wet, [CCR]		SS07G	15.0 - 16.5	1.5	10-11-13
16								
17								
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT_20190930.GDT_10/30/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-B10A
Client	Tennessee Valley Authority	Boring Location	605,233.33 N; 1,412,221.75 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILTY SAND, SM, 10YR 3/1 (very dark gray), fine to coarse, medium dense, wet, [CCR] <i>(Continued)</i>		ST01G	17.5 - 18.5	0.7	750	
19									
20									
21						SS08G	20.0 - 21.5	1.5	11-11-11
22	22.5	361.1							
23			SANDY SILT, ML, 10YR 3/1 (very dark gray), fine to coarse, non-plastic to low plasticity, hard, wet, [CCR]		SS09G	22.5 - 24.0	0.9	5-5-5	
24									
25									
26						ST02G	25.0 - 27.0	1.9	300
27	27.5	356.1							

No Refusal /
Bottom of Hole at 27.5 Ft.

Boring backfilled with 30% solids bentonite grout.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B10B	
Client	Tennessee Valley Authority	Boring Location	605,236.13 N; 1,412,209.01 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	384.0 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	9/25/19	Completed 9/26/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	13.0 ft	Date/Time 9/26/19 10:25
Inspector	M. McDonald	Logger	M. McDonald	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	NQ-3 Wireline, Split Barrel, Impregnated Bit			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	384.0						
1	1.0	383.0	WELL GRADED GRAVEL, SW, 10YR 7/1 (light gray), coarse, medium dense, dry, [FILL]		SS01G	0.0 - 1.5	1.2	20-11-5
2			SILTY LEAN CLAY, CL, 10YR 6/4 (light yellowish brown), low to medium plasticity, firm, moist, [FILL]					
3	3.1	380.9	SILTY SAND WITH GRAVEL, SM, 7.5YR 4/3 (brown) to 7.5YR 4/4 (brown), fine to coarse, dense to very dense, [CCR]		SS02aG	2.5 - 3.1	1.4	4-19-20
4					SS02bG	3.1 - 4.0		
5								
6					SS03G	5.0 - 6.2	1.2	4-20-50/2"
7								
8	8.5	375.5			SS04aG	7.5 - 8.5	1.5	36-30-28
9					SS04bG	8.5 - 9.0		
10	10.3	373.7	WELL GRADED SAND SOME GRAVEL, SW, 2.5Y 2.5/1 (black), very fine to coarse, very dense, dry, [CCR]					
11			SILTY WELL GRADED SAND TRACE GRAVEL, SW, 7.5YR 4/4 (brown) to 7.5YR 4/6 (strong brown), fine to coarse, non-plastic, dense, moist, [CCR]		SS05G	10.0 - 11.5	1.5	18-26-22
12								
13			Wet at 12.5'					
14	13.7	370.3			SS06aG	12.5 - 13.7	1.5	6-6-7
15			SILTY SAND, SM, 2.5Y 4/1 (dark gray), very fine to fine, medium dense, moist, [CCR]		SS06bG	13.7 - 14.0		
16	15.0	369.0						
					SS07G	15.0 - 16.5	1.5	4-3-1

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC SUBSURF DT 20190930.GDT_4/6/21



SUBSURFACE LOG

Client Borehole ID N/A Stantec Boring No. **JOF-B10B**
 Client Tennessee Valley Authority Boring Location 605,236.13 N; 1,412,209.01 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 384.0 ft Elevation Datum NGVD29






Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
16			WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 7.5YR 4/4 (brown) to 10YR 2/2 (very dark brown), fine to coarse, non-plastic, medium dense, wet, [CCR] (Continued)							
17										
18										
19										
20	20.0	364.0			SS08G	17.5 - 19.0	1.5	8-6-6		
21		22.5	361.5		SS09G	20.0 - 21.5	1.3	6-12-9		
22										
23			SILT, ML, 2.5Y 4/1 (dark gray) to 5Y 5/1 (gray), hard, wet, with interbedded well graded sand, [CCR]		SS10G	22.5 - 24.0	1.5	5-7-24		
24										
25					Moist at 25.0'					
26							ST01G	25.0 - 27.0	2.0	350
27	27.5	356.5								
28		30.0	354.0		SS11G	27.5 - 29.0	1.5	4-4-6		
29										
30			SANDY SILT, ML, 5Y 5/1 (gray), non-plastic to low plasticity, firm, moist, [CCR]		SS12G	30.0 - 31.5	1.5	WH-3-5		
31										
32	32.5			351.5						
33							SS13G	32.5 - 34.0	1.1	WH-2-2
34		35.0	349.0		SS14G	35.0 - 36.5	0.7	10-21-11		
35										
36		37.5	346.5							
37										

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 4/6/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
38			SANDY LEAN CLAY TRACE GRAVEL, CL, 7.5YR 5/8 (strong brown), low to medium plasticity, hard, moist, trace of subangular chert and gray silty sand lenses		SS15G	37.5 - 39.0	0.6	3-5-10
39								
40								
41			SILTY SAND LITTLE CLAY, SM, 7.5YR 5/8 (strong brown), fine, low to medium plasticity, medium dense, moist, trace of fine subangular gravel		ST02G	40.0 - 42.0	1.0	300
42								
43			FAT CLAY TRACE SAND, CH, 7.5YR 5/8 (strong brown) and 5G 2.5/2 (very dark grayish green), low to medium plasticity, firm, moist, trace of fine subangular gravel		SS16G	42.5 - 44.0	1.5	4-4-6
44								
45			Limestone, green blue, finely crystalline, hard, highly weathered, calcareous		SS17G	45.0 - 46.5	1.5	4-4-8
46	45.7	338.3						
47			Limestone, pale gray to light gray, coarsely crystalline, hard, thick bedded to medium bedded, dry, wavy, calcareous Multiple horizontal fractures, smooth, polished surface from 52.8' to 53.4' Bedding fracture, smooth, matte surface, break along shale parting at 53.8', 55.2', 58.3' Bedding fracture, 0°, planar, rough to smooth, matte surface, weathered, stained, at 54.6'		SS18G	47.5 - 49.0	1.5	5-6-6
48	48.2	335.8						
49			Limestone, green blue, finely crystalline, hard, highly weathered, calcareous		SS19G	50.0 - 51.5	1.5	4-6-8
50								
51			Limestone, pale gray to light gray, coarsely crystalline, hard, thick bedded to medium bedded, dry, wavy, calcareous Multiple horizontal fractures, smooth, polished surface from 52.8' to 53.4' Bedding fracture, smooth, matte surface, break along shale parting at 53.8', 55.2', 58.3' Bedding fracture, 0°, planar, rough to smooth, matte surface, weathered, stained, at 54.6'		SS20G	52.5 - 52.6	0.1	50/1" Began Core
52	52.5	331.5						
53	52.8	331.2	Limestone, pale gray to light gray, coarsely crystalline, hard, thick bedded to medium bedded, dry, wavy, calcareous Multiple horizontal fractures, smooth, polished surface from 52.8' to 53.4' Bedding fracture, smooth, matte surface, break along shale parting at 53.8', 55.2', 58.3' Bedding fracture, 0°, planar, rough to smooth, matte surface, weathered, stained, at 54.6'		84	52.8 - 57.8 5.0	4.8	96
54								
55								
56								
57								
58								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20180530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-B10B
Client	Tennessee Valley Authority	Boring Location	605,236.13 N; 1,412,209.01 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	384.0 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
59			Bedding fracture, rough to smooth, matte surface, break along shale parting at 58.7', 59.3', 61.5', 62.2'					
60			Limestone, pale gray to light gray, coarsely crystalline, hard, thick bedded to medium bedded, dry, wavy, calcareous (Continued)		94	57.8 - 62.8 5.0	5.0	100
61			Fracture, soil infilling, rough to smooth, polished surface, 0.2' loss, drop in core rods, from 59.4' to 59.6'					
62								
62.8	321.2							

Bottom of Hole at 62.8 Ft.

Top of Rock = 52.5 Ft.

Top of Rock Elevation = 331.5 Ft.

Begin Core = 52.8 Ft.

Vibrating wire piezometers installed. See installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-B11	
Client	Tennessee Valley Authority	Boring Location	598,976.46 N; 1,414,734.09 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	408.4 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/15/19	Completed 8/15/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	M. Pritt	Logger	M. Pritt	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	A. Welshans	Approved By	M. Aplin	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	408.4	Top of Hole					
0.8	407.6		Crushed stone					
2.3	406.1		SANDY SILT, ML, 5Y 5/1 (gray), fine, non-plastic to low plasticity, dry, [CCR]					
3			POORLY GRADED GRAVEL WITH CLAY AND SAND, GP-GC, 5YR 5/8 (yellowish red) to 10YR 6/2 (light brownish gray), fine to coarse, non-plastic to low plasticity, medium dense to dense, dry, [FILL]		SS01G	2.5 - 4.0	1.2	8-8-23
4					ST01G	4.0 - 4.4	0.2	1100
5					SS02G	4.5 - 6.0	0.9	12-19-21
6					SS03G	6.0 - 7.5	1.4	10-13-24
7					SS04G	7.5 - 9.0	1.5	21-24-25
8					SS05G	9.0 - 10.5	0.9	9-9-9
10.6	397.8		SANDY LEAN CLAY, CL, 7.5YR 6/8 (reddish yellow), fine to coarse, medium plasticity, firm, moist, [FILL]		SS06G	10.5 - 12.0	1.2	8-10-12
13					ST02G	12.0 - 14.0	1.9	400
16					SS07G	15.0 - 16.5	1.5	5-5-7
17.5			With gravel at 17.5'					

TVA EIP BORING LOG 175568286 JOF TDEC ORDER GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20

Client Borehole ID N/A Stantec Boring No. **JOF-B11**
 Client Tennessee Valley Authority Boring Location 598,976.46 N; 1,414,734.09 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 408.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			SANDY LEAN CLAY, CL, 7.5YR 6/8 (reddish yellow), fine to coarse, medium plasticity, firm, moist, [FILL] <i>(Continued)</i>		ST03G	17.5 - 19.5	0.5	400		
19						SS08G	20.0 - 21.5	1.5	5-5-11	
20						SS09G	22.5 - 24.0	1.5	8-6-7	
21										
22										
23										
24										
25										
26							ST04G	25.0 - 27.0	1.6	600
27										
28			Gravel at 28.0'		SS10G	27.5 - 29.0	1.5	16-19-32		
29										
30	30.4	378.0			SS11aG	30.0 - 30.4				
31			CLAYEY GRAVEL, GC, 5YR 5/8 (yellowish red), fine to coarse, non-plastic to low plasticity, medium dense, wet		SS11bG	30.4 - 31.5	0.9	7-10-6		
32	32.5	375.9								
33	33.5	374.9	FAT CLAY, CH, 10YR 7/1 (light gray), medium plasticity, firm, wet		SS12aG	32.5 - 33.5	1.5	5-5-20		
34	34.0	374.4	Shale, dark gray to black, fine grained, thin bedded, highly weathered, damp, 15° bedding angle		SS12bG	33.5 - 34.0				

No Refusal /
Bottom of Hole at 34.0 Ft.

Top of Rock = 33.5 Ft.
Top of Rock Elevation = 374.9 Ft.

Boring backfilled with 30% solids bentonite grout.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA_EIP BORING LOG_175568286_JOE_TDEC_ORDER.GPJ_TDEC SUBSURF DT 20190530.GDT 10/30/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-B12	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,187.91 N; 1,412,217.93 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>383.9 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>9/16/21</u> Completed <u>9/20/21</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Inspector <u>Cate Burton</u> Logger <u>C. Burton</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 85#2, #951</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>N/A</u>		Overdrill Depth <u>N/A</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u> Efficiency <u>89.4%</u>			
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>T. Greenwell</u>		Approved By <u>A. Welshans</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.9	Top of Hole					
1	1.2	382.7	Crushed stone (roadway)					
2	1.8	382.1	SILTY LEAN CLAY, CL, 2.5Y 5/4 (light olive brown), low to medium plasticity, firm, moist, no odor, no staining, [FILL]		SS01G	1.0 - 2.5	1.0	2-3-5
3	3.7	380.2	SANDY SILT, ML, 2.5Y 2.5/1 (black), non-plastic to low plasticity, firm to very hard, moist, no odor, [CCR]		SS02G	3.5 - 5.0	1.5	25-18-48
4			SILTY SAND LITTLE GRAVEL, SM, 10YR 3/4 (dark yellowish brown) to 10YR 3/2 (very dark grayish brown), medium, medium dense to very dense, dry, no odor, hydrocarbon staining, poorly graded, [CCR]		SS03G	6.0 - 7.5	1.0	15-12-11
5					SS04G	8.5 - 10.0	1.2	14-13-12
6								
7								
8								
9								
10								
11								
12	12.0	371.9	SILTY SAND WITH GRAVEL, SM, 2.5Y 2.5/1 (black), fine to coarse, non-plastic, medium dense to very dense, moist, poorly graded, [CCR]		ST01G	11.0 - 13.5	1.0	900
13								
14								
15								
16					SS05G	14.5 - 16.0	1.2	8-19-13
17								
18					SS06G	17.0 - 18.5	1.5	10-33-30

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190930.GDT 10/21/22

Client Borehole ID N/A Stantec Boring No. **JOF-B12**
 Client Tennessee Valley Authority Boring Location 605,187.91 N; 1,412,217.93 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 383.9 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			SILTY SAND WITH GRAVEL, SM, 2.5Y 2.5/1 (black), fine to coarse, non-plastic, medium dense to very dense, moist, poorly graded, [CCR] (Continued)							
19										
20										
21	21.5		362.4			SS07G	19.5 - 21.0	1.2	14-13-12	
22				SILT WITH SAND, ML, 10YR 3/2 (very dark grayish brown), non-plastic to low plasticity, firm to hard, moist, [CCR]						
23							SS08G	22.0 - 23.5	1.3	3-14-10
24										
25							SS09G	24.5 - 26.0	1.5	1-2-2
26										
27										
28						ST02G	27.0 - 29.5	2.5	600	
29										
30	30.0		353.9	CLAYEY GRAVEL, GC, 10YR 5/3 (brown), very fine to medium, loose, moist to wet, poorly graded						
31										
32							ST03G	30.5 - 33.0	1.8	100
33										
34	34.3		349.6	SILTY SAND LITTLE GRAVEL, SM, 10YR 5/4 (yellowish brown), fine to medium, non-plastic, loose, moist, poorly graded						
35							SS10aG	34.0 - 34.3		
36							SS10bG	34.3 - 35.5	1.1	11-2-4
37										
38						ST04G	36.5 - 38.2	1.2	1000	
39										
40	39.5	344.4	SANDY LEAN CLAY TRACE GRAVEL, CL, 10YR 6/3 (pale brown) and 10YR 5/8 (yellowish brown), low plasticity, firm to very hard, moist							
41										
42						SS11G	40.0 - 41.5	1.4	3-3-3	

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/21/22

Client Borehole ID	N/A	Stantec Boring No.	JOF-B12
Client	Tennessee Valley Authority	Boring Location	605,187.91 N; 1,412,217.93 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.9 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SANDY LEAN CLAY TRACE GRAVEL, CL, 10YR 6/3 (pale brown) and 10YR 5/8 (yellowish brown), low plasticity, firm to very hard, moist (Continued)		ST05G	42.5 - 43.6	0.9	1000
44	44.4			SS12aG	43.6 - 44.4	1.2	27-11-4	
45			LEAN CLAY, CL, 2.5Y 7/1 (light gray) and 10YR 6/8 (brownish yellow), medium plasticity, firm to hard, moist		SS12bG	44.4 - 45.1		
46				SS13G	46.0 - 47.5	1.5	1-4-6	
47								
48								
49					ST06G	48.5 - 51.0	2.1	500
50								
51	51.5							
52			GRAVELLY LEAN CLAY WITH SAND, CL, 10YR 6/8 (brownish yellow), medium plasticity, very hard, moist		ST07G	52.0 - 54.2	1.5	1000
53								
54	54.6							
55	55.5		POORLY GRADED SAND, SP, 10YR 6/6 (brownish yellow), very fine to medium, moist to wet		SS14G	55.5 - 55.9	0.4	50/5"
56	56.0				SS15	56.0 - 56.0	0.0	25/0"

Refusal /
Bottom of Hole at 56.0 Ft.

Top of Rock = 55.5 Ft.
Top of Rock Elevation = 328.4 Ft.

Boring was advanced with mud rotary drilling techniques using a 5-7/8" updraft bit below a depth of 5.0 feet bgs. Split-spoon sampler and mud-rotary updraft bit refusal encountered at 56.0 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ_TDEC SUBSURF DT 20190530.GDT 10/21/22



SUBSURFACE LOG

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-B13
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>605,184.41 N; 1,412,295.54 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>389.2 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>9/13/21</u> Completed <u>9/15/21</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID	<u>CME 85#2, #951</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u> Efficiency <u>89.4%</u>		
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>T. Greenwell</u>	Approved By	<u>A. Welshans</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.2	Top of Hole					
0.2	389.0		Topsoil					
1			LEAN CLAY WITH GRAVEL, CL, 10YR 5/6 (yellowish brown), low to medium plasticity, firm, moist, [FILL]		SS01G	0.0 - 1.5	1.1	3-4-4
3	3.3	385.9	SILTY SAND WITH GRAVEL, SM, 5YR 3/1 (very dark gray), fine to medium, non-plastic, medium dense to very dense, moist, [CCR]		SS02aG	2.5 - 3.3	1.5	4-6-15
4					SS02bG	3.3 - 4.0		
5					SS03G	5.0 - 6.5	1.5	23-29-25
6					SS04G	7.5 - 7.9	0.4	50/5"
10					ST01G	10.0 - 11.3	1.2	1000
11					SS05G	11.3 - 12.8	1.1	13-12-13
14					ST02	13.5 - 14.0	0.0	NR
15					SS06G	14.0 - 15.5	1.1	11-10-8
17					SS07G	17.0 - 18.5	1.1	5-12-19

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT:20190530.GDT 9/30/22

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
19			SILTY SAND WITH GRAVEL, SM, 5YR 3/1 (very dark gray), fine to medium, non-plastic, medium dense to very dense, moist, [CCR] <i>(Continued)</i>					
20				SS08G	19.5 - 21.0	19.5 - 21.0	1.2	21-23-26
21								
22				SS09aG	22.0 - 22.8	22.0 - 23.5	1.4	14-29-24
23				SS09bG	22.8 - 23.5			
24								
25				SS10G	24.5 - 26.0	24.5 - 26.0	1.1	11-10-13
26								
27								
28				ST03G	27.0 - 29.5	27.0 - 29.5	2.3	1000
29								
30			Transition occurred in ST04G					
31								
32		ST04G	30.5 - 33.0	30.5 - 33.0	2.1	100		
33	33.0	356.2	LEAN CLAY WITH SAND, CL, 10YR 4/4 (dark yellowish brown), low plasticity, very soft, moist, trace gravel					
34								
35		ST05G		34.0 - 36.5	34.0 - 36.5	2.0	250	
36								
37								
38								
39		ST06G		37.5 - 40.0	37.5 - 40.0	2.5	250	
40								
41								
42		SS11G		41.0 - 42.5	41.0 - 42.5	1.5	WH-WH-1	
43								
44								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/30/22

Client Borehole ID N/A Stantec Boring No. **JOF-B13**
 Client Tennessee Valley Authority Boring Location 605,184.41 N; 1,412,295.54 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 389.2 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
45			LEAN CLAY WITH SAND, CL, 10YR 4/4 (dark yellowish brown), low plasticity, very soft, moist, trace gravel <i>(Continued)</i> Sandy silt, ML 10YR 5/8, non to low plasticity, soft, moist encountered at the bottom of ST07.		ST07G	43.5 - 46.0	2.1	250		
46						SS12G	47.0 - 48.5	1.2	WH-WH-1	
47							ST08G	49.5 - 52.0	2.5	200
48							ST09G	53.0 - 55.5	2.0	500
49										
50										
51										
52										
53										
54										
55										
56	56.5			332.7						
57	57.5			331.7	LEAN CLAY TRACE GRAVEL, CL, 10YR 8/1 (white) and 10YR 7/8 (yellow), medium plasticity, very hard, moist		SS13G	56.5 - 58.0	1.2	3-8-18
58					GRAVELLY FAT CLAY TRACE SAND, CH, 10YR 4/6 (dark yellowish brown), high plasticity, hard, moist					
59							SS14G	59.0 - 60.5	0.9	3-5-10
60										
61	61.5	327.7			SS15G	61.5 - 61.7	0.2	50/2"		

Limestone, light gray, fine grained, very hard, freshly weathered, dry

Refusal /
Bottom of Hole at 61.7 Ft.

Top of Rock = 61.5 Ft.
Top of Rock Elevation = 327.7 Ft.

Boring was advanced with mud rotary drilling techniques using a 5-7/8" updraft bit below a depth of 6.5 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 9/30/22



SUBSURFACE LOG

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	<u>JOF-B14</u>
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>600,398.97 N; 1,414,584.65 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>392.8 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/17/21</u> Completed <u>8/25/21</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID	<u>CME 85#2, #951</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u> Efficiency <u>89.4%</u>		
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>T. Greenwell</u>	Approved By	<u>A. Welshans</u>

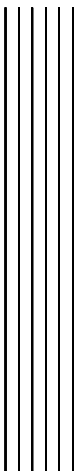

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	392.8	Top of Hole					
1			CLAYEY SAND TRACE GRAVEL, SC, 7.5YR 5/6 (strong brown) to 7.5YR 4/6 (strong brown), medium to coarse, very dense, moist, iron oxide staining, [FILL]		SS01G	0.0 - 1.5	1.3	21-40-48
2					SS02G	2.5 - 4.0	1.3	20-42-48
3					SS03G	5.0 - 6.5	1.3	19-21-34
7	7.0	385.8	POORLY GRADED SAND WITH CLAY AND GRAVEL, SP-SC, 7.5YR 4/6 (strong brown) to 7.5YR 6/8 (reddish yellow), medium to coarse, very dense, moist, iron oxide staining		SS04G	7.5 - 9.0	1.5	34-30-28
10					SS05G	10.0 - 11.5	1.4	27-26-31
13					SS06G	12.5 - 14.0	1.4	26-21-40
14	14.5	378.3		SILTY WELL GRADED SAND WITH CLAY AND GRAVEL, SW-SC, 7.5YR 6/6 (reddish yellow), fine to coarse, dense to very dense, moist		SS07G	15.0 - 16.5	1.0
15								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 10/21/22

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILTY WELL GRADED SAND WITH CLAY AND GRAVEL, SW-SC, 7.5YR 6/6 (reddish yellow), fine to coarse, dense to very dense, moist (Continued)		SS08G	17.5 - 19.0	1.1	11-14-30	
19				SS09G	20.0 - 21.5	1.1	23-18-29		
20									
21									
22									
23	23.0	369.8	SILT, ML, 10YR 8/8 (yellow) to 10YR 2/2 (very dark brown), very fine to fine, non-plastic, firm to very hard, moist		SS10aG	22.5 - 23.0	1.3	17-21-31	
24					SS10bG	23.0 - 24.0			
25									
26					SS11G	25.0 - 26.5	1.5	19-27-35	
27									
28					SS12G	27.5 - 29.0	1.1	1-1-7	
29									
30									
31					ST01G	30.0 - 31.4	1.1	1200	
32					SS13G	31.4 - 32.9	1.3	9-12-21	
33									
34					SS14G	33.5 - 35.0	1.5	10-36-30	
35									
36									
37					SS15G	36.0 - 37.5	1.5	9-10-21	
38	38.0	354.8	SILT, ML, 10YR 7/1 (light gray) to 10R 4/8 (red), very hard, moist to wet						
39					SS16G	38.5 - 40.0	1.5	8-22-34	
40									
41									
42					SS17G	41.0 - 42.5	1.5	25-36-48	

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/21/22

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B14
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,398.97 N; 1,414,584.65 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 392.8 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT, ML, 10YR 7/1 (light gray) to 10R 4/8 (red), very hard, moist to wet <i>(Continued)</i>					
44				SS18G	43.5 - 44.9	43.5 - 44.9	1.5	19-46-50/5"
45								
46				SS19G	46.0 - 47.5	46.0 - 47.5	1.5	20-21-35
47								
48								
49	49.6	343.2		SS20aG	48.5 - 49.6	48.5 - 50.0	1.5	17-28-46
50			Shale, very dark gray to black, fine grained, slightly weathered, argillaceous	SS20bG	49.6 - 50.0			
51								
52				SS21aG	51.0 - 51.6	51.0 - 52.4		
52	52.4	340.4		SS21bG	51.6 - 52.4		1.4	15-40-50/5"

No Refusal /
Bottom of Hole at 52.4 Ft.

Top of Rock = 49.6 Ft.
Top of Rock Elevation = 343.2 Ft.

Boring was advanced with mud rotary drilling techniques using a 5-7/8" updraft bit below a depth of 4.0 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
- G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20180530.GDT 10/21/22

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-B15	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 600,258.75 N; 1,414,706.20 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 437.8 ft </u> Elevation Datum <u> NGVD29 </u>	
Project Name <u> JOF TDEC Order </u>		Date Started <u> 8/26/21 </u> Completed <u> 9/1/21 </u>	
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u> Date/Time <u> N/A </u>	
Inspector <u> C. Burton </u> Logger <u> C. Burton </u>		Depth to Water <u> N/A </u> Date/Time <u> N/A </u>	
Drilling Contractor <u> Stantec Consulting Services Inc. </u>		Drill Rig Type and ID <u> CME 85#2, #951 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> N/A </u> Overdrill Depth <u> N/A </u>			
Sampler Hammer Type <u> Automatic </u> Weight <u> 140 lb </u> Drop <u> 30" </u> Efficiency <u> 89.4% </u>			
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> T. Greenwell </u>		Approved By <u> A. Welshans </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	437.8	Top of Hole					
1			LEAN CLAY WITH SAND, CL, 10YR 7/4 (very pale brown), low plasticity, firm, moist, [FILL]		SS01G	0.0 - 1.5	1.1	1-3-4
2	1.7	436.1	SILTY SAND WITH GRAVEL, SM, 2.5Y 3/2 (very dark grayish brown), very fine to medium, non-plastic to low plasticity, dense to loose, moist, [CCR]		SS02G	2.5 - 4.0	1.3	19-24-19
3								
4								
5								
6					SS03	5.0 - 6.5	0.0	11-13-14
7	7.0	430.8	SILT WITH SAND, ML, 2.5Y 3/2 (very dark grayish brown), non-plastic, firm to hard, moist, [CCR]		SS04G	7.5 - 9.0	1.1	6-6-8
8								
9								
10								
11					SS05G	10.0 - 11.5	1.1	4-3-5
12								
13					SS06G	12.5 - 14.0	1.1	8-10-10
14								
15								
16					SS07G	15.0 - 16.5	1.2	6-7-6
17	17.0	420.8						

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/17/22



SUBSURFACE LOG

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B15
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,258.75 N; 1,414,706.20 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 437.8 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
17			SILTY SAND, SM, 2.5Y 4/1 (dark gray) to 5Y 5/1 (gray), very fine to medium, non-plastic, medium dense to dense, moist, with a few silt lenses, [CCR]					
18				SS08G	17.5 - 19.0	1.0	6-10-17	
19								
20				SS09G	20.0 - 21.5	1.2	10-10-14	
21								
22								
23				SS10G	22.5 - 24.0	1.2	16-17-19	
24								
25								
26				SS11G	25.0 - 26.5	0.9	12-14-17	
27								
28				SS12G	27.5 - 29.0	1.1	12-19-28	
29								
30								
31				SS13G	30.0 - 31.5	1.1	14-18-12	
32								
33			SS14G	32.5 - 34.0	1.3	5-14-18		
34								
35								
36			SS15G	35.0 - 36.5	0.9	14-12-15		
37								
38			SS16G	37.5 - 39.0	1.1	5-7-6		
39								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 11/17/22

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
40			SILTY SAND, SM, 2.5Y 4/1 (dark gray) to 5Y 5/1 (gray), very fine to medium, non-plastic, medium dense to dense, moist, with a few silt lenses, [CCR] <i>(Continued)</i>		SS17G	40.0 - 41.5	0.9	5-15-18	
41									
42	42.0		395.8	SILTY SAND, SM, 10YR 2/1 (black), very fine to fine, non-plastic, medium dense to dense, moist, [CCR]		SS18G	42.5 - 44.0	1.0	9-12-12
43									
44									
45									
46									
47									
48									
49									
50									
51					SS21G	50.0 - 51.5	0.7	8-15-15	
52									
53	52.9	384.9	CLAYEY SAND WITH GRAVEL, SC, 10YR 4/6 (dark yellowish brown), fine to medium, low plasticity, very dense, moist		SS22aG	52.5 - 52.9	1.0	10-16-12	
54					SS22bG	52.9 - 53.2			
55					SS22cG	53.2 - 54.0			
56					SS23G	55.0 - 56.5	1.3	3-28-46	
57									
58					SS24G	57.5 - 59.0	1.2	31-36-32	
59									
60									
61					SS25G	60.0 - 61.5	1.2	37-27-32	
62									

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 11/17/22

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B15
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,258.75 N; 1,414,706.20 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 437.8 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
63	63.3	374.5	SILT, ML, 10YR 6/4 (light yellowish brown), low plasticity, very hard		SS26aG	62.5 - 63.3	1.0	30-33-23
64	64.0	373.8			SS26bG	63.3 - 64.0		
65			Shale, dark gray to black, moderately weathered to freshly weathered, moist		SS27G	65.0 - 65.3	0.2	50/4"
66	66.7	371.1			SS28	66.7 - 66.7	0.0	50/0"

Refusal /
Bottom of Hole at 66.7 Ft.

Top of Rock = 64.0 Ft.
Top of Rock Elevation = 373.8 Ft.

Boring was advanced with mud rotary drilling techniques using a 5-7/8" updraft bit below a depth of 6.5 feet bgs. Split-spoon sampler and mud-rotary updraft bit refusal encountered at 66.7 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 11/17/22



SUBSURFACE LOG

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-B16
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>600,272.30 N; 1,414,710.11 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>437.6 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>9/2/21</u> Completed <u>9/8/21</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID	<u>CME 85#2, #951</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u> Efficiency <u>89.4%</u>		
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>T. Greenwell</u>	Approved By	<u>A. Welshans</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
0	0.0	437.6	Top of Hole						
1			Drilling without sampling						
2									
3									
4									
5	5.0	432.6	SANDY SILT WITH GRAVEL, ML, 10YR 4/2 (dark grayish brown), very fine, non-plastic, very hard, moist, [CCR]		ST01	5.0 - 5.3	0.0	1000	
6					SS01G	5.3 - 6.8	1.1	9-9-9	
7									
8					ST02	8.5 - 8.6	0.0	NR	
9					ST03G	8.6 - 9.8	1.1	1000	
10									
11				SS02G	9.8 - 11.3	1.0	13-11-12		
12	12.0	425.6	SILT WITH GRAVEL, ML, 10YR 4/1 (dark gray), non to low plasticity, hard to very hard, moist, [CCR]		ST04G	12.0 - 14.5	1.6	800	
13									
14									
15									
16					ST05	15.5 - 18.0	0.0	NR	
17									

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/30/22



SUBSURFACE LOG

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B16
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,272.30 N; 1,414,710.11 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 437.6 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
17			SILT WITH GRAVEL, ML, 10YR 4/1 (dark gray), non to low plasticity, hard to very hard, moist, [CCR] <i>(Continued)</i>		SS03G	16.0 - 17.5	1.3	N/A
18								
19								
20								
21					ST06G	21.0 - 22.5	1.2	1000
22								
23								
24								
25								
26								
27								
28								
29								
30					SS04G	29.0 - 30.5	1.1	10-13-17
31								
32								
33								
34								
35								
36					ST07G	35.0 - 37.2	2.0	700
37								
38								
39					ST08G	38.5 - 40.6	1.3	800

TVA/EIP BORING LOG - 175568286 - JOF - TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/30/22

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-B16
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>600,272.30 N; 1,414,710.11 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>437.6 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40			SILT WITH GRAVEL, ML, 10YR 4/1 (dark gray), non to low plasticity, hard to very hard, moist, [CCR] <i>(Continued)</i>					
41								
42								
43								
44								
45	45.5	392.1						
46			SILTY SAND WITH GRAVEL, SM, 5Y 2.5/1 (black), very fine to medium, moist, [CCR]					
47								
48								
49								
50								
51								
52	52.5	385.1						
53			CLAYEY SAND WITH GRAVEL, SC, 7.5YR 6/8 (reddish yellow), very fine to coarse, poorly graded					
54								
55								
56								
57								
58								
59								
60								
61								
62								

TVA EIP BORING LOG - 175568286 - JOF - TDEC ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 9/30/22

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B16
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,272.30 N; 1,414,710.11 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 437.6 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
63	63.0	374.6	SILT, ML, 10YR 3/4 (dark yellowish brown), very hard, moist					
	63.7	373.9			SS05aG	63.5 - 63.8	0.4	50/5"
64	64.5	373.1	Shale, dark gray, hard, argillaceous		SS05bG SS06G	63.8 - 63.9 64.4 - 64.5	0.1	50/1"

Refusal /
Bottom of Hole at 64.5 Ft.

Top of Rock = 63.8 Ft.
Top of Rock Elevation = 373.8 Ft.

Boring was advanced with mud rotary drilling techniques using a 5-7/8" updraft bit below a depth of 6.5 feet bgs. Mud-rotary updraft bit refusal encountered at 64.5 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
- G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/30/22

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-B17	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 600,262.02 N; 1,414,720.66 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 438.3 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 9/9/21 </u>	Completed <u> 9/10/21 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Inspector <u> C. Burton </u>	Logger <u> C. Burton </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Stantec Consulting Services Inc. </u>		Drill Rig Type and ID <u> CME 85#2, #951 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 5-7/8" 3-Wing Updraft Bit, 2" SS w/o liners, 3" Shelby Tubes </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> Automatic </u>	Weight <u> 140 lb </u>	Drop <u> 30" </u>	Efficiency <u> 89.4% </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> T. Greenwell </u>		Approved By <u> A. Welshans </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	438.3	Top of Hole					
1			Drilling without sampling					
2								
3								
4								
5								
6								
7								
8	8.5	429.8						
9			SILT WITH GRAVEL, ML, 10YR 3/1 (very dark gray), non to low plasticity, firm to very hard, moist, [CCR]		ST01G	8.5 - 10.2	0.2	1000
10								
11								
12								
13					ST02G	12.0 - 13.5	1.2	1000
14								
15								
16								
17								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/21/22



SUBSURFACE LOG

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-B17
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>600,262.02 N; 1,414,720.66 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>438.3 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
17			SILT WITH GRAVEL, ML, 10YR 3/1 (very dark gray), non to low plasticity, firm to very hard, moist, [CCR] <i>(Continued)</i>						
18									
19									
20									
21						ST03G	21.0 - 21.7	0.6	1000
22						SS01G	21.7 - 23.2	0.8	13-14-18
23									
24									
25						SS02G	25.0 - 26.5	1.4	16-16-17
26									
27					SS03G	27.5 - 29.0	1.4	20-17-23	
28									
29					SS04G	30.0 - 31.5	1.4	16-12-12	
30									
31					SS05G	32.5 - 34.0	1.3	9-9-9	
32									
33					SS06G	35.0 - 36.5	1.3	11-10-10	
34									
35									
36									
37									
38									
39									

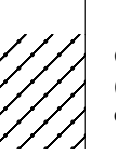
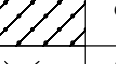
TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/21/22

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-B17
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 600,262.02 N; 1,414,720.66 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 438.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
40			SILT WITH GRAVEL, ML, 10YR 3/1 (very dark gray), non to low plasticity, firm to very hard, moist, [CCR] <i>(Continued)</i>		ST04G	38.5 - 41.0	1.8	800	
41									
42									
43						SS07G	42.0 - 43.5	1.4	8-10-12
44									
45						SS08G	44.5 - 46.0	1.3	7-4-8
46									
47									
48						SS09G	47.0 - 48.5	0.8	2-2-6
49									
50									
51					ST05G	49.5 - 52.0	2.0	900	
52									
53	53.5	384.8							
54			CLAYEY SAND WITH GRAVEL, SC, 7.5YR 6/8 (reddish yellow), very fine to coarse, very dense to dense, moist to wet		ST06G	53.0 - 55.5	2.0	400	
55									
56									
57						SS10G	56.5 - 58.0	1.1	25-35-27
58									
59									
60						SS11G	59.0 - 60.5	1.1	24-36-47
61									
62					SS12G	61.5 - 63.0	0.8	15-17-21	

TVA/EIP BORING LOG - 175568286 - JOF - TDEC ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/21/22

Client Borehole ID	N/A	Stantec Boring No.	JOF-B17
Client	Tennessee Valley Authority	Boring Location	600,262.02 N; 1,414,720.66 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	438.3 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
63			CLAYEY SAND WITH GRAVEL, SC, 7.5YR 6/8 (reddish yellow), very fine to coarse, very dense to dense, moist to wet (Continued)					
64								
64.4	373.9							
64.7	373.6		Shale, argillaceous	SS13		64.7 - 64.7	0.0	15/0"

Refusal /
Bottom of Hole at 64.7 Ft.

Top of Rock = 64.4 Ft.
Top of Rock Elevation = 373.9 Ft.

Mud-rotary updraft bit and split-spoon sampler refusal encountered at 64.7 feet bgs.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/21/22



SUBSURFACE LOG

Project No.	175559034	Location	N 602616.60, E 1410733.80 (WGS1984)		
Project Name	JOF Island Closure	Boring No.	JOF-1	Total Depth	138.0 ft
Location	New Johnsonville, Tennessee	Surface Elevation	386.3 ft. (G09_TVA)		
Project Type	Geotechnical Exploration	Date Started	10/30/12	Completed	10/30/12
Supervisor	S. Bickel	Driller	M. Martin	Depth to Water	N/A
Logged By	N. Puckett	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
386.3	0.0	Top of Hole							
		Blank drill to 30 feet.							Boring advanced using 4 1/4" Hollow Stem Augers
		OVERBURDEN (Ash)							
356.3	30.0								
355.8	30.5	FLY ASH, black, moist to wet		SPT-1	30.0 - 31.5	1.5	2-4-5	23	
		LEAN CLAY with Sand, brown and gray, moist, soft to stiff, fine grained sand		SPT-2	32.5 - 34.0	1.5	2-2-2	28	

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Project No.	175559034	Location	N 602616.60, E 1410733.80 (WGS1984)		
Project Name	JOF Island Closure	Boring No.	JOF-1	Total Depth	138.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY with Sand, brown and gray, moist, soft to stiff, fine grained sand (Continued)		ST-1	35.0 - 37.0	2.0		26	
				SPT-3	40.0 - 41.5	1.5	5-7-7	27	
				SPT-4	45.0 - 46.5	1.5	3-3-3	23	
				SPT-5	50.0 - 51.5	1.5	2-3-4	25	
330.1	56.2			SPT-6	55.0 - 56.5	1.5	5-5-6	18	
			SAND with Silt and Gravel, brown and gray, wet, medium dense to dense		SPT-7	60.0 - 61.5	0.6	4-9-9	20
				SPT-8	65.0 - 66.5	1.1	15-20-21	20	
				SPT-9	70.0 - 71.5	0.0	4-6-6	--	

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Project No.	175559034	Location	N 602616.60, E 1410733.80 (WGS1984)	
Project Name	JOF Island Closure	Boring No.	JOF-1	Total Depth 138.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks		
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth			
295.1	91.2	SAND with Silt and Gravel, brown and gray, wet, medium dense to dense <i>(Continued)</i>		SPT-10	75.0 - 76.5	0.9	6-8-8	20			
				SPT-11	80.0 - 81.5	1.2	4-9-15	17			
				SPT-12	85.0 - 86.5	1.4	7-12-17	20			
			SPT-13	90.0 - 91.5	1.2	9-9-11	21				
				GRAVELLY LEAN CLAY, brown and gray, wet, hard, with medium to coarse sand		SPT-14	95.0 - 96.5	0.1	50/0.3'	20	
						SPT-15	100.0 - 101.5	1.4	16-37-25	20	
						SPT-16	105.0 - 106.5	1.1	22-38-40	19	
	SPT-17				110.0 - 111.5	0.8	17-50/0.5'	15			

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Project No.	175559034	Location	N 602616.60, E 1410733.80 (WGS1984)	
Project Name	JOF Island Closure	Boring No.	JOF-1	Total Depth 138.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
259.3	127.0	GRAVELLY LEAN CLAY, brown and gray, wet, hard, with medium to coarse sand <i>(Continued)</i>		SPT-18	115.0 - 116.5	1.5	10-15-25	22	Began Core
				SPT-19	120.0 - 121.5	1.4	28-35-50/0.4'	21	
				SPT-20	125.0 - 126.5	1.0	16-50/0.7'	20	
248.3	138.0	Limestone, light gray to gray, moderately hard to hard, thin bedded, moderately weathered		40%	3.0	3.0	100	130.0	
				16%	5.0	5.0	100	135.0	
				23%	3.0	3.0	100	138.0	

Bottom of Hole



SUBSURFACE LOG

Project No.	175559034	Location	N 599533.00, E 1409942.90 (WGS1984)		
Project Name	JOF Island Closure	Boring No.	JOF-27	Total Depth	106.3 ft
Location	New Johnsonville, Tennessee	Surface Elevation	389.7 ft. (G09_TVA)		
Project Type	Geotechnical Exploration	Date Started	10/24/12	Completed	10/24/12
Supervisor	S. Bickel	Driller	M. Wethington	Depth to Water	N/A
Logged By	M. Jones	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
389.7	0.0	Top of Hole							
		Blank drill to 40 feet.							Boring advanced using 4 1/4" Hollow Stem Augers
		OVERBURDEN (Ash)							

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Project No.	175559034	Location	N 599533.00, E 1409942.90 (WGS1984)	
Project Name	JOF Island Closure	Boring No.	JOF-27	Total Depth 106.3 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
349.7	40.0	Blank drill to 40 feet. OVERBURDEN (Ash) <i>(Continued)</i>							
343.7	46.0	FLY ASH, gray, wet, very soft to medium stiff		SPT-1	40.0 - 41.5	0.0	3-3-3	--	
				SPT-2	42.5 - 44.0	1.5	1-1-1	31	
				SPT-3	45.0 - 46.5	1.5	1-1-5	25	
339.7	50.0	LEAN CLAY, brown, yellowish brown, and gray, moist to wet, medium stiff, trace fine sand							
329.7	60.0	LEAN CLAY with Sand, yellowish brown and gray, moist, stiff to very stiff, - increasing sand and silt content		SPT-4	50.0 - 51.5	1.5	7-8-11	23	
				SPT-5	55.0 - 56.5	1.5	5-5-7	25	
		SAND with Gravel, orange brown, wet, dense to very dense, medium to coarse grained, fine gravel		SPT-6	60.0 - 61.5	1.0	22-27-27	15	
				SPT-7	65.0 - 66.5	0.8	18-25-35	15	
				SPT-8	70.0 - 71.5	1.2	22-18-14	17	

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Project No.	175559034	Location	N 599533.00, E 1409942.90 (WGS1984)	
Project Name	JOF Island Closure	Boring No.	JOF-27	Total Depth 106.3 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
299.7	90.0	SAND with Gravel, orange brown, wet, dense to very dense, medium to coarse grained, fine gravel (Continued)		SPT-9	75.0 - 76.5	1.2	13-16-28	22	No gravel between about 75' to 75.8'
				SPT-10	80.0 - 81.5	1.5	20-37-50	15	
				SPT-11	85.0 - 86.5	1.5	18-28-26	17	
				SPT-12	90.0 - 91.5	1.5	38-37-31	23	
				SPT-13	95.0 - 96.5	1.5	15-27-26	21	
293.7	96.0	SAND, tan, wet, very dense, medium to coarse grained, trace fine gravel		SPT-14	100.0 - 101.5	1.4	18-28-50/0.4'	14	
283.7	106.0	SAND with Gravel, orange brown, wet, very dense, medium to coarse grained, fine gravel		SPT-15	105.0 - 106.5	0.8	50-80/0.3'	14	
283.4	106.3	WEATHERED ROCK, white							

Splitspoon Refusal /
Bottom of Hole

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APPENDIX B.3

TEMPORARY WELLS

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Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-TW01	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>602,346.18 N; 1,410,722.15 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>392.9 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>3/10/20</u> Completed <u>3/10/20</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>12.4 ft</u> Date/Time <u>3/11/20 07:59</u>	
Inspector <u>C. Burton</u> Logger <u>C. Burton</u>		Depth to Water <u>7.8 ft</u> Date/Time <u>3/12/20 07:45</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>		Overdrill Depth <u>35.5 ft</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	392.9	Top of Hole					
1			SILT WITH SAND, ML, 10YR 4/1 (dark gray) to 2.5Y 3/1 (very dark gray), non-plastic, soft to very hard, moist, [CCR]	1.5/3.5-20/200310	SS01G	0.0 - 1.5	1.5	2-2-2
2				SS02E	1.5 - 3.0	1.5	2-2-13	
3				SS03aE	3.0 - 3.5	1.1	2-11-12	
4				SS03bG	3.5 - 4.5	2.0	400	
5				ST01G	4.5 - 6.5	1.4	1-1-1	
6			SILT WITH SAND, ML, 5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft, moist to wet, stratified, with fine roots, with clay layers (about 3" to 12" in thickness), [CCR]	6.5/8.5-20/200310	SS04E	6.5 - 8.0	1.4	1-1-1
7	6.8	386.1		SS05aE	8.0 - 8.5	1.5	WH-WH-WH	
8				SS05bG	8.5 - 9.5	1.5	WH-WH-WH	
9			SILT SOME CLAY, ML, 2.5Y 3/1 (very dark gray) to 2.5Y 5/3 (light olive brown), non-plastic to low plasticity, very soft to soft, wet, stratified, with sand layers, [CCR]		SS06G	9.5 - 11.0	1.5	1-1-1
10	10.3	382.6		SS07aG	11.0 - 11.5	1.5	1-1-2	
11				SS07bE	11.5 - 12.5	1.5	WH-WH-1	
12				SS08aE	12.5 - 13.5	1.5	WH-WH-1	
13				SS08bG	13.5 - 14.0	0.5	WH-WH-WH	
14								
15								
16								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT_20180530.GDT_10/20/20



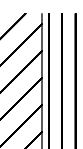
SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW01
Client	Tennessee Valley Authority	Boring Location	602,346.18 N; 1,410,722.15 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	392.9 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
16			SILT SOME CLAY, ML, 2.5Y 3/1 (very dark gray) to 2.5Y 5/3 (light olive brown), non-plastic to low plasticity, very soft to soft, wet, stratified, with sand layers, [CCR] (Continued)					
17				16.0/19.0-20200310	SS10E	16.0 - 17.5	1.2	WR-WR-WR
18					SS11E	17.5 - 19.0	1.5	WR-WR-WR
19								
20					ST02G	19.0 - 21.0	1.5	50
21					SS12aG	21.0 - 21.5		
22					SS12bE	21.5 - 22.5	1.4	WR-WR-WH
23					SS13aE	22.5 - 23.5	1.5	WH-1-1
24					SS13bG	23.5 - 24.0		
25					SS14G	24.0 - 25.5	1.4	WR-WH-WH
26					SS15aG	25.5 - 26.5	1.5	WR-WH-WH
27					SS15bE	26.5 - 27.0		
28					SS16E	27.0 - 28.5	1.5	WH-WH-WH
29								
30					SS17G	28.5 - 30.0	1.4	WH-WH-WH
31					SS18G	30.0 - 31.5	1.5	WR-WR-WR
32					SS19E	31.5 - 33.0	1.5	WH-WH-WH
33					SS20aE	33.0 - 33.5		
34					SS20bG	33.5 - 34.5	1.5	WH-WH-WH
35					SS21G	34.5 - 36.0	0.9	WR-WR-WR
36	36.7	356.2		SS22aG	36.0 - 36.7			
37				SS22bG	36.7 - 37.5	1.2	WH-1-2	

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/20/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW01
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 602,346.18 N; 1,410,722.15 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 392.9 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
38 39	39.5 353.4		SILTY CLAY, CL-ML, 2.5Y 5/2 (grayish brown), low plasticity, soft, moist (Continued)		ST03G	37.5 - 39.5	1.9	250

No Refusal /
Bottom of Hole at 39.5 Ft.

Temporary well JOF-TW01 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/20/20

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-TW02	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 601,782.20 N; 1,410,669.61 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 392.9 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 3/5/20 </u>	Completed <u> 3/5/20 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> 14.5 ft </u>	Date/Time <u> 3/6/20 07:23 </u>
Inspector <u> C. Burton </u>	Logger <u> C. Burton </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Stantec Consulting Services Inc. </u>		Drill Rig Type and ID <u> CME 1050, #952 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> 8-1/4" HSA overdrill of boring </u>		Overdrill Depth <u> 36.5 ft </u>	
Sampler Hammer Type <u> Automatic </u>	Weight <u> 140 lb </u>	Drop <u> 30" </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> P. Dunne </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	392.9	Top of Hole					
1			SANDY SILT, ML, 2.5YR 3/1 (dark reddish gray), soft to firm, moist, [CCR]	1.5/3.5-2/200305	SS01G	0.0 - 1.5	1.3	3-4-3
2					SS02E	1.5 - 3.0	1.5	1-1-1
3					SS03aE	3.0 - 3.5	1.5	7-9-7
4	4.5	388.4			SS03bG	3.5 - 4.5	1.5	
5			SILTY SAND WITH GRAVEL, SM, 5Y 3/1 (very dark gray), very loose, moist, [CCR]	6.5/8.5-20/200305	SS04G	4.5 - 6.0	1.5	1-2-2
6					SS05aG	6.0 - 6.5	1.5	1-1-1
7					SS05bE	6.5 - 7.5	1.5	
8	8.7	384.2			SS06aE	7.5 - 8.5	1.5	WH-1-1
9			SILT WITH SAND, ML, 2.5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft to soft, wet, Stratified, with clay nodules, [CCR]		SS06bG	8.5 - 9.0	1.5	WH-1-1
10					SS07G	9.0 - 10.5	1.5	WH-1-1
11					SS08aG	10.5 - 11.5	1.5	WH-WH-WH
12					SS08bE	11.5 - 12.0	1.5	WH-WH-1
13					SS09E	12.0 - 13.5	1.5	WH-WH-1
14					ST01G	13.5 - 15.5	2.0	250
15								
16					SS10aG	15.5 - 16.5	1.5	WH-WH-1
17					SS10bE	16.5 - 17.0		

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/20/20





SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW02
Client <u>Tennessee Valley Authority</u>	Boring Location <u>601,782.20 N; 1,410,669.61 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>392.9 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
17			SILT WITH SAND, ML, 2.5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft to soft, wet, Stratified, with clay nodules, [CCR] <i>(Continued)</i>	16.5/18.5-20200305	SS11E	17.0 - 18.5	1.5	WH-1-2	
18					SS12G	18.5 - 20.0	1.5	WH-1-1	
19					SS13G	20.0 - 21.5	1.5	WH-1-1	
20					SS14E	21.5 - 23.0	1.5	WH-1-1	
21					SS15aE	23.0 - 23.5	0.9	WH-WH-WH	
22					SS15bG	23.5 - 24.5			
23					SS16G	24.5 - 26.0	1.5	WH-WH-WH	
24	24.2	368.7		SILT, ML, 2.5Y 2.5/1 (black) to 2.5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft, wet, [CCR]	21.5/23.5-20200305	SS17E	26.0 - 27.5	1.5	WH-WH-1
25						SS18E	27.5 - 29.0	1.5	WH-WH-WH
26						SS19G	29.0 - 30.5	0.5	1-1-1
27					SS20G	30.5 - 32.0	0.5	WR-WR-WR	
28			Planned analytical sample from 31.5' to 33.5' was skipped for insufficient/unreliable recovery						
29					SS21G	32.0 - 33.5	0.0	WR-WR-WR	
30					SS22G	33.5 - 35.0	1.5	WR-WH-WH	
31					SS23G	35.0 - 36.5	1.2	WR-WR-WR	
32					SS24G	37.5 - 39.0	1.5	4-4-3	
33									
34									
35									
36									
37	37.5	355.4	LEAN CLAY, CL, 2.5Y 5/2 (grayish brown) to 5Y 5/4 (olive), low plasticity, soft, moist						
38									
39									

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/20/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW02
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 601,782.20 N; 1,410,669.61 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 392.9 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40			LEAN CLAY, CL, 2.5Y 5/2 (grayish brown) to 5Y 5/4 (olive), low plasticity, soft, moist <i>(Continued)</i>		ST02G	39.0 - 41.0	2.0	200
41	41.0	351.9						

No Refusal /
Bottom of Hole at 41.0 Ft.

Temporary well JOF-TW02 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/20/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW03	
Client	Tennessee Valley Authority	Boring Location	601,107.72 N; 1,410,594.78 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	405.6 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	1/23/20	Completed 1/30/20
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	25.0 ft	Date/Time 1/30/20 08:22
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	51.1 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	405.6	Top of Hole					
1			SANDY SILT LITTLE GRAVEL, ML, 2.5Y 3/1 (very dark gray), soft to firm, moist to wet, with layers of silt ranging in thickness from about 1" to 6" with a few layer saturated soil layers, [CCR]	1.5-5-20200123	SS01G	0.0 - 1.5	1.5	6-9-7
2				SS02E	1.5 - 3.0	1.5	1-2-1	
3				SS03aE	3.0 - 3.5	1.5	2-5-6	
4				SS03bG	3.5 - 4.5	1.5	2-1-3	
5				SS04G	4.5 - 6.0	1.5	8-3-2	
6				SS05E	6.0 - 7.5	1.5	2-2-4	
7				SS06E	7.5 - 9.0	1.5	1-2-6	
8				SS07G	9.0 - 10.5	1.2	2-3-6	
9				SS08aG	10.5 - 11.5	1.5	2-3-4	
10				SS08bE	11.5 - 12.0	1.3	2-2-8	
11				SS09E	12.0 - 13.5	1.5	2-6-10	
12	12.2	393.4		SILT WITH SAND, ML, 2.5Y 2.5/1 (black), non-plastic, firm to very hard, moist to wet, with clay nodules and gravel layers, [CCR]	11.5/13.5-20200123	SS10G	13.5 - 15.0	1.3
13			SS11G		15.0 - 16.5	1.5		
14			SS12E		16.5 - 18.0	1.3		
15								
16	17.4	388.2						
17								
18								

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 4/6/21



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW03
Client <u>Tennessee Valley Authority</u>	Boring Location <u>601,107.72 N; 1,410,594.78 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>405.6 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILT TRACE SAND, ML, 10YR 3/1 (very dark gray), non-plastic, very soft to very hard, wet to moist, [CCR] <i>(Continued)</i>		SS13aE	18.0 - 18.5		
19				SS13bG	18.5 - 19.5	1.3	2-4-4	
20				SS14G	19.5 - 21.0	1.5	2-2-1	
21				SS15aG	21.0 - 21.5			
22				SS15bE	21.5 - 22.5	1.5	WH-WH-WH	
23				SS16aE	22.5 - 23.5	1.5	WH-WH-WH	
24				SS16bG	23.5 - 24.0			
25				SS17aG	24.0 - 25.3	1.5	2-2-10	
26				SS17bG	25.3 - 25.5			
27				SS18aG	25.5 - 26.5	1.5	5-11-13	
28	27.8	377.8		SS18bE	26.5 - 27.0			
29				SS19aE	27.0 - 28.3	1.5	6-6-6	
30				SS19b	28.3 - 28.5			
31				SS20G	28.5 - 30.0	1.5	10-6-5	
32				SS21G	30.0 - 31.5	1.5	4-3-3	
33				SS22E	31.5 - 33.0	1.2	6-6-7	
34				SS23aE	33.0 - 33.5			
35				SS23bG	33.5 - 34.5	1.5	2-4-3	
36			SS24G	34.5 - 36.0	1.5	1-3-8		
37			SS25aG	36.0 - 36.5				
38			SS25bE	36.5 - 37.5	1.5	6-4-7		
39			SS26aE	37.5 - 38.5	1.5	5-12-10		
40			SS26bG	38.5 - 39.0				
41			SS27G	39.0 - 40.5	1.5	5-5-8		
42			SS28aG	40.5 - 41.5				
			SS28bE	41.5 - 42.0	1.5	4-7-11		

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW03
Client	Tennessee Valley Authority	Boring Location	601,107.72 N; 1,410,594.78 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	405.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SANDY SILT, ML, 2.5Y 2/1 (very dark gray), very fine to coarse, non-plastic, firm to very hard, wet, with layers of clay and silt ranging from 2" to 1', [CCR] (Continued)	41.5-43.5	SS29E	42.0 - 43.5	1.5	11-9-10
44				43.5 - 44.0	ST01	43.5 - 44.0	0.0	1450
45				44.0 - 45.5	SS30G	44.0 - 45.5	0.7	11-13-7
46				45.5 - 47.0	SS31E	45.5 - 47.0	1.4	5-5-4
47	47.2			358.4	45.5-49.5			
48			SILTY SAND WITH GRAVEL, SM, 2.5Y 2/3 (very dark gray), very loose to medium dense, wet, [CCR]		SS32E	47.0 - 48.5	1.5	1-WH-WH
49					SS33aE	48.5 - 49.5	1.5	8-5-4
50					SS33bG	49.5 - 50.0		
51	50.9			354.7		SS34aG	50.0 - 51.3	1.5
52	52.1	353.5	SILTY FAT CLAY, CH, medium to high plasticity, firm, intermixed with CCR, [CCR] With organics (large piece of wood) from 51.9' to 52.1'		SS34bG	51.3 - 51.5		
53					SS35G	51.5 - 53.0	1.5	WH-2-5
54			FAT CLAY, CH, 2.5Y 6/3 (light yellowish brown) to 2.5Y 3/3 (dark olive brown), medium to high plasticity, firm, moist		ST02G	53.0 - 55.0	1.9	450
55	55.0	350.6						

No Refusal /
Bottom of Hole at 55.0 Ft.

Temporary well JOF-TW03 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW04	
Client	Tennessee Valley Authority	Boring Location	599,952.21 N; 1,410,222.84 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	390.2 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	1/15/20	Completed 1/17/20
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	7.2 ft	Date/Time 1/17/20 07:58
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	36.6 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	390.2	Top of Hole					
0.2	390.0		Topsoil					
0.4	389.8		WELL GRADED SAND WITH CLAY, SW-SC, moist, [FILL]		SS01G	0.0 - 1.5	1.5	7-17-20
1								
2			POORLY GRADED SAND WITH CLAY WITH GRAVEL, GP-GC, 10YR 3/2 (very dark grayish brown), fine to coarse, medium dense, moist, [FILL]	1.5/3.5-20200115	SS02E	1.5 - 3.0	1.4	2-9-11
3								
4					SS03aE	3.0 - 3.5	1.4	2-9-9
4.7	385.5		SANDY FAT CLAY WITH GRAVEL, CH, 10YR 5/8 (yellowish brown), very hard, moist, [FILL]		SS03bG	3.5 - 4.5		
5			Clayey gravel mixed with minor amounts of CCR from 5.1' to 6.1'		SS04aG	4.5 - 5.1	1.5	2-25-44
6					SS04bG	5.1 - 6.0		
7					SS05aG	6.0 - 6.5	1.5	8-24-15
8					SS05bE	6.5 - 7.5		
9					SS06aE	7.5 - 8.5	1.5	5-10-12
9.6	380.6		SILTY SAND WITH GRAVEL, SM, 2.5Y 2.5/1 (black) to 10YR 2/1 (black), fine to coarse, dense to very dense, moist to wet, with slag fragments, [CCR]	6.5/8.5-20200115	SS06bG	8.5 - 9.0		
10					SS07G	9.0 - 10.5	1.5	5-11-28
11					SS08aG	10.5 - 11.5	1.3	23-50-50
12					SS08bE	11.5 - 12.0		
13					SS09E	12.0 - 13.5	1.3	5-25-33
14					SS10G	13.5 - 15.0	1.5	28-45-49
15					SS11G	15.0 - 16.5	1.5	24-33-34
16								
17								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 2/18/21




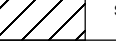
SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW04
Client	Tennessee Valley Authority	Boring Location	599,952.21 N; 1,410,222.84 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	390.2 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
17			SILTY SAND WITH GRAVEL, SM, 2.5Y 2.5/1 (black) to 10YR 2/1 (black), fine to coarse, dense to very dense, moist to wet, with slag fragments, [CCR] (Continued)	16.5/18.5-20200115	SS12E	16.5 - 18.0	1.5	13-19-22	
18					SS13aE	18.0 - 18.5			
19	19.2	371.0			SS13bG	18.5 - 19.2	1.5	16-18-11	
20					SS13cG	19.2 - 19.5			
21					SS14G	19.5 - 21.0	1.5	3-3-4	
22			SILT, ML, 2.5Y 2.5/1 (black), non-plastic, very soft to firm, moist to wet, [CCR]	21.5/23.5-20200115	SS15aG	21.0 - 21.5	1.5	1-1-1	
23					SS15bE	21.5 - 22.5			
24	23.8	366.4			SS16aE	22.5 - 23.5	1.5	WH-WH-3	
25					SS16bG	23.5 - 24.0			
26			SILTY SAND WITH GRAVEL, SM, 2.5Y 2.5/1 (black), fine to coarse, non-plastic, loose, wet, [CCR]	27.5/29.5-20200116	ST01G	24.0 - 26.0	2.0	350	
27					SS17	26.0 - 27.5	0.0	3-2-3	
28	27.5	362.7			SS18E	27.5 - 29.0	1.5	2-1-4	
29			SILTY SAND LITTLE GRAVEL, SM, 2.5YR 3/1 (dark reddish gray), very loose to loose, wet, [CCR]	32.0/35.0-20200116	Added water at 29.0'				
30					SS19aE	29.0 - 29.5	1.5	3-2-2	
31					SS19bG	29.5 - 30.5			
32					SS20	30.5 - 32.0	0.0	1-1-1	
33	33.2	357.0			SS21E	32.0 - 33.5	1.5	2-1-1	
34			SILT, ML, 2.5YR 3/1 (dark reddish gray), non-plastic, very soft to soft, wet, [CCR]	36.5/38.0-20200116	SS22E	33.5 - 35.0	1.5	2-1-1	
35					SS23G	35.0 - 36.5	1.5	WH-WH-WH	
36					SS24E	36.5 - 38.0	1.5	WH-2-2	
37	37.6	352.6			SS25G	38.0 - 39.5	1.5	WH-WH-WH	
38			LEAN CLAY, CL, 2.5Y 6/2 (light brownish gray) to 2.5Y 5/4 (light olive brown), medium plasticity, very soft, moist	36.5/38.0-20200116					
39									

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 2/18/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW04
Client	Tennessee Valley Authority	Boring Location	599,952.21 N; 1,410,222.84 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	390.2 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40			LEAN CLAY, CL, 2.5Y 6/2 (light brownish gray) to 2.5Y 5/4 (light olive brown), medium plasticity, very soft, moist (Continued)		ST02G	39.5 - 41.5	1.7	250
41	41.5							

No Refusal /
Bottom of Hole at 41.5 Ft.

Temporary well JOF-TW04 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 2/18/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW05		
Client	Tennessee Valley Authority	Boring Location	599,473.18 N; 1,409,852.52 E NAD27 Plant Local		
Project Number	175568286	Surface Elevation	389.6 ft	Elevation Datum	NGVD29
Project Name	JOF TDEC Order	Date Started	1/7/20	Completed	1/9/20
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	12.9 ft	Date/Time	1/7/20 11:35
Inspector	S. Stanley	Logger	S. Stanley	Depth to Water	12.9 ft
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952		
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes				
Rock Drilling and Sampling Tools (Type and Size)	N/A				
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	46.9 ft		
Sampler Hammer Type	Automatic	Weight	140 lb	Drop	30"
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A		
Reviewed By	K. Carey	Approved By	P. Dunne		

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.6						
			Top of Hole					
1	1.5	388.1	LEAN CLAY, CL, 7.5YR 3/3 (dark brown), low plasticity, firm, dry, no odor, [FILL]		SS01G	0.0 - 1.5	1.5	5-10-12
2			LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 3/1 (very dark gray), low plasticity, very hard, dry, [FILL]		SS02E	1.5 - 3.0	1.5	3-4-5
3					SS03aE	3.0 - 3.5		
4	4.5	385.1			SS03bG	3.5 - 4.5	1.5	3-3-4
5			CLAYEY SILTY GRAVEL, GM, 7.5YR 3/2 (dark brown), non to low plasticity, very soft, moist, [FILL]		SS04G	4.5 - 6.0	1.5	3-2-3
6	6.0	383.6			SS05E	6.0 - 7.5	1.3	2-2-2
7			SILTY SAND LITTLE GRAVEL, SM, 7.5YR 3/1 (very dark gray), non to low plasticity, very loose to loose, wet, [CCR]		SS06E	7.5 - 9.0	1.5	2-2-3
8					SS07G	9.0 - 10.5	1.5	1-2-3
9	9.0	380.6	CLAYEY GRAVEL WITH SAND, GC, 7.5YR 3/1 (very dark gray) to 7.5YR 3/2 (dark brown), low plasticity, very loose, wet, [CCR]		SS08aG	10.5 - 11.5	1.5	1-2-1
10					SS08bE	11.5 - 12.0		
11					SS09E	12.0 - 13.5	1.5	WH-2-1
12					ST01G	13.5 - 15.5	2.0	300
13	15.5	374.1			SS10aG	15.5 - 16.5	1.5	1-1-1
14	15.8	373.8	SILTY SAND LITTLE GRAVEL, SM, 7.5YR 3/2 (dark brown), non to low plasticity, very loose, wet, [CCR]		SS10bE	16.5 - 17.0		
15					SS11E	17.0 - 18.5	1.5	1-1-1
16			SILTY SAND LITTLE GRAVEL, SM, 7.5YR 3/2 (dark brown) to 7.5YR 3/1 (very dark gray), low to medium					

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 11/23/20

Client Borehole ID N/A Stantec Boring No. **JOF-TW05**
 Client Tennessee Valley Authority Boring Location 599,473.18 N; 1,409,852.52 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 389.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18	18.5	371.1	plasticity, very loose, wet, [CCR]					
19	19.8	369.8		SILTY GRAVEL TRACE SAND, GM, 7.5YR 3/2 (dark brown), low to medium plasticity, very loose, wet, [CCR]		SS12aG	18.5 - 19.8	1.5
20			CLAYEY GRAVEL WITH SAND, GC, 7.5YR 5/6 (strong brown) to 7.5YR 4/4 (brown), fine to coarse, low to medium plasticity, very loose, moist, [CCR]		SS12bG	19.8 - 20.0		
21				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS13G	20.0 - 21.5	1.5
22	22.3	367.3	SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS14E	21.5 - 23.0	1.5	2-1-1
23	23.0	366.6		LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 4/4 (brown), low to medium plasticity, firm, moist, [CCR]		SS15aE	23.0 - 23.5	1.5
24	23.4	366.2	SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS15bG	23.5 - 24.5	1.5
25				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS16G	24.5 - 26.0	1.5
26			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS17E	26.0 - 27.5	1.5
27				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS18E	27.5 - 29.0	1.5
28			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			ST02G	29.0 - 31.0	2.0
29				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS19aG	31.0 - 31.5	
30			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS19bE	31.5 - 32.5	1.5
31				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS20aE	32.5 - 33.5	1.5
32			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS20bG	33.5 - 34.0	
33				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS21G	34.0 - 35.5	1.5
34			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS22aG	35.5 - 36.5	1.5
35				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS22bE	36.5 - 37.0	
36			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS23E	37.0 - 38.5	1.5
37				SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]		SS24G	38.5 - 40.0	1.5
38			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR]			SS25G	40.0 - 41.5	1.5
39								
40								
41								
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/23/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW05
Client	Tennessee Valley Authority	Boring Location	599,473.18 N; 1,409,852.52 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	389.6 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT, ML, 7.5YR 2.5/1 (black), non to low plasticity, very soft, wet, [CCR] (Continued)	41.5-43.5-20200108	SS26E	41.5 - 43.0	1.5	WR-WR-WR
44				SS27aE	43.0 - 43.5	1.5	1-WH-1	
45				SS27bG	43.5 - 44.5	1.5	WR-WR-WH	
46				SS28G	44.5 - 46.0	1.5	WR-WR-WR	
47				SS29aG	46.0 - 46.5	1.5	WR-WR-WR	
48	47.9	341.7		SS29bE	46.5 - 47.5	1.5	WR-WR-WR	
49			LEAN CLAY SOME SILT, CL, 7.5YR 5/6 (strong brown) to 7.5YR 6/4 (light brown), low to medium plasticity, firm, dry	46.5-47.9-20200108	SS30aE	47.5 - 47.9	1.5	2-6-8
50				SS30bG	47.9 - 49.0	1.5	2-6-8	
51	51.0	338.6		ST03G	49.0 - 51.0	2.0	350	

No Refusal /
Bottom of Hole at 51.0 Ft.

Temporary well JOF-TW05 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/23/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-TW06	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,387.43 N; 1,412,433.21 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>391.3 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>2/19/20</u> Completed <u>2/19/20</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>25.2 ft</u> Date/Time <u>2/19/20 15:40</u>	
Inspector <u>C. Burton</u> Logger <u>C. Burton</u>		Depth to Water <u>17.4 ft</u> Date/Time <u>2/21/20 09:22</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>		Overdrill Depth <u>37.2 ft</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	391.3	Top of Hole					
	0.1	391.3	Topsoil			0.0 - 1.5	1.2	1-4-4
1			LEAN CLAY WITH SAND, CL, 10YR 5/8 (yellowish brown) to 10YR 7/2 (light gray), medium to high plasticity, firm to hard, moist, [FILL] With chert layer from 1.3' to 1.9'		SS01G	0.0 - 1.5		
2					SS02G	1.5 - 3.0	1.5	2-3-8
3	3.3	388.0	With large gravel from 3.0' to 3.3'					
4			SANDY SILT, ML, 2.5Y 2.5/1 (black), non-plastic, hard to very hard, moist, [CCR]		SS03G	3.0 - 4.5	0.7	6-15-14
5					SS04	4.5 - 6.0	0.0	2-4-5
6	6.4	384.9	SILTY SAND WITH GRAVEL, SM, 2.5Y 4/1 (dark gray) to 10YR 4/4 (dark yellowish brown), medium to coarse, medium dense to very dense, moist, with pieces of slag, [CCR]		SS05E	6.0 - 7.5	0.9	2-3-3
7					SS06aE	7.5 - 8.5	1.5	5-8-9
8				SS06bG	8.5 - 9.0			
9				SS07G	9.0 - 10.5	1.5	5-8-12	
10				SS08aG	10.5 - 11.5	1.0	9-11-25	
11				SS08bE	11.5 - 12.0			
12				SS09E	12.0 - 13.5	1.3	14-24-23	
13				ST01G	13.5 - 14.1	0.6	1000	
14				SS10G	14.5 - 16.0	1.5	8-50-45	

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/17/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
16			SILTY SAND WITH GRAVEL, SM, 2.5Y 4/1 (dark gray) to 10YR 4/4 (dark yellowish brown), medium to coarse, medium dense to very dense, moist, with pieces of slag, [CCR] (Continued)		SS11aG	16.0 - 16.5			
17				SS11bE	16.5 - 17.5	1.5	7-43-44		
17.9	373.4								
18			SANDY SILT, ML, 5Y 2.5/1 (black), non-plastic, very hard, moist to wet, stratified, [CCR]		SS12E	17.5 - 19.0	1.5	17-23-27	
19				SS13aE	19.0 - 19.5	1.5	14-24-34		
20				SS13bG	19.5 - 20.5	1.5			
21				SS14aG	20.5 - 21.5	1.5	8-14-22		
22				SS14bE	21.5 - 22.0	1.5			
23			Water measured on rods at 21.2'		SS15E	22.0 - 23.5	1.5	5-6-10	
24					SS16G	23.5 - 25.0	1.5	12-24-16	
25					SS17aG	25.0 - 25.6	1.5		
25.6	365.7				SS17bG	25.6 - 26.5	1.5	4-17-47	
26			SILTY SAND, SM, 5Y 2.5/1 (black) to 5Y 2.5/2 (black), non-plastic, very loose to medium dense, moist to wet, stratified, with layers of sand (1/2" to 4"), [CCR]		SS18E	26.5 - 28.0	1.2	5-7-9	
27				SS19E	28.0 - 29.5	1.2	3-4-7		
28						ST02G	29.5 - 31.1	1.6	600
29						SS20E	31.5 - 33.0	1.5	WH-1-2
30						SS21aE	33.0 - 33.5	0.8	
31						SS21bG	33.5 - 34.5	0.8	3-4-6
32					SS22G	34.5 - 36.0	1.3	2-1-2	
33					SS23aG	36.0 - 36.5	1.0		
34					SS23b	36.5 - 37.5	1.0	2-1-1	
35									
36									
37	37.3	354.0							

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/17/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW06
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 605,387.43 N; 1,412,433.21 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 391.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
38	38.2	353.1	LEAN CLAY WITH SAND, CL, 5Y 2.5/2 (black) and 2.5Y 6/4 (light yellowish brown), medium plasticity, firm, moist, clay mixed with CCR <i>(Continued)</i>		SS24aG	37.5 - 38.2	1.5	2-5-8
39				SS24bG	38.2 - 39.0			
40			LEAN CLAY WITH SAND, CL, 5Y 2.5/2 (black) and 2.5Y 6/4 (light yellowish brown), medium plasticity, firm, moist		ST03G	39.0 - 41.0	1.7	450
41	41.0	350.3						

No Refusal /
Bottom of Hole at 41.0 Ft.

Temporary well JOF-TW06 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG - 175568286 - JOF - TDEC ORDER.GPJ - TDEC SUBSURF DT 20180530.GDT 2/17/21

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-TW07	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,067.15 N; 1,412,573.75 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>399.4 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>2/4/20</u> Completed <u>2/6/20</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Inspector <u>M. Edmunds</u> Logger <u>M. Edmunds</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>		Overdrill Depth <u>42.9 ft</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	399.4						
	0.4	399.0						
			Top of Hole					
			Topsoil and grass					
1			SANDY LEAN CLAY, CL, 10YR 6/8 (brownish yellow), medium to high plasticity, soft to firm, moist, [FILL]		SS01G	0.0 - 1.5	1.1	2-4-5
2					SS02G	1.5 - 3.0	1.2	1-3-4
3					SS03G	3.0 - 4.5	1.3	2-8-8
4					SS04G	4.5 - 6.0	1.0	2-4-3
5					SS05G	6.0 - 7.5	1.1	3-7-8
6			LEAN CLAY TRACE SAND, CL, 10YR 6/8 (brownish yellow), medium to high plasticity, soft to firm, moist, trace gravel, trace CCR in places, [FILL]		SS06G	7.5 - 9.0	1.2	3-2-3
7	6.7	392.7			SS07G	9.0 - 10.5	1.5	2-2-3
8					SS08G	10.5 - 12.0	1.4	3-3-5
9					SS09G	12.0 - 13.5	1.5	2-2-3
10					SS10aG	13.5 - 14.3	1.5	3-7-12
11			SANDY FAT CLAY WITH GRAVEL, CH, 10YR 2/1 (black) to 10YR 5/4 (yellowish brown), medium to high plasticity, hard, moist, CCR and fat clay equally mixed, [CCR]		SS10bG	14.3 - 15.0		
12	14.3	385.1			SS11G	15.0 - 16.5	1.5	10-22-44
13			WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 10YR 2/1 (black), very fine to coarse, medium dense, moist, well graded, [CCR]		SS12E	16.5 - 18.0	1.4	5-37-40
14	15.5	383.9						

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/6/21

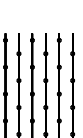

16 of 13 5-20202020

Client Borehole ID N/A Stantec Boring No. **JOF-TW07**
 Client Tennessee Valley Authority Boring Location 605,067.15 N; 1,412,573.75 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 399.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 10YR 2/1 (black), very fine to coarse, medium dense, moist, well graded, [CCR] <i>(Continued)</i>		SS13aE	18.0 - 18.5		
19				SS13bG	18.5 - 19.5	1.2	5-31-34	
20				ST01G	19.5 - 20.2	0.7	1000	
21				SS14G	20.5 - 21.3	0.8	27-50+1/4"	
22				SS15G	22.0 - 23.0	0.9	23-50+	
23				SS16E	23.0 - 24.5	1.2	37-30-42	
24				SS17aE	24.5 - 25.0	1.5	14-21-28	
25				SS17bG	25.0 - 26.0	1.5	14-21-28	
26	26.6			372.8	SS18aG	26.0 - 26.5	1.2	10-15-16
27	27.5			371.9	SS18bE	26.5 - 27.5	1.2	10-15-16
28				SANDY SILT SOME GRAVEL, ML, 10YR 2/1 (black), non-plastic, hard, [CCR]	SS19aE	27.5 - 28.5	1.5	8-18-17
29					SS19bG	28.5 - 29.0	1.5	8-18-17
30					SS20G	29.0 - 30.5	1.5	10-13-12
31					SS21aG	30.5 - 31.5	1.2	16-15-12
32					SS21bE	31.5 - 32.0	1.5	5-5-5
33					SS22E	32.0 - 33.5	1.5	5-5-5
34				SILTY SAND, SM, 10YR 2/1 (black), fine to coarse, medium dense to loose, wet, [CCR]	ST02	33.5 - 35.5	0.0	500
35					SS23aG	35.5 - 36.5	1.2	6-9-11
36		SS23bE	36.5 - 37.0		1.3	3-2-4		
37	37.6	361.8	SS24E		37.0 - 38.5	1.3	3-2-4	
38		SILTY SAND, SM, 10YR 4/1 (dark gray) to 10YR 2.5/1 (yellowish brown), non-plastic to low plasticity, very loose to loose, wet, [CCR]	ST03G		38.5 - 40.5	1.0	400	
39			SS25aG		40.5 - 41.5	1.2	1-1-1	
40			SS25bE	41.5 - 42.0	1.2	1-1-1		
41								
42								

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW07
Client	Tennessee Valley Authority	Boring Location	605,067.15 N; 1,412,573.75 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	399.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILTY SAND, SM, 10YR 4/1 (dark gray) to 10YR 2.5/1 (yellowish brown), non-plastic to low plasticity, very loose to loose, wet, [CCR] (Continued)	41.543.5-212020205	SS26E	42.0 - 43.5	1.5	1-4-3
44	43.9					SS27G	43.5 - 45.0	1.5
45			SILTY CLAY, CL-ML, 10YR 5/2 (grayish brown), low plasticity, very soft, moist to wet		ST04G	45.0 - 47.0	2.0	50
46								
47	47.0	352.4						

No Refusal /
Bottom of Hole at 47.0 Ft.

Temporary well JOF-TW07 installed. See well detail for backfill details.

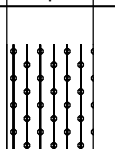
- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-TW08	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>604,279.60 N; 1,412,686.01 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>383.0 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>2/27/20</u> Completed <u>2/27/20</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>2.5 ft</u> Date/Time <u>2/28/20 09:55</u>	
Inspector <u>C. Burton</u> Logger <u>C. Burton</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>		Overdrill Depth <u>16.7 ft</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.0	Top of Hole					
	0.4	382.6	Topsoil					
1			SILT WITH CLAY, ML, 2.5Y 3/1 (very dark gray) with 10YR 5/6 (yellowish brown), non-plastic, firm, moist, CCR mixed with clay, [CCR]		SS01G	0.0 - 1.5	1.4	3-4-4
2	2.1	380.9	SANDY LEAN CLAY, CL, 10GY 5/8 (very dark gray), firm, moist, Mixed with CCR, with large piece of plastic, [FILL]		SS02G	1.5 - 3.0	1.5	1-2-3
3	3.5	379.5	POORLY GRADED SAND WITH GRAVEL, SP, 2.5Y 2.5/1 (black), loose, wet, [CCR]		SS03aG	3.0 - 3.5		
4	4.7	378.3	WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 2.5Y 5/4 (light olive brown), medium dense, wet, [FILL]		SS03bG	3.5 - 4.5	0.8	1-1-4
5			SILT, ML, 2.5Y 3/1 (very dark gray), very soft to hard, moist, [CCR]		SS04aG	4.5 - 4.7		
6					SS04bG	4.7 - 6.0	1.0	2-9-9
7					SS05E	6.0 - 7.5	0.9	3-11-13
8	7.8	375.2			SS06aE	7.5 - 8.5	1.5	2-2-4
9					SS06bG	8.5 - 9.0		
10					SS07G	9.0 - 10.5	1.5	2-5-14
11					ST01G	10.5 - 12.5	2.0	350
12					SS08E	12.5 - 14.0	1.5	2-1-2
13					SS09aE	14.0 - 14.5		
14					SS09bG	14.5 - 15.5	1.5	1-2-1
15					SS10aG	15.5 - 16.0		
16					SS10bE	16.0 - 17.0	1.2	WH-1-1
17	17.7	365.3			SS11aE	17.0 - 17.7		
18					SS11bG	17.7 - 18.5	1.5	2-9-10

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 2/17/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW08
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,279.60 N; 1,412,686.01 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 383.0 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
19 20	20.5 362.5		SILTY GRAVEL WITH SAND, GM, 10YR 6/1 (gray) to 10YR 3/6 (dark yellowish brown), fine to coarse, medium plasticity, medium dense, wet, well graded <i>(Continued)</i>		ST02G	18.5 - 20.5	1.1	450

No Refusal /
Bottom of Hole at 20.5 Ft.

Temporary well JOF-TW08 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



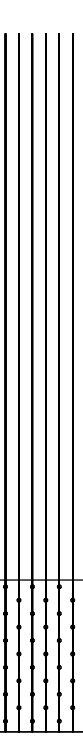
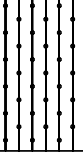
SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW09	
Client	Tennessee Valley Authority	Boring Location	604,000.17 N; 1,412,349.82 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	383.1 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	3/3/20	Completed 3/4/20
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	11.1 ft	Date/Time 3/4/20 12:37
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	26.5 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.1	Top of Hole					
	0.1	383.0	crushed stone		SS01aG	0.0 - 1.1	1.4	4-5-10
1	1.1	382.0	SILT, ML, non-plastic, very hard, moist, [CCR]		SS01bG	1.1 - 1.5		
2			WELL GRADED SAND WITH SILT AND GRAVEL, SW-SM, 10YR 3/1 (very dark gray) to 2.5Y 3/1 (very dark gray), very dense, moist, with pieces of slag, [CCR]	1.5/3-5-20200303	SS02E	1.5 - 3.0	1.1	4-9-10
3					SS03aE	3.0 - 3.5		
4					SS03bG	3.5 - 4.5	1.4	2-8-9
5					SS04G	4.5 - 6.0	1.5	4-8-10
6					SS05aG	6.0 - 6.5		
7					SS05bE	6.5 - 7.5	1.4	12-12-12
8					SS06aE	7.5 - 8.5	1.2	4-14-18
9					SS06bG	8.5 - 9.0		
10					SS07G	9.0 - 10.5	1.1	4-18-24
11	10.7	372.4		SANDY SILT, ML, 2.5Y 3/1 (very dark gray) to 2.5Y 4/1 (dark gray), fine to medium, non-plastic, very hard to firm, moist to wet, stratified, with sand lenses, [CCR]	6.5/6-5-20200303	SS08aG	10.5 - 11.5	1.5
12					SS08bE	11.5 - 12.0		
13					SS09E	12.0 - 13.5	1.5	4-13-7
14					ST01G	13.5 - 15.5	2.0	1000
15					SS10aG	15.5 - 16.5		
16				SS10bE	16.5 - 17.0	1.5	7-6-7	
17				SS11E	17.0 - 18.5	1.5	1-1-1	
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DIT 20180530.GDT 2/17/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW09
Client	Tennessee Valley Authority	Boring Location	604,000.17 N; 1,412,349.82 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.1 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
19			SANDY SILT, ML, 2.5Y 3/1 (very dark gray) to 2.5Y 4/1 (dark gray), fine to medium, non-plastic, very hard to firm, moist to wet, stratified, with sand lenses, [CCR] (Continued)		SS12G	18.5 - 20.0	1.5	2-2-5	
20					SS13G	20.0 - 21.5	1.5	2-8-33	
21					SS14aE	21.5 - 23.0	1.4	4-4-13	
22					SS15aE	23.0 - 23.5	1.5	5-7-13	
23					SS15bG	23.5 - 24.5	1.5	2-3-4	
24					SS16G	24.5 - 26.0	1.5	3-3-4	
25					SS17E	26.0 - 27.5	1.4	12-23-24	
26					SS18G	27.5 - 29.0	0.9	1000	
27	27.5			355.6					
28					SILTY SAND WITH GRAVEL, SM, 10YR 4/1 (dark gray), fine to coarse, dense to very dense, wet		ST02G	29.0 - 30.0	
29									
30	30.0	353.1							

No Refusal /
Bottom of Hole at 30.0 Ft.

Temporary well JOF-TW09 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface


TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT: 20180530.GDT 2/17/21

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-TW10	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>603,792.61 N; 1,412,822.85 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>381.4 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>2/25/20</u>	Completed <u>2/25/20</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>2.6 ft</u>	Date/Time <u>2/26/20 07:48</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID	<u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>8-1/4" HSA overdrill of boring</u>	Overdrill Depth	<u>16.7 ft</u>	
Sampler Hammer Type	<u>Automatic</u>	Weight	<u>140 lb</u>	Drop <u>30"</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Approved By	<u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	381.4	Top of Hole					
	0.3	381.1	Topsoil					
1			CLAYEY SAND WITH GRAVEL, SC, 2.5YR 2.5/1 (reddish black) with 10YR 5/8 (yellowish brown), very dense, moist, Clay mixed with CCR, with slag fragments, [FILL]		SS01G	0.0 - 1.5	1.2	1-8-10
2					SS02G	1.5 - 3.0	1.3	8-10-12
3					SS03aG	3.0 - 3.8	1.4	4-23-30
4	3.8	377.6	SILT WITH SAND, ML, 5Y 4/1 (dark gray) with 2.5Y 5/4 (light olive brown), non-plastic, very hard, moist to wet, [CCR]		SS03bG	3.8 - 4.5	1.5	9-22-24
5					SS04G	4.5 - 6.0	1.1	2-5-6
6					SS05E	6.0 - 7.5	1.4	2-3-6
7	6.7	374.7	SILT, ML, 5Y 2.5/1 (black) to 5Y 3/2 (dark olive gray), non-plastic, firm to very hard, moist, [CCR]		SS06aE	7.5 - 8.5	1.5	4-2-5
8					SS06bG	8.5 - 9.0	1.5	2-17-16
9					ST01G	9.0 - 10.5	1.5	1600
10			SILT WITH SAND, ML, 5Y 3/1 (very dark gray), non-plastic, firm to very hard, moist, stratified, [CCR]		SS07aG	10.5 - 11.0	1.5	4-2-5
11					SS07bE	11.0 - 12.0	1.5	2-1-18
12					SS08E	12.0 - 13.5	1.5	2-3-2
13	13.1	368.3			SS09aE	13.5 - 14.0	1.5	1-1-6
14					SS09bG	14.0 - 15.0	1.5	
15					SS10G	15.0 - 16.5	1.5	
16					SS11aG	16.5 - 17.7	1.5	
17	17.7	363.7			SS11bG	17.7 - 18.0		

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 10/22/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-TW10
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>603,792.61 N; 1,412,822.85 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>381.4 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SANDY LEAN CLAY WITH GRAVEL, CL, 10YR 6/1 (gray) and 10YR 3/6 (dark yellowish brown), medium plasticity, firm to very hard, moist (Continued)					
19					SS12G	18.0 - 19.5	1.5	2-7-7
20	20.1	361.3			ST02G	19.5 - 20.1	0.3	1000

No Refusal /
Bottom of Hole at 20.1 Ft.

Temporary well JOF-TW10 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF DT 20190530.GDT 10/22/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	<u>JOF-TW11</u>	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>604,258.65 N; 1,414,919.43 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>436.4 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>11/20/19</u>	Completed <u>11/21/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>34.2 ft</u>	Date/Time <u>12/2/19 13:10</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>		Date/Time	<u>N/A</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>8-1/4" HSA overdrill of boring</u>	Overdrill Depth	<u>43.3 ft</u>	
Sampler Hammer Type	<u>Automatic</u>	Weight	<u>140 lb</u>	Drop <u>30"</u>
Borehole Azimuth	<u>N/A</u>	Efficiency	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
		Approved By	<u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
0	0.0	436.4	Top of Hole						
1			SANDY LEAN CLAY, CL, 10YR 5/8 (yellowish brown) with 10YR 7/1 (light gray), low to medium plasticity, very soft, moist, fine sand, trace gravel, [FILL]		SS01G	0.0 - 1.5	1.0	1-1-2	
2	2.3	434.1				SS02aG	1.5 - 2.3	1.5	2-13-22
3			SILT WITH SAND, ML, 2.5Y 3/1 (very dark gray) to 10YR 3/1 (very dark gray), non-plastic, very hard, moist, [CCR]		SS02bE	2.3 - 3.0	1.5	2-13-22	
4						SS03aE	3.0 - 3.8	1.5	5-12-25
5	4.8	431.6				SS03bG	3.8 - 4.5	1.5	5-12-25
6			SILTY SAND TRACE GRAVEL, SM, 2.5Y 3/1 (very dark gray) to 10YR 3/1 (very dark gray), fine to coarse, non-plastic, very loose to loose, moist, [CCR]		SS04G	4.5 - 6.0	1.5	5-14-11	
7						SS05aG	6.0 - 6.5	1.5	2-4-4
8						SS05bE	6.5 - 7.5	1.5	2-4-4
9						SS06aE	7.5 - 8.5	1.4	2-2-2
10						SS06bG	8.5 - 9.0	1.4	2-2-1
11						SS07G	9.0 - 10.5	1.4	2-2-1
12	12.4	424.0	SILT WITH SAND, ML, 2.5Y 2.5/1 (black) to 5Y 5/1 (gray), non-plastic, firm, moist, stratified, [CCR]		SS08E	10.5 - 12.0	1.3	2-2-4	
13						SS09E	12.0 - 13.5	1.5	3-1-3
14						SS10G	13.5 - 15.0	1.5	3-3-5
15						SS11G	15.0 - 16.5	1.5	5-3-3
16						SS12E	16.5 - 18.0	1.5	2-2-1
17	17.1	419.3							

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 4/6/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW11
Client	Tennessee Valley Authority	Boring Location	604,258.65 N; 1,414,919.43 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	436.4 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILT WITH SAND, ML, 2.5Y 2.5/1 (black) to 5Y 2.5/1 (black), non-plastic, very soft to firm, moist to wet, stratified, [CCR] <i>(Continued)</i>		SS13aE	18.0 - 19.0	1.2	1-1-1
19				SS13bG	19.0 - 19.5	1.5	1-2-3	
20				SS14G	19.5 - 21.0	1.5	1-1-1	
21				SS15aG	21.0 - 21.5	1.5	1-1-3	
22				SS15bE	21.5 - 22.5	1.5	1-1-1	
23				SS16aE	22.5 - 23.5	1.5	1-1-3	
24				SS16bG	23.5 - 24.0	1.5	1-1-1	
25				SS17G	24.0 - 25.5	1.5	3-1-2	
26				SS18aG	25.5 - 26.5	1.5	1-1-1	
27				SS18bE	26.5 - 27.0	1.5	1-1-1	
28				SS19E	27.0 - 28.5	1.5	1-WH-WH	
29				SS20aG	28.5 - 29.0	1.5	1-WH-WH	
30				SS20bG	29.0 - 30.0	1.5	1-WH-WH	
31				SS21G	30.0 - 31.5	1.5	WH-WH-WH	
32				SS22E	31.5 - 33.0	1.5	WR-4-8	
33				SS23aE	33.0 - 34.0	1.5	4-4-8	
34				SS23bG	34.0 - 34.5	1.5	3-2-5	
35			SS24G	34.5 - 36.0	1.5	3-2-2		
36			SS25E	36.0 - 37.5	1.5	3-2-2		
37			SS26aE	37.5 - 38.0	1.5	2.0		
38	38.5	397.9	SS26bG	38.0 - 39.0	1.5	350		
39			SILT, ML, 2.5Y 4/1 (dark gray) to 5Y 2.5/1 (black), non-plastic, very soft to firm, wet, stratified, [CCR]		ST01G	39.0 - 41.0	2.0	350
40					SS27a	41.0 - 41.5	1.5	2-2-2
41					SS27bE	41.5 - 42.5	1.5	2-2-2
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 4/6/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW11
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,258.65 N; 1,414,919.43 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 436.4 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
43	43.3	393.1	LEAN CLAY WITH SAND, CL, 7.5YR 5/8 (strong brown) with 10YR 7/1 (light gray), medium to high plasticity, hard, [FILL]	41.5433-20191121	SS28aE	42.5 - 43.3	1.5	1-4-8	
44				SS28bG	43.3 - 44.0				
45				ST02G	44.0 - 46.0				
46	46.0	390.4	No Refusal / Bottom of Hole at 46.0 Ft.						

Temporary well JOF-TW11 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 4/6/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW12		
Client	Tennessee Valley Authority	Boring Location	603,735.38 N; 1,414,921.69 E NAD27 Plant Local		
Project Number	175568286	Surface Elevation	440.2 ft	Elevation Datum	NGVD29
Project Name	JOF TDEC Order	Date Started	12/4/19	Completed	12/5/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	47.3 ft	Date/Time	12/5/19 07:33
Inspector	C. Burton	Logger	C. Burton	Depth to Water	N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952		
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes				
Rock Drilling and Sampling Tools (Type and Size)	N/A				
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	46.8 ft		
Sampler Hammer Type	Automatic	Weight	140 lb	Drop	30"
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A		
Reviewed By	K. Carey	Approved By	P. Dunne		

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	440.2	Top of Hole					
0	0.0	440.2	Topsoil					
1			SANDY LEAN CLAY, CL, 10YR 5/6 (yellowish brown), low to medium plasticity, firm, moist, with organics, [FILL]	1.5/5-20191204	SS01G	0.0 - 1.5	1.0	3-3-5
2	2.3	437.9			SS02E	1.5 - 3.0	1.5	2-3-9
3	3.3	436.9	SILTY LEAN CLAY WITH SAND, CL, 10YR 5/4 (yellowish brown), low to medium plasticity, firm to very hard, moist, with organics, [FILL]	6.5/6.5-20191204	SS03aE	3.0 - 3.5	1.5	5-22-27
4					SS03bG	3.5 - 4.5		
5			SILT SOME SAND, ML, 5Y 5/1 (gray) to 10YR 5/2 (grayish brown), non-plastic, firm to very hard, moist, stratified, [CCR]	11.5/11.5-20191204	SS04G	4.5 - 6.0	1.3	5-10-11
6					SS05aG	6.0 - 6.5	1.5	7-9-10
7			SS05bE	6.5 - 7.5				
8				1.5/13.5-20191204	SS06aE	7.5 - 8.5	1.5	3-3-4
9					SS06bG	8.5 - 9.0		
10				16.5/16.5-20191204	SS07G	9.0 - 10.5	1.5	3-3-4
11			SS08aG		10.5 - 11.5			
12				13.5-13.5	SS08bE	11.5 - 12.0	1.5	3-2-4
13			SS09E		12.0 - 13.5			
14				15.5-15.5	ST01G	13.5 - 15.5	2.0	300
15					16.5/16.5-20191204	SS10aG	15.5 - 16.5	1.5
16			SS10bE	16.5 - 17.0				
17	17.4	422.8			SS11E	17.0 - 18.5	1.5	3-2-2

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 2/18/21

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW12
Client <u>Tennessee Valley Authority</u>	Boring Location <u>603,735.38 N; 1,414,921.69 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>440.2 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILT SOME SAND, ML, 5Y 5/1 (gray), non-plastic, firm, moist to wet, lensed, saturated lenses, [CCR] (Continued)					
19					SS12G	18.5 - 20.0	1.5	2-2-3
20								
21					SS13G	20.0 - 21.5	1.5	1-2-5
22	22.3	417.9			SS14E	21.5 - 23.0	1.5	1-1-2
23			SILT, ML, 5Y 3/1 (very dark gray) to 5Y 5/1 (gray), non-plastic, very soft to soft, moist to wet, lensed, saturated lenses, [CCR]		SS15aE	23.0 - 23.5	1.5	WH-1-1
24					SS15bG	23.5 - 24.5	1.5	WH-1-1
25					SS16G	24.5 - 26.0	1.5	1-1-2
26					SS17aG	26.0 - 26.5	1.5	1-1-1
27					SS17bE	26.5 - 27.5	1.5	1-1-1
28					SS18aE	27.5 - 28.5	1.5	1-1-1
29					SS18bG	28.5 - 29.0	1.5	WH-1-1
30					SS19G	29.0 - 30.5	1.5	WH-1-1
31					SS20aG	30.5 - 31.5	1.5	1-1-1
32					SS20bE	31.5 - 32.0	1.5	1-1-1
33				SS21E	32.0 - 33.5	1.5	1-WH-WH	
34				SS22G	33.5 - 35.0	1.0	WH-WH-WH	
35				SS23G	35.0 - 36.5	1.5	WH-1-3	
36				SS24E	36.5 - 38.0	1.5	4-6-7	
37	37.2	403.0			SS25aE	38.0 - 38.5	1.5	5-6-5
38			SILT TRACE SAND, ML, 2.5Y 5/1 (gray), non-plastic, very soft to hard, moist to wet, [CCR]		SS25bG	38.5 - 39.5	1.5	5-6-5
39								
40						ST02G	39.5 - 41.5	2.0
41								
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/18/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW12
Client	Tennessee Valley Authority	Boring Location	603,735.38 N; 1,414,921.69 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	440.2 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT TRACE SAND, ML, 2.5Y 5/1 (gray), non-plastic, very soft to hard, moist to wet, [CCR] <i>(Continued)</i>	41.5-44.5-20191204	SS26E	41.5 - 43.0	1.5	2-1-WH
44	44.3				SS27E	43.0 - 44.5	1.5	WH-WH-WH
45			SILTY LEAN CLAY, CL-ML, 2.5Y 4/2 (dark grayish brown), non-plastic to low plasticity, very soft to very hard, wet, [CCR]		SS28G	44.5 - 46.0	1.5	WR-WR-WR
46					SS29aG	46.0 - 46.5		
47					SS29bE	46.5 - 47.5	1.5	WR-WR-WH
48	47.8				SS30aE	47.5 - 47.8		
49			SANDY LEAN CLAY, CL, 10YR 5/8 (yellowish brown) with 10YR 7/1 (light gray), medium to high plasticity, hard, moist, [FILL]		SS30bG	47.8 - 49.0	1.5	1-8-15
50					ST03G	49.0 - 51.0	1.7	650
51	51.0							

No Refusal /
Bottom of Hole at 51.0 Ft.

Temporary well JOF-TW12 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/18/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW13		
Client	Tennessee Valley Authority	Boring Location	603,275.70 N; 1,414,944.75 E NAD27 Plant Local		
Project Number	175568286	Surface Elevation	437.9 ft	Elevation Datum	NGVD29
Project Name	JOF TDEC Order	Date Started	12/11/19	Completed	12/12/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time	N/A
Inspector	C. Burton	Logger	C. Burton	Depth to Water	N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952		
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes				
Rock Drilling and Sampling Tools (Type and Size)	N/A				
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	44.0 ft		
Sampler Hammer Type	Automatic	Weight	140 lb	Drop	30"
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A		
Reviewed By	K. Carey	Approved By	P. Dunne		

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	437.9						
1			SILTY LEAN CLAY WITH SAND, CL, 10YR 4/4 (dark yellowish brown) with 10YR 7/1 (light gray), medium to high plasticity, firm to very hard, moist, [FILL]		SS01G	0.0 - 1.5	1.2	3-3-5
2					SS02E	1.5 - 3.0	1.3	2-4-9
3	3.4	434.5	SILT WITH SAND, ML, 5Y 5/1 (gray), very fine, non-plastic, soft to hard, moist, lensed, [CCR]		SS03aE	3.0 - 3.5	1.5	4-20-26
4					SS03bG	3.5 - 4.5	1.5	4-20-26
5					SS04G	4.5 - 6.0	1.5	5-8-6
6					SS05aG	6.0 - 6.5	1.5	4-3-3
7					SS05bE	6.5 - 7.5	1.5	4-3-3
8					SS06aE	7.5 - 8.5	1.5	3-2-3
9					SS06bG	8.5 - 9.0	1.5	3-2-3
10					SS07G	9.0 - 10.5	1.5	3-5-5
11					SS08aG	10.5 - 11.5	1.3	3-5-8
12	12.6	425.3			SS08bE	11.5 - 12.0	1.5	3-4-5
13			SANDY SILT TRACE GRAVEL, ML, 5Y 5/3 (olive), very fine to coarse, non-plastic, firm to hard, lensed, with slag fragments, [CCR]		SS09E	12.0 - 13.5	1.5	3-4-5
14					ST01G	13.5 - 15.5	2.0	300
15					SS10aG	15.5 - 16.0	1.5	3-5-5
16					SS10bE	16.0 - 17.0	1.5	3-5-5
17					SS11E	17.0 - 18.5	1.5	3-5-2

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 2/25/21



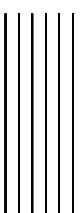

SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW13
Client	Tennessee Valley Authority	Boring Location	603,275.70 N; 1,414,944.75 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	437.9 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18	418.7		SILT, ML, 2.5Y 5/1 (gray), non to low plasticity, firm, moist, [CCR]					
19	419.8			SS12G	18.5 - 20.0	1.5	2-2-2	
20			SS13aG	20.0 - 20.6				
21			SS13bG	20.6 - 21.5	1.5	2-2-3		
22	416.3		SILT TRACE SAND, ML, 5Y 5/3 (olive), non-plastic, very soft to firm, moist to wet, [CCR]	SS14E	21.5 - 23.0	1.3	2-1-4	
23				SS15aE	23.0 - 23.5			
24				SS15bG	23.5 - 24.5	1.5	3-1-2	
25				SS16G	24.5 - 26.0	1.5	1-1-1	
26				SS17aG	26.0 - 26.5			
27				SS17bE	26.5 - 27.5	1.5	2-1-1	
28				SS18aE	27.5 - 28.5	1.5	1-1-1	
29				SS18bG	28.5 - 29.0			
30				ST02G	29.0 - 31.0	2.0	400	
31				SS19aG	31.0 - 31.5			
32			SS19bE	31.5 - 32.5	1.5	1-3-5		
33	405.0		SILT, ML, 5Y 5/1 (gray) to 5Y 4/1 (dark gray), firm to very soft, wet to moist, stratified, [CCR]	SS20aE	32.5 - 33.5	1.5	2-5-7	
34				SS20bG	33.5 - 34.0			
35				SS21G	34.0 - 35.5	1.5	2-1-2	
36				SS22aG	35.5 - 36.5	1.5	1-WH-1	
37				SS22bE	36.5 - 37.0			
38				SS23E	37.0 - 38.5	1.5	WH-WH-WH	
39			SS24G	38.5 - 40.0	1.5	WR-WR-WR		
40								
41			SS25G	40.0 - 41.5	1.5	WR-WR-WR		
42								

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/25/21

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-TW13
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>603,275.70 N; 1,414,944.75 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>437.9 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SILT, ML, 5Y 5/1 (gray) to 5Y 4/1 (dark gray), firm to very soft, wet to moist, stratified, [CCR] (Continued)		SS26E	41.5 - 43.0	1.5	WR-WR-WR
44					SS27aE	43.0 - 43.5	1.5	WR-WR-WH
45	45.4	392.5			SS27bG	43.5 - 44.5		
46			CLAYEY SAND WITH GRAVEL, SC, 7.5YR 6/8 (reddish yellow) with 7.5YR 7/1 (light gray), fine to medium, high plasticity, medium dense, moist, [FILL] CCR seam from 45.65' to 45.70'		SS28aG	44.5 - 45.4	1.5	WR-WR-4
47					SS28bG	45.4 - 46.0		
48	48.3	389.6			SS29G	46.0 - 47.5	1.2	4-10-14
					ST03G	47.5 - 48.3	0.8	1500

No Refusal /
Bottom of Hole at 48.3 Ft.

Temporary well JOF-TW13 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20180530.GDT 2/25/21



SUBSURFACE LOG

Client Borehole ID N/A Stantec Boring No. **JOF-TW14**

Client Tennessee Valley Authority Boring Location 600,107.45 N; 1,415,016.68 E NAD27 Plant Local

Project Number 175568286 Surface Elevation 439.5 ft Elevation Datum NGVD29

Project Name JOF TDEC Order Date Started 10/1/19 Completed 10/3/19

Project Location New Johnsonville, Humphreys Co., TN Depth to Water 57.9 ft Date/Time 10/4/19 07:38

Inspector C. Burton Logger C. Burton Depth to Water N/A Date/Time N/A

Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 1050, #952

Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes

Rock Drilling and Sampling Tools (Type and Size) N/A

Overdrill Tooling (Type and Size) 8-1/4" HSA overdrill of boring Overdrill Depth N/A

Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency N/A

Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A

Reviewed By K. Carey Approved By P. Dunne

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	439.5	Top of Hole					
1	0.8	438.7	Topsoil, dry		SS01G	0.0 - 1.5	1.4	3-5-6
2	2.1	437.4	LEAN CLAY WITH SAND, CL, 10YR 7/3 (very pale brown), fine, low plasticity, hard to very hard, dry, [FILL]		SS02E	1.5 - 3.0	1.5	14-18-23
3	2.6	436.9	POORLY GRADED GRAVEL WITH CLAY, GP-GC, 2.5Y 4/1 (dark gray), moist, [FILL]		SS03aE	3.0 - 3.5	1.0	14-14-15
4	3.6	435.9	FAT CLAY, CH, 2.5Y 4/3 (olive brown), high plasticity, very hard, moist, [FILL]		SS03bG	3.5 - 4.5	1.3	14-10-12
5			SILT WITH SAND, ML, 10YR 4/1 (dark gray) to 2.5Y 3/1 (very dark gray), non-plastic to low plasticity, hard to very hard, moist, [CCR]		SS04G	4.5 - 6.0	1.3	12-8-9
6					SS05aG	6.0 - 6.5	1.2	9-8-9
7					SS05bE	6.5 - 7.5	1.3	14-12-19
8					SS06aE	7.5 - 8.5	1.1	13-19-23
9					SS06bG	8.5 - 9.0	1.4	12-18-22
10					SS07G	9.0 - 10.5	1.3	13-15-14
11					SS08aG	10.5 - 11.0		
12					SS08bE	11.0 - 12.0		
13					SS09E	12.0 - 13.5		
14					SS10G	13.5 - 15.0		

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 2/17/21



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW14
Client	Tennessee Valley Authority	Boring Location	600,107.45 N; 1,415,016.68 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	439.5 ft
		Elevation Datum	NGVD29

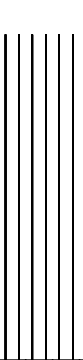

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
15			SILT WITH SAND, ML, 10YR 4/1 (dark gray) to 2.5Y 3/1 (very dark gray), non-plastic to low plasticity, hard to very hard, moist, [CCR] <i>(Continued)</i>					
16				SS11G	15.0 - 16.5	1.3	12-11-10	
17				SS12E	16.5 - 18.0	1.5	10-10-9	
18				SS13aE	18.0 - 18.5			
19				SS13bG	18.5 - 19.5	1.4	14-13-18	
20				SS14G	19.5 - 21.0	1.3	14-16-18	
21				SS15aG	21.0 - 21.5			
22				SS15bE	21.5 - 22.5	1.5	14-15-21	
23				SS16aE	22.5 - 23.5	1.5	10-10-11	
24				SS16bG	23.5 - 24.0			
25				SS17G	24.0 - 25.5	1.5	11-11-15	
26				SS18G	25.5 - 27.0	1.5	12-14-22	
27				SS19E	27.0 - 28.5	1.5	12-16-27	
28				SS20aE	28.5 - 29.5	1.5	13-14-16	
29				SS20bG	29.5 - 30.0			
30				SS21G	30.0 - 31.5	1.5	9-15-17	
31				SS22E	31.5 - 33.0	1.5	10-20-34	
32			SS23aE	33.0 - 33.5				
33	33.5	406.0	SS23bG	33.5 - 34.0	1.1	12-16-22		
34	34.0	405.5	SS23cG	34.0 - 34.5				
35			FAT CLAY WITH GRAVEL, CH, 10YR 5/4 (yellowish brown), high plasticity, very hard, moist, [FILL]					

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT:20180530.GDT 2/17/21

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
36			SILT WITH SAND, ML, 10YR 4/1 (dark gray) to 2.5Y 3/1 (very dark gray), non-plastic, very hard to firm, moist, [CCR] <i>(Continued)</i>		SS24G	34.5 - 36.0	1.5	10-13-14
37					SS25aG	36.0 - 36.5	1.5	8-9-9
38					SS25bE	36.5 - 37.5	1.5	8-5-5
39					SS26aE	37.5 - 38.5	1.5	6-7-9
40					SS26bG	38.5 - 39.0	1.5	7-4-3
41					SS27G	39.0 - 40.5	1.5	6-4-6
42					SS28aG	40.5 - 41.5	1.5	7-4-3
43					SS28bE	41.5 - 42.0	1.5	6-4-6
44	44.7	394.8			SS29E	42.0 - 43.5	1.5	7-4-3
45				SILT TRACE SAND, ML, 2.5Y 4/1 (dark gray) to 10YR 2/1 (black), non-plastic, hard to firm, moist, [CCR]		SS30aG	43.5 - 44.5	1.5
46					SS30bG	44.5 - 45.0	1.5	4-4-6
47					SS31G	45.0 - 46.5	1.5	6-5-7
48					SS32E	46.5 - 48.0	1.5	5-4-5
49					SS33aE	48.0 - 49.3	1.5	5-5-6
50					SS33bG	49.3 - 49.5	1.5	4-4-2
51				SS34G	49.5 - 51.0	1.5	1-1-1	
52				SS35aG	51.0 - 51.5	1.5		
53	53.3	386.2		SS35bE	51.5 - 52.5	1.5		
54			SILT, ML, 10YR 4/1 (dark gray), non-plastic, very soft, wet, [CCR]		SS36aE	52.5 - 53.5	1.5	
55					SS36bG	53.5 - 54.0	1.5	
					ST01G	54.0 - 56.0	2.0	200

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF.DT 20180530.GDT 2/17/21

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW14
Client	Tennessee Valley Authority	Boring Location	600,107.45 N; 1,415,016.68 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	439.5 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
56			SILT, ML, 10YR 4/1 (dark gray), non-plastic, very soft, wet, [CCR] (Continued)		SS37aG	56.0 - 56.5		
57				SS37bE	56.5 - 57.5	1.5	WH-WH-1	
58				SS38aE	57.5 - 58.5	1.5	1-1-1	
59				SS38bG	58.5 - 59.0			
59.6	379.9			SS39a	59.0 - 59.5			
60			WELL GRADED GRAVEL WITH SAND, GW, 10YR 5/4 (yellowish brown), medium to coarse, medium dense, wet		SS39bG	59.5 - 60.5	1.5	6-13-16
60.9	378.6				ST02G	60.5 - 60.9	0.4	700

No Refusal /
Bottom of Hole at 60.9 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 2/17/21

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW15
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,085.81 N; 1,415,329.68 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>448.0 ft</u> Elevation Datum <u>NGVD29</u>
Project Name <u>JOF TDEC Order</u>	Date Started <u>10/8/19</u> Completed <u>10/9/19</u>
Project Location <u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water <u>60.7 ft</u> Date/Time <u>10/10/19 16:27</u>
Inspector <u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water <u>61.3 ft</u> Date/Time <u>10/18/19 09:18</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID <u>CME 85#2, #951</u>
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes</u>	
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>	
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>	Overdrill Depth <u>67.0 ft</u>
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u> Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>	Borehole Inclination (from Vertical) <u>N/A</u>
Reviewed By <u>K. Carey</u>	Approved By <u>P. Dunne</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	448.0	Top of Hole					
0.3	447.7		Topsoil					
1			Offset from sampling hole - hand dug to 24" to verify no geosynthetic liner		SS01G	0.0 - 1.5	1.3	1-3-5
2	2.1	445.9	LEAN CLAY, CL, 7.5YR 5/4 (brown), low to medium plasticity, firm to very hard, moist, [FILL]	1.5/5-20191008	SS02E	1.5 - 3.0	1.5	7-8-11
3	3.2	444.8	SANDY FAT CLAY, CH, 5YR 5/6 (yellowish red), high plasticity, very hard, moist, iron oxide staining, [FILL]		SS03aE	3.0 - 3.5		
4					SS03bG	3.5 - 4.5	1.5	9-19-35
5			SANDY SILT, ML, 5YR 4/1 (dark gray) to 7.5YR 3/1 (very dark gray), non-plastic, very hard, moist, with slag fragments, [CCR]		SS04G	4.5 - 6.0	1.3	9-15-17
6					SS05aG	6.0 - 6.5		
7					SS05bE	6.5 - 7.5	1.5	8-13-15
8					SS06aE	7.5 - 8.5		
9					SS06bG	8.5 - 9.0		
10	9.9	438.1			SS07aG	9.0 - 9.9	1.5	8-19-13
11			SANDY LEAN CLAY TRACE GRAVEL, CL, 10YR 5/4 (yellowish brown), low to medium plasticity, very hard, moist, [FILL]		SS07bG	9.9 - 10.5		
12	12.3	435.7			SS08aG	10.5 - 11.5	1.5	7-28-24
13					SS08bE	11.5 - 12.0		
14			SANDY SILT, ML, 2.5Y 4/1 (dark gray), non-plastic, very hard, moist, [CCR]		SS09E	12.0 - 13.5	1.2	7-9-14
15					SS10G	13.5 - 15.0	1.5	8-10-12
16	16.3	431.7			SS11G	15.0 - 16.5	1.5	6-7-15
17			SILT WITH SAND, ML, 2.5Y 4/1 (dark gray) to 10YR 4/1 (dark gray), non-plastic, firm to very hard, moist to wet, [CCR]		SS12E	16.5 - 18.0	1.5	7-9-13

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT:20191030.GDT: 11/17/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW15
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,085.81 N; 1,415,329.68 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>448.0 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SILT WITH SAND, ML, 2.5Y 4/1 (dark gray) to 10YR 4/1 (dark gray), non-plastic, firm to very hard, moist to wet, [CCR] (Continued)		SS13aE	18.0 - 18.5		
19				SS13bG	18.5 - 19.5	1.5	8-9-12	
20				SS14G	19.5 - 21.0	1.5	6-10-20	
21				SS15aG	21.0 - 21.5			
22				SS15bE	21.5 - 22.5	1.5	5-14-16	
23				SS16aE	22.5 - 23.5	1.5	8-13-15	
24				SS16bG	23.5 - 24.0			
25				SS17aG	24.0 - 24.5			
25				SS17bG	24.5 - 24.9	1.5	12-22-22	
25				SS17cG	24.9 - 25.5			
26				SS18aG	25.5 - 26.5	1.5	10-13-13	
27				SS18bE	26.5 - 27.0			
28				SS19E	27.0 - 28.5	1.4	9-8-9	
29				SS20G	28.5 - 30.0	1.5	7-7-7	
30				SS21G	30.0 - 31.5	1.1	13-16-14	
32				SS22E	31.5 - 33.0	1.5	4-8-12	
33				SS23aE	33.0 - 33.5			
34				SS23bG	33.5 - 34.5	1.5	7-5-8	
35				SS24G	34.5 - 36.0	1.5	6-5-7	
36				SS25aG	36.0 - 36.5			
37			SS25bE	36.5 - 37.5	1.5	6-4-4		
38			SS26aE	37.5 - 38.5	1.5	5-5-5		
39			SS26bG	38.5 - 39.0				
39.6	408.4							
40			SILT, ML, 2.5Y 4/1 (dark gray) to 10YR 4/1 (dark gray), non-plastic, firm to very hard, moist to wet, stratified, [CCR] Wet from 39.6' to 39.9'		SS27G	39.0 - 40.5	1.5	5-4-5
41					SS28aG	40.5 - 41.5		
41					SS28bE	41.5 - 42.0	1.5	3-5-8
42								

TVA EIP BORING LOG 175568286 JOF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/17/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW15
Client	Tennessee Valley Authority	Boring Location	599,085.81 N; 1,415,329.68 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	448.0 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
42.6	405.4		SILT, ML, 7.5YR 4/1 (dark gray) to 5Y 4/1 (dark gray), non to low plasticity, very soft to soft, wet to moist, [CCR]	41.5/43.5-20191008	SS29E	42.0 - 43.5	1.5	4-2-1	
						SS30G	43.5 - 45.0	1.5	2-2-2
						SS31G	45.0 - 46.5	1.5	1-1-1
					46.5/48.5-20191009	SS32E	46.5 - 48.0	1.5	3-1-1
						SS33aE	48.0 - 48.5		
						SS33bG	48.5 - 49.5	1.5	2-1-WH
						ST01G	49.5 - 51.5	2.0	500
					51.5/53.5-20191009	SS34E	51.5 - 53.0	1.5	4-WH-1
						SS35aE	53.0 - 53.5		
						SS35bG	53.5 - 54.5	1.5	1-WH-WH
						SS36G	54.5 - 56.0	1.5	WH-WH-WH
					56.5/58.5-20191009	SS37aG	56.0 - 56.5		
						SS37bE	56.5 - 57.5	1.5	WH-WH-WH
						SS38aE	57.5 - 58.5	1.5	WH-WH-1
						SS38bG	58.5 - 59.0		
						SS39G	59.0 - 60.5	1.5	WH-WH-WH
					SS40aG	60.5 - 61.5	1.5	WH-WH-WH	
				61.5/63.5-20191009	SS40bE	61.5 - 62.0			
					SS41E	62.0 - 63.5	1.5	WH-2-2	
					SS42G	63.5 - 65.0	1.5	WH-1-2	
					SS43G	65.0 - 66.5	1.5	WH-1-2	

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 11/17/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-TW15
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>599,085.81 N; 1,415,329.68 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>448.0 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
67	66.9	381.1	WELL GRADED GRAVEL WITH SILT AND SAND, GW-GM, 7.5YR 6/8 (reddish yellow), medium to coarse, very dense, wet		SS44G	66.5 - 68.0	1.5	12-40-41
68	68.1	379.9		ST02	68.0 - 68.1	0.0	1000	

No Refusal /
Bottom of Hole at 68.1 Ft.

Temporary well JOF-TW15 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20180530.GDT 11/17/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-TW16		
Client	Tennessee Valley Authority	Boring Location	599,473.18 N; 1,416,176.31 E NAD27 Plant Local		
Project Number	175568286	Surface Elevation	470.4 ft	Elevation Datum	NGVD29
Project Name	JOF TDEC Order	Date Started	10/15/19	Completed	10/18/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	81.0 ft	Date/Time	10/18/19 08:37
Inspector	C. Burton	Logger	C. Burton	Depth to Water	80.3 ft
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 85#2, #951		
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes				
Rock Drilling and Sampling Tools (Type and Size)	N/A				
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	83.6 ft		
Sampler Hammer Type	Automatic	Weight	140 lb	Drop	30"
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A		
Reviewed By	K. Carey	Approved By	C. Millhollin		

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	470.4	Top of Hole					
0.2	470.2		Topsoil					
1			LEAN CLAY WITH SAND, CL, 10YR 5/8 (yellowish brown) to 10YR 8/1 (white), low to medium plasticity, firm to hard, with fine roots, [FILL]		SS01G	0.0 - 1.5	1.4	4-6-7
2					SS02aG	1.5 - 2.4	1.5	5-6-13
2.7	467.7				SS02bE	2.4 - 3.0		
3			SILT, ML, 10YR 4/4 (dark yellowish brown) to 5Y 6/1 (gray), non-plastic, firm to very hard, moist, with slag fragments, [CCR] Some gravel from 2.7' to 23.3'	2.44-5.20191015	SS03E	3.0 - 4.5	1.1	21-24-22
4					SS04G	4.5 - 6.0	1.4	23-42-40
5					SS05aG	6.0 - 6.5		
6					SS05bE	6.5 - 7.5	1.5	13-18-19
7					SS06aE	7.5 - 8.5	1.5	10-11-10
8					SS06bG	8.5 - 9.0		
9					SS07G	9.0 - 10.5	1.5	8-5-4
10					SS08aG	10.5 - 11.5	1.5	4-3-4
11					SS08bE	11.5 - 12.0		
12				6.58-5.20191015	SS09E	12.0 - 13.5	1.5	6-6-9
13					ST01G	13.5 - 15.5	1.3	1000
14								
15					SS10aG	15.5 - 16.5	1.4	5-8-9
16					SS10bE	16.5 - 17.0		
17				11.5113.5-20191015				

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20191030.GDT 12/1/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW16
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,473.18 N; 1,416,176.31 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>470.4 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
17			SILT, ML, 10YR 4/4 (dark yellowish brown) to 5Y 6/1 (gray), non-plastic, firm to very hard, moist, with slag fragments, [CCR] (Continued)	16.5/18.5-20191015	SS11E	17.0 - 18.5	1.5	6-9-10
18					SS12G	18.5 - 20.0	1.5	7-9-9
19					SS13G	20.0 - 21.5	1.5	5-9-9
20					SS14E	21.5 - 23.0	1.5	4-6-9
21					SS15aE	23.0 - 23.5	1.4	5-7-9
22					SS15bG	23.5 - 24.5	1.5	4-5-6
23					SS16G	24.5 - 26.0	1.5	7-8-10
24					SS17aG	26.0 - 26.5	1.5	7-8-10
25					SS17bE	26.5 - 27.5	1.5	9-8-8
26					SS18aE	27.5 - 28.5	1.5	9-8-8
27					SS18bG	28.5 - 29.0	1.5	8-8-9
28					SS19G	29.0 - 30.5	1.5	6-8-9
29					SS20aG	30.5 - 31.5	1.5	6-8-9
30					SS20bE	31.5 - 32.0	1.5	6-7-11
31					SS21E	32.0 - 33.5	1.5	9-10-12
32					SS22G	33.5 - 35.0	1.5	9-10-12
33					SS23G	35.0 - 36.5	1.4	4-7-10
34					SS24E	36.5 - 38.0	1.5	9-6-9
35					SS25aE	38.0 - 39.0	1.3	12-10-11
36					SS25bG	39.0 - 39.5		

TVA EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 12/1/20

Client Borehole ID <u>N/A</u>	Stantec Boring No. JOF-TW16
Client <u>Tennessee Valley Authority</u>	Boring Location <u>599,473.18 N; 1,416,176.31 E NAD27 Plant Local</u>
Project Number <u>175568286</u>	Surface Elevation <u>470.4 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40			SILT, ML, 10YR 4/4 (dark yellowish brown) to 5Y 6/1 (gray), non-plastic, firm to very hard, moist, with slag fragments, [CCR] (Continued)		SS26G	39.5 - 41.0	1.3	7-7-9
41					SS27aG	41.0 - 41.5	1.3	4-6-9
42				SS27bE	41.5 - 42.5	1.4	8-7-8	
43				SS28aE	42.5 - 43.5	1.2	7-7-8	
44				SS28bG	43.5 - 44.0	1.4	6-6-10	
45				SS29G	44.0 - 45.5	1.3	3-6-8	
46				SS30aG	45.5 - 46.5	1.3	4-6-9	
47				SS30bE	46.5 - 47.0	1.5	5-15-19	
48				SS31E	47.0 - 48.5	1.5	5-13-19	
49				SS32G	48.5 - 50.0	1.5	11-12-13	
50				SS33G	50.0 - 51.5	1.4	6-7-7	
51				SS34E	51.5 - 53.0	1.4	6-7-7	
52				SS35aE	53.0 - 53.5	1.5	2-7-10	
53				SS35bG	53.5 - 54.5	1.3	6-7-10	
54				SS36G	54.5 - 56.0	1.5		
55			Moist to wet from 55.8' to 63.5'		SS37aG	56.0 - 56.5	1.5	11-12-13
56				SS37bE	56.5 - 57.5	1.4	6-7-7	
57				SS38aE	57.5 - 58.5	1.5	2-7-10	
58				SS38bG	58.5 - 59.0	1.3	6-7-10	
59				SS39G	59.0 - 60.5	1.5		
60				SS40aG	60.5 - 61.5	1.3	6-7-10	
61				SS40bE	61.5 - 62.0			
62								

TVA EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 12/1/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
63	63.5	406.9	SILT, ML, 5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft, wet, stratified, [CCR]		SS41E	62.0 - 63.5	1.5	3-2-3
64					SS42G	63.5 - 65.0	1.5	2-WH-WH
65					SS43G	65.0 - 66.5	1.5	3-WH-WH
66					SS44E	66.5 - 68.0	1.5	2-1-WH
67					SS45aE	68.0 - 68.5	1.5	WR-WH-WH
68					SS45bG	68.5 - 69.5		
69					ST02G	69.5 - 71.5	2.0	1000
70								
71								
72	71.9	398.5	SANDY SILT, ML, 5Y 3/2 (dark olive gray), non-plastic, very stiff to hard, moist to wet, stratified, [CCR]		SS46E	71.5 - 73.0	1.5	6-16-17
73					SS47aE	73.0 - 73.5	1.5	6-10-13
74					SS47bG	73.5 - 74.5		
75					SS48G	74.5 - 76.0	1.5	4-6-13
76				Stiff to very stiff at 75.3'	SS49aG	76.0 - 76.5	1.3	3-6-11
77				Color change to 5Y 4/1 (dark gray) at 76.4'	SS49bE	76.5 - 77.5		
78				SS50E	77.5 - 79.0	1.5	3-6-8	
79				SS51aE	79.0 - 79.5	1.9	1-WH-WH	
80			SILT, ML, 5Y 3/1 (very dark gray), non-plastic to low plasticity, very soft to very hard, wet, stratified, [CCR]	SS51bG	79.5 - 81.1			
81			Spoon dropped to 81.1' while sampling SS51					
82				SS52E	81.5 - 83.0	1.5	WR-WR-1	
83				SS53aE	83.0 - 83.5	1.5	1-4-17	
84				SS53bG	83.5 - 84.5			
85	85.1	385.3		SS54aG	84.5 - 85.1	1.4	4-18-30	

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC SUBSURF DT 20180530.GDT 12/1/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-TW16
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 599,473.18 N; 1,416,176.31 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 470.4 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
86		/ / / / /	SANDY LEAN CLAY, CL, 10YR 5/6 (yellowish brown) to 10YR 8/1 (white), very fine to coarse, medium plasticity, very hard, moist, iron oxide staining <i>(Continued)</i>		SS54bG	85.1 - 86.0		
					ST03	86.0 - 86.1	0.1	1000
87	87.3	383.1			ST04	87.0 - 87.3	0.0	1500

No Refusal /
Bottom of Hole at 87.3 Ft.

Temporary well JOF-TW16 installed. See well detail for backfill details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 12/1/20

APPENDIX B.4

PIEZOMETERS

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TEST BORING REPORT

HOLE ID
JOF-B-2A
PAGE 1 OF 3

PROJECT NAME Johnsonville Seismic Assessment	PROJECT NUMBER 220602
CLIENT Tennessee Valley Authority	PROJECT LOCATION New Johnsonville, TN
DRILLING CONTRACTOR Stantec	SURFACE EL. 392.65 ft
	BORING LOC. N36.014904454/E-87.593160054

DRILLING EQUIPMENT & PROCEDURES			RIG MAKE & MODEL CME-75	START DATE 04/08/16 07:15 AM
CASING TYPE HW	SAMPLER TYPE SPT	BARREL TYPE N/A	BIT TYPE Upward Discharge	FINISH DATE 04/09/16 10:00 AM
CASING ID (in) 3	SAMPLER ID (in) 1.5	BARREL ID (in) N/A	DRILL MUD Bentonite and Barite	DRILLER Danny Jessie
CASING HAMMER WT. (lb) 140	SAMPLER HAMMER WT. (lb) 140		DRILLING METHOD Mud Rotary	GEOCOMP REP Justin Robichaud
CASING HAMMER FALL (in) 30	SAMPLER HAMMER FALL (in) 30		HOIST/HAMMER Auto	CHECKED BY Dan Dwyer

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0						0.7	Top 8" - gray GRAVEL, with Sand, dense, dry (Roadway Material) Bottom 4" - reddish brown CLAY, trace Sand, hard, dry [Dike]	392.0
	SPT 1	22-22-17	67				reddish brown CLAY, trace Sand, very stiff, dry [Dike]	
5	SPT 2	6-8-13	72				reddish yellow lean CLAY (CL) with Sand, about 10.8% sand and 9.4% gravel, very stiff, PI=28, 17.2% moisture [Dike]	
	SPT 3	4-7-8	67				brown lean CLAY (CL), about 6.4% sand and 1.9% gravel, PI=27, 19.7% moisture [Dike]	
10	ST 1		26				reddish brown CLAY, trace Sand, trace Gravel, stiff, moist [Dike]	
	SPT 4	4-5-6	44				reddish brown CLAY, trace Sand, trace Gravel, moist [Dike]	
15	ST 2		26				reddish yellow lean CLAY (CL), about 8.5% sand and 1.0% gravel, stiff, PI=28, 21.1% moisture [Dike]	
	SPT 5	6-10-8	56				brown fat CLAY (CH), about 4.3% sand, PI=38 23.3% moisture [Dike]	
20	ST 3		34				reddish brown CLAY, trace Sand, trace Gravel, stiff, moist [Dike]	
	SPT 6	8-5-5	44				reddish brown CLAY, trace Sand, trace Gravel, moist [Dike]	
25	ST 4		26					

REMARKS	SUMMARY		
-5 Piezometers installed at the following depths: PZ1-95', PZ2-85', PZ3-70', PZ4-63', PZ5-38'. -Drilling mud densities: 0'-8.9lbs/gal, 20'-9.5lbs/gal(water added to 9.3lbs/gal), 40'-9.3lbs/gal, 60'-9.5lbs/gal(water added to 9.2lbs/gal), 80'-9.5lbs/gal(water added to 9.3lbs/gal) -Started using 3" casing at 80' below ground surface. -Auger and SPT Refusal at 97.5'.	Overburden (ft): 97.5 Rock Cored (ft): 0.0 Samples: SPT=22 ST=14		
	WATER LEVEL DATA		
	Depth (ft) to:		
Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole
4/9/2016 10:00:00 AM		3	97.5

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-B-2A

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-B-2A.GPJ



TEST BORING REPORT

HOLE ID
JOF-B-2A
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
392.65 ft

BORING LOC.
N36.014904454/E-87.593160054

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF BINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
30	SPT 7	3-6-7	78			30	reddish yellow lean CLAY (CL) with Sand, about 8.5% sand and 6.7% gravel, stiff, PI=28, 27.3% moisture [Dike]	
	ST 5		48			32	brown lean CLAY (CL), about 6.6% sand, PI=27, 26.1% moisture [Fill]	
35	SPT 8	0-2-3	56			35	reddish yellow lean CLAY (CL), about 12.9% sand, medium stiff, PI=21, 26.2% moisture [Fill]	
	ST 6		50			37	brown lean CLAY (CL), about 6.0% sand and 0.7% gravel, PI=28, 27.5% moisture [Fill]	
40	ST 7		62			40	grayish brown lean CLAY (CL), about 3.2% Sand, PI=23, 29.5% moisture [Alluvial Clay]	
45	ST 8		39			43	brown fat CLAY (CH), about 1.8% sand and 0.4% gravel, PI=30, 29.3% moisture [Alluvial Clay]	
	ST 9		59			45	reddish brown CLAY, trace Sand, moist [Alluvial Clay]	
50	ST 10		54			47	reddish brown CLAY, trace Sand, moist [Alluvial Clay]	
55	ST 11		48			49	reddish brown with gray mottled CLAY, trace Sand, moist [Alluvial Clay]	
	ST 12		99			51	brown lean CLAY (CL), about 10.7% sand and 1.8% gravel, PI=21, 26.6% moisture [Alluvial Clay]	
60	SPT 9	0-0-2-3 (2)	100			53	grayish brown lean CLAY (CL) with Sand, about 17.3% sand, PI=17, 28.3% moisture [Alluvial Clay]	
	ST 13		61			55	dark grayish brown sandy lean CLAY (CL), about 42.9% sand, PI=13, 31.1% moisture [Alluvial Clay]	
65	ST 14		25			57	reddish brown SAND, moist [Alluvial Sand]	326.2

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-B-2A



TEST BORING REPORT

HOLE ID
JOF-B-2A
PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
392.65 ft

BORING LOC.
N36.014904454/E-87.593160054

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
70	SPT 10	11-3-8	33					
	SPT 11	18-22-17	44					
75	SPT 12	3-13-20	44			74.0	reddish yellow well-graded SAND (SW) with Silt and Gravel, about 26.9% gravel and 10.9% fines, medium dense, non-plastic, 21.0% moisture [Alluvial Sand]	318.7
						74.3	light brown well graded SAND (SW) with Silt, about 10.6% fines and 10.4% gravel, dense, 16.2% moisture [Alluvial Sand]	318.3
							Top 4" - brown silty SAND (SM) with Gravel, about 15.6% gravel and 12.2% fines, dense, non-plastic, 14.4% moisture [Alluvial Sand]	
							Bottom 4" - gray SAND, moist [Alluvial Sand]	
	SPT 13	10-12-20	39				reddish brown SAND, some Gravel, dense, moist [Alluvial Sand]	
80	SPT 14	27-14-10	22				reddish brown SAND, some Gravel, medium dense, moist [Alluvial Sand]	
	SPT 15	12-16-16	33				reddish brown SAND, travel Gravel, dense, moist [Alluvial Sand]	
	SPT 16	15-23-20	39				yellowish brown silty SAND (SM), about 12.4% fines and 7.3% gravel, dense, non-plastic, 20.2% moisture [Alluvial Sand]	
85	SPT 17	14-17-11	39				brown poorly graded SAND (SP), about 40.2% gravel and 5.5% fines, medium dense, 17.4% moisture [Alluvial Sand]	
	SPT 18	13-18-13	44				reddish brown SAND, some Gravel, dense, moist [Alluvial Sand]	
90	SPT 19	10-14-21	39				brown well graded GRAVEL (GW), about 39.3% sand and 3.1% fines, dense, 15.8% moisture [Alluvial Sand]	
	SPT 20	19-41-50/4"	50				reddish yellow silty GRAVEL (GM) with Sand, about 40.0% sand and 13.9% fines, very dense, non-plastic, 13.1% moisture [Alluvial Sand]	
95	SPT 21	30-50/4"	80				reddish brown SAND, with Gravel, very dense, moist [Alluvial Sand]	
	SPT 22	50/0"					SPT Refusal Bottom of borehole at 97.5 feet.	295.2

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-B-2A



TEST BORING REPORT

HOLE ID
JOF-B-2B
PAGE 1 OF 3

PROJECT NAME: **Johnsonville Seismic Assessment**
 CLIENT: **Tennessee Valley Authority**
 DRILLING CONTRACTOR: **Stantec**
 PROJECT NUMBER: **220602**
 PROJECT LOCATION: **New Johnsonville, TN**
 SURFACE EL.: **371.04 ft**
 BORING LOC.: **N36.014903392/E-87.593072596**

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL	START DATE
CASING TYPE	SAMPLER TYPE	BARREL TYPE	BIT TYPE	CME-75	04/09/16 02:00 PM
HW	SPT	N/A	Upward Discharge		04/10/16 02:00 PM
CASING ID (in)	SAMPLER ID (in)	BARREL ID (in)	DRILL MUD	Bentonite and Barite	DRILLER
3	1.5	N/A			Danny Jessie
CASING HAMMER WT. (lb)	SAMPLER HAMMER WT. (lb)		DRILLING METHOD	Mud Rotary	GECCOMP REP
140	140				Justin Robichaud
CASING HAMMER FALL (in)	SAMPLER HAMMER FALL (in)		HOIST/HAMMER	Auto	CHECKED BY
30	30				Dan Dwyer

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0						0.5	Top 6" - reddish brown CLAY, some Gravel, trace Sand, very stiff, dry [Fill] Bottom 7" - gray GRAVEL, with Sand, medium dense, dry [Fill]	370.5
	SPT 1	8-9-6	72			2.8	Top 3" - gray GRAVEL, with Sand, loose, dry [Fill] Bottom 8" - reddish brown SAND, loose, dry [Fill]	368.3
5	SPT 2	2-4-3	61			5.0		366.0
	SPT 3	3-5-4	61				brownish yellow lean CLAY (CL) with Sand, about 22.1% sand and 4.2% gravel, stiff, PI=23, 19.5% moisture [Fill]	
	ST 1		28				brownish gray lean CLAY (CL), about 6.3% sand and 0.6% gravel, PI=23, 22.9% moisture [Fill]	
10	ST 2		45				reddish brown with gray mottled CLAY, trace Sand, moist [Fill]	
15	ST 3		76				reddish brown CLAY, trace Sand, moist [Fill]	
20	ST 4		84				brown fat CLAY (CH), about 1.8% sand, PI=31, 28.6% moisture [Fill]	
	ST 5		35				brown CLAY, trace Sand, moist [Alluvial Clay]	
25	ST 6		39				dark yellowish brown lean CLAY (CL), about 3.0% sand, PI=21, 26.6% moisture [Alluvial Clay]	

REMARKS -5 Piezometers installed at the following depths: PZ1-71', PZ2-49', PZ3-44', PZ4-28', PZ5-20'. -Drilling mud densities: 0'-8.9lbs/gal, 20'-9.0lbs/gal, 40'-9.4lbs/gal, 60'-9.0lbs/gal -Started using 3" casing at 57' below ground surface. -SPT Refusal at 74.3'.	SUMMARY Overburden (ft): 74.3 Rock Cored (ft): 0.0 Samples: SPT=15 ST=12			
	WATER LEVEL DATA Depth (ft) to:			
	Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole
4/10/2016 2:00:00 PM		3	74.3	

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-B-2B

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-B-2B.GPJ



TEST BORING REPORT

HOLE ID
JOF-B-2B
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
371.04 ft

BORING LOC.
N36.014903392/E-87.593072596

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORK\BORING LOGS\JOF-GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)	
30	ST 7		50				brownish gray lean CLAY (CL), about 5.8% sand, PI=19, 25.2% moisture [Alluvial Clay]		
	ST 8		70					brown lean CLAY (CL), about 3.9% Sand and 0.4% gravel, PI=22, 25.6% moisture [Alluvial Clay]	
35									
	ST 9		100					brown with gray mottled CLAY, trace Sand, moist [Alluvial Clay]	
	ST 10		79					dark olive gray lean CLAY (CL), about 17.9% sand, PI=13, 27.5% moisture [Alluvial Clay]	
40									
	ST 11		100					gray CLAY, with Sand, moist [Alluvial Clay]	
45							45.5		325.5
	ST 12		0					No Recovery	
						47.0		324.0	
	SPT 4	10-13-17	61				brown poorly-graded SAND (SP) with Silt and Gravel, about 15.0% gravel and 10.9% fines, dense, non-plastic, 20.8% moisture [Alluvial Sand and Gravel]		
50									
	SPT 5	8-8-10	33					reddish brown SAND, with Gravel, medium dense, moist [Alluvial Sand and Gravel]	
	SPT 6	15-13-10	56					reddish brown SAND, trace Gravel, medium dense, moist [Alluvial Sand and Gravel]	
	SPT 7	15-15-16	44					yellowish red poorly-graded SAND (SP) with Silt and Gravel, about 41.1% gravel and 9.4% fines, dense, non-plastic, 14.1% moisture [Alluvial Sand and Gravel]	
55									
	SPT 8	17-9-8	33				yellowish red well-graded GRAVEL (GW) with Silt and Sand, about 37.7% sand and 6.8% fines, medium dense, non-plastic, 17.8% moisture [Alluvial Sand and Gravel]		
	SPT 9	9-7-11	39					brown poorly graded GRAVEL (GP), about 35.2% sand and 9.5% fines, medium dense, 11.4% moisture [Alluvial Sand and Gravel]	
60									
	SPT 10	12-15-12	33					brown poorly graded GRAVEL (GP), about 46.5% sand and 3.2% fines, medium dense, 19.6% moisture [Alluvial Sand and Gravel]	
	SPT 11	9-11-13	33				yellowish red well-graded SAND (SW) with Silt and Gravel, about 44.4% gravel and 5.0% fines, medium dense, non-plastic, 3.7% moisture [Alluvial Sand and		
65									

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-B-2B

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-B-2B
 PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
 371.04 ft

BORING LOC.
 N36.014903392/E-87.593072596

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
						66.0	Gravel]	305.0
	SPT 12	17-22-21	44			68.5	yellowish red poorly-graded SAND (SP) with Silt and Gravel, about 43.5% gravel and 9.2% fines, dense, non-plastic, 14.8% moisture [Alluvial Sand and Gravel]	302.5
70	SPT 13	26-41-44	56				very pale brown silty SAND (SM) with Gravel, about 40.4% gravel and 15.1% fines, very dense, non-plastic, 11.6% moisture [Alluvial Sand and Gravel]	
	SPT 14	26-50/2"	50				white to reddish brown GRAVEL, with Sand, some Clay, very dense, moist [Weathered Rock]	
	SPT 15	42-50/4"	40			74.3	white to reddish brown GRAVEL, with Sand, some Clay, very dense, moist [Weathered Rock]	296.7

Bottom of borehole at 74.3 feet.

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HOLE ID
JOF-B-2B



TEST BORING REPORT

HOLE ID
JOF-C-2A
PAGE 1 OF 3

PROJECT NAME Johnsonville Seismic Assessment	PROJECT NUMBER 220602
CLIENT Tennessee Valley Authority	PROJECT LOCATION New Johnsonville, TN
DRILLING CONTRACTOR Stantec	SURFACE EL. 392.79 ft
	BORING LOC. N36.01405029/E-87.593019889

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL CME-75	START DATE 04/06/16 10:00 AM
CASING TYPE HW	SAMPLER TYPE SPT	BARREL TYPE N/A	BIT TYPE Upward Discharge	FINISH DATE 04/07/16 03:00 PM	
CASING ID (in) 3	SAMPLER ID (in) 1.5	BARREL ID (in) N/A	DRILL MUD Bentonite and Barite	DRILLER Danny Jessie	
CASING HAMMER WT. (lb) 140	SAMPLER HAMMER WT. (lb) 140		DRILLING METHOD Mud Rotary	GEOCOMP REP Justin Robichaud	
CASING HAMMER FALL (in) 30	SAMPLER HAMMER FALL (in) 30		HOIST/HAMMER Auto	CHECKED BY Dan Dwyer	

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0								
	SPT 1	20-21-22	44			2.5	gray GRAVEL, with Sand, dense, dry (Roadway Material)	390.3
	SPT 2	5-5-7	50				reddish brown sandy lean CLAY (CL) with Gravel, about 22.2% sand and 21.7% gravel, stiff, PI=24, 12.9% moisture [Dike]	
5	ST 1		17				reddish brown CLAY, some gravel, some Sand, moist [Dike]	
	ST 2		21				reddish brown CLAY, with gravel, some Sand, moist [Dike]	
	SPT 3	3-6-8	56				yellowish red lean CLAY (CL), about 13.1% Sand and 0.6% Gravel, stiff, PI=11, 23.5% moisture [Dike]	
15	ST 3		18				reddish brown CLAY, some gravel, some Sand, moist [Dike]	
	ST 4		0				No Recovery	
	ST 5					22.0	Osterberg Sampler Did Not Advance	370.8
25	SPT 4	6-10-10	28				reddish yellow silty GRAVEL (GM) with Sand, about 25.4% Fines and 23.4% Sand, very stiff, non-plastic, 17.5% moisture [Fill]	
	SPT 5	6-5-6	17				yellowish brown clayey GRAVEL (GC), stiff, PI=28, 19% moisture [Fill]	

REMARKS	SUMMARY		
-5 Piezometers installed at the following depths: PZ1-90', PZ2-80', PZ3-66', PZ4-57', PZ5-32'. -Drilling mud densities: 0'-8.9lbs/gal, 20'-9.2lbs/gal, 40'-9.6lbs/gal (water added to 9.3lbs/gal), 60'-9.1lbs/gal, 80'-9.4lbs/gal -Started using 3" casing at 70' below ground surface. -SPT Refusal at 99.1'.	Overburden (ft): 99.1 Rock Cored (ft): 0.0 Samples: SPT=23 ST=15		
	WATER LEVEL DATA		
	Depth (ft) to:		
Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole
4/7/2016 3:00:00 PM		3	99.2

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-C-2A

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-C-2A.GPJ



TEST BORING REPORT

HOLE ID
JOF-C-2A
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
392.79 ft

BORING LOC.
N36.01405029/E-87.593019889

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORK\BORING LOGS\JOF-C-2A.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
	ST 6					29.0	Osterberg Sampler Did Not Advance	363.8
30	SPT 6	5-4-2	0				No Recovery	
	SPT 7	9-6-8	44			31.5	reddish yellow clayey GRAVEL with sand (GC), about 34.2% fines and 28.4% sand, stiff, PI=21, 18.1% moisture [Fill]	361.3
	SPT 8	7-7-7	22			34.0	reddish brown silty GRAVEL with Sand (GM), about 35.8% fines and 32.3% sand, stiff, 12.6% moisture [Fill]	358.8
35	ST 7		65			36.5	olive brown sandy lean CLAY (CL), about 31.2% sand and 10.4% gravel, PI=19, 26.8% moisture [Fill]	356.3
40	ST 8		100				dark brown lean CLAY (CL), about 13.3% sand, PI=23, 24.8% moisture [Alluvial Clay]	
45	ST 9		98				gray CLAY, trace Gravel, trace Sand, moist [Alluvial Clay]	
50	ST 10		98				olive lean CLAY (CL), about 0.1% sand, PI=25, 24.8% moisture [Alluvial Clay]	
55	ST 11						Osterberg Sampler Did Not Advance	
	SPT 9	0-3-3	100				yellowish red lean CLAY (CL), about 1.2% sand and 1.0% gravel, medium stiff, PI=22, 30.5% moisture [Alluvial Clay]	
55	ST 12		100				brownish gray CLAY, trace Sand, moist [Alluvial Clay]	
60	ST 13		100				brownish gray lean CLAY (CL), about 28.3% sand and 1% gravel, PI=12, 23.7% moisture [Alluvial Clay]	
65	ST 14		33				brownish gray CLAY, with Sand, moist [Alluvial Clay]	
65	ST		86				brownish gray CLAY, with Sand, some Gravel, moist [Alluvial Clay]	

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HOLE ID
JOF-C-2A

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-C-2A
PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
392.79 ft

BORING LOC.
N36.01405029/E-87.593019889

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-C-2A.GPS

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)	
	15					66.0		326.8	
	SPT 10	9-12-15	50				yellowish red silty SAND (SM), about 17.0% fines and 8.2% gravel, medium dense, non-plastic, 19.4% moisture [Alluvial Sand and Silt]		
70	SPT 11	10-11-8	39				brown poorly graded silty SAND (SP-SM), about 28.8% gravel and 7.3% fines, medium dense, non-plastic, 17.9% moisture [Alluvial Sand and Silt]		
	SPT 12	8-14-18	50				reddish brown SAND, some Gravel, dense, moist [Alluvial Sand and Silt]		
75	SPT 13	29-40-41	61				reddish brown poorly graded silty SAND (SP-SM), about 38.5% gravel and 8.7% fines, very dense, non-plastic, 12.7% moisture [Alluvial Sand and Silt]		
	SPT 14	18-14-23	61				brown SAND, some Gravel, dense, moist [Alluvial Sand and Silt]		
80	SPT 15	12-23-21	44				reddish brown SAND, some Gravel, dense, moist [Alluvial Sand and Silt]		
	SPT 16	16-12-11	33				reddish brown well graded silty SAND (SW-SM), about 27.3% gravel and 10.3% fines, medium dense, non-plastic, 19.4% moisture [Alluvial Sand and Silt]		
85	SPT 17	13-10-7	28				reddish brown SAND, some Gravel, medium dense, moist [Alluvial Sand and Silt]		
	SPT 18	6-13-20	44				86.0	reddish brown GRAVEL, some Sand, dense, moist [Alluvial Sand and Silt]	306.8
90	SPT 19	18-18-24	39					yellow silty GRAVEL (GM), about 32.6% sand and 12.9% fines, dense, non-plastic, 16.7% moisture [Clayey Gravel]	
	SPT 20	18-36-26	44				white to reddish brown GRAVEL, some Sand, very dense, moist [Clayey Gravel]		
95	SPT 21	14-26-50/4"	44				reddish brown GRAVEL, some Sand, very dense, moist [Weathered Rock]		
	SPT 22	30-31-50/3"	53				yellow clayey GRAVEL (GC), about 29.8% sand and 34.4% fines, very dense, PI=20, 19.8% moisture [Weathered Rock]		
	SPT 23	28-50/2"	38				99.1	white to brown GRAVEL, trace Clay, very dense, moist [Weathered Rock] Bottom of borehole at 99.1 feet.	293.7

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-C-2A



TEST BORING REPORT

HOLE ID
JOF-C-2B
PAGE 1 OF 3

PROJECT NAME Johnsonville Seismic Assessment	PROJECT NUMBER 220602
CLIENT Tennessee Valley Authority	PROJECT LOCATION New Johnsonville, TN
DRILLING CONTRACTOR Stantec	SURFACE EL. 370.57 ft
	BORING LOC. N36.01404541/E-87.592942734

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL CME-75	START DATE 04/10/16 04:00 PM
CASING TYPE HW	SAMPLER TYPE SPT	BARREL TYPE N/A	BIT TYPE Upward Discharge	FINISH DATE 04/11/16 05:00 PM	
CASING ID (in) 3	SAMPLER ID (in) 1.5	BARREL ID (in) N/A	DRILL MUD Bentonite and Barite	DRILLER Danny Jessie	
CASING HAMMER WT. (lb) 140	SAMPLER HAMMER WT. (lb) 140		DRILLING METHOD Mud Rotary	GEOCOMP REP Justin Robichaud	
CASING HAMMER FALL (in) 30	SAMPLER HAMMER FALL (in) 30		HOIST/HAMMER Auto	CHECKED BY Dan Dwyer	

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0						0.3	Top 4" - reddish brown CLAY, with Gravel, trace Sand, very dense, dry [Fill] Bottom 3" - gray GRAVEL, with Sand, very dense, dry [Fill]	370.2
	SPT 1	12-50/4"	70			2.5	reddish yellow lean CLAY (CL), about 6.5% sand, stiff, PI=27, 16.9% moisture [Fill]	368.1
5	SPT 2	3-5-5	44				brown lean CLAY (CL), about 16.9% sand and 10.9% gravel, PI=35, 17.8% moisture [Fill]	
	ST 1		76					
10	SPT 3	5-5-5	33			11.0	brown CLAY, trace gravel trace Sand, stiff, PI=18, 15.9% moisture [Fill]	359.6
	ST 2						Osterberg Sampler Did Not Advance	
	SPT 4	4-5-4	0				No Recovery	
15	ST 3		0			16.5	No Recovery	354.1
	SPT 5	0-2-2	22				reddish yellow CLAY, trace Sand, medium stiff, PI=25, moist [Fill]	
20	ST 4		54				brown lean CLAY (CL), about 11.5% sand and 1.0% gravel, PI=27, 30.5% moisture [Alluvial Clay]	
	ST 5		63				reddish brown CLAY, with Sand, moist [Alluvial Clay]	
25	ST 6		98				olive lean CLAY (CL), about 0.4%, PI=20, 28.8% moisture [Alluvial Clay]	

REMARKS -4 Piezometers installed at the following depths: PZ1-71', PZ2-49', PZ3-42', PZ4-23' -Drilling mud densities: 0'-9.0lbs/gal, 20'-9.2lbs/gal, 40'-9.5lbs/gal(water added to 9.2lbs/gal), 60'-9.2 -Started using 3" casing at 49' below ground surface. -SPT Refusal at 76.8'	SUMMARY Overburden (ft): 76.8 Rock Cored (ft): 0.0 Samples: SPT=18 ST=11							
	WATER LEVEL DATA Depth (ft) to:							
	<table border="1"> <tr> <th>Date/Time</th> <th>Depth to Water</th> <th>Bot. of Casing</th> <th>Bot. of Hole</th> </tr> <tr> <td>4/11/2016 5:00:00 PM</td> <td></td> <td>3</td> <td>76.8</td> </tr> </table>	Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole	4/11/2016 5:00:00 PM		3
Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole					
4/11/2016 5:00:00 PM		3	76.8					

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-C-2B

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF - GINT LOGS.GPJ



TEST BORING REPORT

HOLE ID
JOF-C-2B
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
370.57 ft

BORING LOC.
N36.01404541/E-87.592942734

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)	
30	ST 7		85				olive lean CLAY (CL), about 0.4%, PI=21, 29.4% moisture [Alluvial Clay]		
							brown CLAY, trace Sand, moist [Alluvial Clay]		
35	ST 8		66						
								brown lean CLAY (CL), about 14.2% sand, PI=11, 25.9% moisture [Alluvial Clay]	
40	ST 10		15					brown CLAY, trace Sand, moist [Alluvial Clay]	
							brown CLAY, some Sand, moist [Alluvial Clay]		
45	ST 11		36			46.5		324.1	
	SPT 6	11-9-5	44				reddish yellow silty SAND (SM), about 12.2% fines and 11% gravel, medium dense, non-plastic, 22.6% moisture [Alluvial Sand and Silt]		
	SPT 7	7-10-11	33			50.5	reddish brown SAND, some Gravel, medium dense, moist [Alluvial Sand and Silt]	320.1	
	SPT 8	8-10-8	17				reddish brown GRAVEL (GP), about 28.1% sand and 5.4% fines, medium dense, 14.8% moisture [Alluvial Sand and Silt]		
	SPT 9	18-9-7	0			53.0	No Recovery (Cobble lodged in tip of split spoon)	317.6	
55						55.5		315.1	
	SPT 10	6-12-12	44				reddish yellow poorly graded silty SAND (SP-SM), about 32.5% gravel and 8.2% fines, medium dense, non-plastic, 16.2% moisture [Alluvial Sand and Silt]		
	SPT 11	6-11-11	44				brown poorly graded GRAVEL (GP), about 43.2% sand and 2.6% fines, medium dense, non-plastic, 16.2% moisture [Alluvial Sand and Silt]		
60							reddish brown SAND, with Gravel, medium dense, moist [Alluvial Sand and Silt]		
	SPT 12	12-13-16	39						
	SPT 13	18-17-14	33				light brown silty SAND (SM), about 29.1% gravel and 12.3% fines, dense, non-plastic, 13.2% moisture [Alluvial Sand and Silt]		
65							reddish yellow clayey SAND (SC), about 38.2% gravel and 21.7% fines, very dense, PI=12, 18.7% moisture [Alluvial Sand and Silt]		
	SPT 14	13-24-27	39						

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-C-2B

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-C-2B
 PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
 370.57 ft

BORING LOC.
 N36.01404541/E-87.592942734

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORK\BORING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
70	SPT 15	29-44-29	56			68.0	reddish yellow clayey SAND (SC), about 38.6% gravel and 13% fines, very dense, PI=11, 12.6 moisture [Alluvial Sand and Silt]	302.6
	SPT 16	18-29-27	44				brown clayey SAND (SC), about 36.4% gravel and 19.5% fines, very dense, PI=8, 17.4% moisture [Alluvial Sand and Silt]	
75	SPT 17	33-33-33	39				reddish brown GRAVEL, with Sand, very dense, moist [Weathered Rock]	
	SPT 18	26-27-50/4"	50			76.8	reddish brown GRAVEL, with Sand, very dense, moist [Weathered Rock]	293.8

Bottom of borehole at 76.8 feet.

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HOLE ID
JOF-C-2B



TEST BORING REPORT

HOLE ID
JOF-E-2A
PAGE 1 OF 3

PROJECT NAME Johnsonville Seismic Assessment	PROJECT NUMBER 220602
CLIENT Tennessee Valley Authority	PROJECT LOCATION New Johnsonville, TN
DRILLING CONTRACTOR Stantec	SURFACE EL. 390.88 ft
	BORING LOC. N36.012099116/E-87.59376436

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL CME-75	START DATE 04/23/16 07:00 AM
CASING TYPE HW	SAMPLER TYPE SPT	BARREL TYPE N/A	BIT TYPE Upward Discharge	FINISH DATE 04/23/16 05:15 PM	
CASING ID (in) 3	SAMPLER ID (in) 1.5	BARREL ID (in) N/A	DRILL MUD Bentonite and Barite	DRILLER Danny Jessie	
CASING HAMMER WT. (lb) 140	SAMPLER HAMMER WT. (lb) 140		DRILLING METHOD Mud Rotary	GEOCOMP REP Justin Robichaud	
CASING HAMMER FALL (in) 30	SAMPLER HAMMER FALL (in) 30		HOIST/HAMMER Auto	CHECKED BY Dan Dwyer	

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0								
	SPT 1	23-14-14	28			2.5	gray GRAVEL with Sand, trace Bottom Ash, medium dense, dry [Dike]	388.4
	SPT 2	5-9-8	89			reddish brown CLAY with trace Sand, trace Bottom Ash, dry [Dike]		
5	ST 1		38			brown lean CLAY (CL), about 7.2% sand, PI=28, 25.6% moisture [Dike]		
	ST 2		44			reddish brown CLAY, dry [Dike]		
10	ST 3		32					
15	SPT 3	4-6-3	39			15.8	Top 4" - reddish brown CLAY with some Sand, some Bottom Ash, stiff, moist [Dike] Bottom 3" - black BOTTOM ASH, moist	375.0
	ST 4				18.0	Osterberg Sampler Did Not Advance	372.9	
20	SPT 4	5-5-1	33		19.0	brown silty SAND (SM) with Gravel, loose, about 57.3% sand and 24.2% gravel, non-plastic, 14% moisture [Bottom Ash]	371.9	
	ST 5		0		21.5	No Recovery	369.4	
25	SPT 5	0-2-2	33		24.0	yellowish red lean CLAY (CL) with Sand, medium stiff, about 12.7% sand and 10.6% gravel, PI=22, 16.1% moisture [Dike]	366.9	
	ST 6		48			brown lean CLAY (CL), about 8.6% sand, PI=23, 22.7% moisture [Dike]		
30								

REMARKS -5 Pizometers installed at the following depths: PZ1-90', PZ2-63', PZ3-54', PZ4-27', PZ5-20' -Drilling mud densities: 0'-8.9lbs/gal, 20'-9.1lbs/gal, 40'-9.3lbs/gal, 60'-9.1lbs/gal, 80'-9.4lbs/gal -Started using 3" casing at 70 feet below ground surface. -SPT Refusal at 98.9'.	SUMMARY Overburden (ft): 98.9 Rock Cored (ft): 0.0 Samples: SPT=25 ST=12							
	WATER LEVEL DATA Depth (ft) to:							
	<table border="1"> <tr> <th>Date/Time</th> <th>Depth to Water</th> <th>Bot. of Casing</th> <th>Bot. of Hole</th> </tr> <tr> <td></td> <td></td> <td>N/A</td> <td>N/A</td> </tr> </table>	Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole			N/A
Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole					
		N/A	N/A					

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-E-2A

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:51 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF E-2A.GPJ



TEST BORING REPORT

HOLE ID
JOF-E-2A
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
390.88 ft

BORING LOC.
N36.012099116/E-87.59376436

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:51 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF E-2A.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
30	ST 7		51				brown CLAY, trace Sand, moist [Dike]	
						33.5		357.4
35	SPT 6	11-10-6	0				No Recovery	
						36.0		354.9
	ST 8		53				brown lean CLAY (CL), about 1.5% sand, PI=25, 26.4% moisture [Fill]	
						39.5		351.4
40	ST 9		0				No Recovery	
						43.0		347.9
45	SPT 7	6-7-12	100				brown lean CLAY (CL), very stiff, about 7.6% sand and 0% gravel, PI=22, 23.7% moisture [Alluvial Clay]	
	ST 10		43				brown CLAY with some Sand, moist [Alluvial Clay]	
	SPT 8	6-7-8	89				brown CLAY with some Sand, very stiff, moist [Alluvial Clay]	
	ST 11		74				grayish brown lean CLAY (CL), about 20.1% sand, PI=17, 23.3% moisture [Alluvial Clay]	
	ST 12		40				grayish brown lean CLAY (CL), about 21.1% sand, PI=16, 24.5% moisture [Alluvial Clay]	
	SPT 9	2-7-23	89			58.5	Top 6" - gray silty CLAY, trace Sand, hard, moist [Alluvial Clay]	332.4
60	SPT 10	12-12-14	44				SPT-9 (Bottom); reddish brown silty SAND with Gravel, hard, about 44.5% sand and 41.4% gravel, non-plastic, 8.3% moisture [Alluvial Sand]	
						63.0	brown silty SAND (SM), medium dense, about 81.1% sand and 0.3% gravel, non-plastic, 23% moisture [Alluvial Sand]	327.9
65	SPT 11	7-10-11	39				yellowish red poorly graded SAND (SP) with Silt and gravel, medium dense, about 56.3% sand and 33.8% gravel, non-plastic, 16% moisture [Alluvial Sand]	
						65.5		325.4
	SPT 12	6-11-16	33				yellowish red silty SAND (SM) with Gravel, medium dense, about 65.1% sand and 21.4% gravel, non-plastic, 19.2% moisture [Alluvial Sand]	
	SPT 13	10-13-11	44				yellowish red silty SAND (SM), medium dense, about 82.8% sand and 4.9% gravel, non-plastic, 21.4% moisture [Alluvial Sand]	
70								

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HOLE ID
JOF-E-2A

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-E-2A
PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
390.88 ft

BORING LOC.
N36.012099116/E-87.59376436

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:51 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORK\BORING LOGS\JOF E-2A.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
70	SPT 14	8-11-10	39					
	SPT 15	6-6-7	39					
75	SPT 16	7-19-12	39					
	SPT 17	2-4-10	0			78.0	No Recovery	312.9
80	SPT 18	12-12-10	39			80.5		310.4
	SPT 19	23-16-14	33					
85	SPT 20	11-12-15	39					
	SPT 21	6-10-12	33					
90	SPT 22	8-6-6	22					
	SPT 23	14-15-22	39			93.0		297.9
95	SPT 24	32-50/5"	55					
	SPT 25	45-50/4"	70			98.9		292.0

Bottom of borehole at 98.9 feet.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-E-2A



TEST BORING REPORT

HOLE ID
JOF-E-2B
PAGE 1 OF 3

PROJECT NAME Johnsonville Seismic Assessment	PROJECT NUMBER 220602
CLIENT Tennessee Valley Authority	PROJECT LOCATION New Johnsonville, TN
DRILLING CONTRACTOR Stantec	SURFACE EL. 365.39 ft
	BORING LOC. N36.012073295/E-87.593672654

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL CME-75	START DATE 04/12/16 08:00 AM
CASING TYPE N/A	SAMPLER TYPE SPT	BARREL TYPE N/A	BIT TYPE HSA	FINISH DATE 04/13/16 07:30 AM	
CASING ID (in) 4.25	SAMPLER ID (in) 1.5	BARREL ID (in) N/A	DRILL MUD Bentonite and Barite	DRILLER Danny Jessie	
CASING HAMMER WT. (lb) 140	SAMPLER HAMMER WT. (lb) 140		DRILLING METHOD Augers with Drilling Mud	GEOCOMP REP Justin Robichaud	
CASING HAMMER FALL (in) 30	SAMPLER HAMMER FALL (in) 30		HOIST/HAMMER Auto	CHECKED BY Dan Dwyr	

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0								
	SPT 1	7-9-15	67			2.8	gray GRAVEL with Sand, medium dense, dry [Fill]	362.6
	SPT 2	5-2-3	67			5.0	Top 4" - gray GRAVEL with Sand, loose, dry [Fill] Bottom 8" - gray to brown CLAY, trace Sand, medium stiff, moist [Fill]	360.4
5	ST 1					6.0	Osterberg Sampler Did Not Advance	359.4
	SPT 3	2-3-2	50				brown lean CLAY (CL), about 4.4% sand and 0% gravel, medium stiff, PI=18, 24.9% moisture [Fill]	
	ST 2		48			12.0	brown lean CLAY (CL), about 5% sand and 0% gravel, PI=24, 25.4% moisture [Fill]	353.4
10	ST 3		0				No Recovery	
15	ST 4		57			15.5	brown CLAY with trace Sand, moist [Alluvial Clay]	349.9
	ST 5		48				brown CLAY with trace Sand, 23.8% moisture [Alluvial Clay]	
20	ST 6		20				brown CLAY with trace Sand, moist [Alluvial Clay]	
25	ST 7		69				brown lean CLAY (CL), about 18.7% sand, PI=17, 22.7% moisture [Alluvial Clay]	

REMARKS -5 Piezometers installed at the following depths: PZ1-70', PZ2-55', PZ3-35', PZ4-29', PZ5-15'. -Drilling mud densities: 0'-9.1lbs/gal, 20'-9.1lbs/gal, 40'-9.1lbs/gal, 60'-9.1lbs/gal (One large batch was made before starting the boring. Mud was added as augers were advanced) -No refusal encountered.	SUMMARY Overburden (ft): 75 Rock Cored (ft): 0.0 Samples: SPT=18 ST=10			
	WATER LEVEL DATA Depth (ft) to:			
	Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole
4/13/2016 7:30:00 AM		N/A	75	

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-E-2B

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF EINT LOGS.GPJ



TEST BORING REPORT

HOLE ID
JOF-E-2B
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
365.39 ft

BORING LOC.
N36.012073295/E-87.593672654

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)	
30	ST 8		96			32.0	grayish brown lean CLAY (CL), about 21.2% sand, PI=14, 23.6% moisture [Alluvial Clay]	333.4	
35	ST 9		73				reddish brown SAND with Clay, moist [Alluvial Sand]		
	ST 10		90				reddish brown SAND with Clay, moist [Alluvial Sand]		
40	SPT 4	7-10-12	44				brown poorly graded SAND (SP) with Silt and Gravel, medium dense, about 59% sand and 32.4% gravel, non-plastic, 14.3% moisture [Alluvial Sand]		
	SPT 5	9-8-10	89				dark reddish brown SAND with Gravel, medium dense, moist [Alluvial Sand]		
	SPT 6	5-6-4	72				dark reddish brown SAND with Gravel, medium dense, moist [Alluvial Sand]		
45	SPT 7	4-7-5	56				dark reddish brown SAND with Gravel, medium dense, moist [Alluvial Sand]		
	SPT 8	6-9-8	44				yellowish red poorly graded SAND (SP) with Silt and Gravel, medium dense, about 63.2% sand and 28.3% gravel, non-plastic, 16.6% moisture [Alluvial Sand]		
50	SPT 9	13-15-17	44				reddish brown SAND with Gravel, dense, moist [Alluvial Sand]		
	SPT 10	8-8-7	44				yellowish red poorly graded SAND (SP) with Silt and Gravel, medium dense, about 55.6% sand and 37.7% gravel, non-plastic, moist [Alluvial Sand]		
55	SPT 11	9-7-11	44				53.5	yellowish red poorly graded SAND (SP) with Silt and Gravel, medium dense, about 55.8% sand and 25.8% gravel, non-plastic, 14.8% moisture [Alluvial Sand]	311.9
	SPT 12	8-5-7	28				56.0	reddish yellow poorly graded SAND (SP) with Silt and Gravel, medium dense, about 57.8% sand and 36.8% gravel, non-plastic, 10.7% moisture [Alluvial Sand]	309.4
60	SPT 13	6-8-9	67					brown SAND with Gravel, medium dense, moist [Alluvial Sand]	
	SPT 14	3-5-6	100					brown poorly graded SAND (SP) with Silt, medium dense, about 93.4% sand and 0% gravel, non-plastic, 16.8% moisture [Alluvial Sand]	
65									

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-E-2B

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-E-2B
 PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
 365.39 ft

BORING LOC.
 N36.012073295/E-87.593672654

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:49 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
	SPT 15	8-13-13	100				brown SAND, medium dense, moist (Flowing Sands) [Alluvial Sand]	
70	SPT 16	8-16-10	100			71.0	brown SAND, medium dense, moist (Flowing Sands) [Alluvial Sand]	294.4
	SPT 17	11-18-23	61				reddish yellow poorly graded GRAVEL (GP) with Silt and Sand, dense, about 20.3% sand and 69.4% gravel, non-plastic, 34.3% moisture [Weathered Rock]	
75	SPT 18	12-19-19	83			75.0	greenish gray GRAVEL with Clay, dense, moist [Weathered Rock]	290.4

Bottom of borehole at 75.0 feet.

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-E-2B



TEST BORING REPORT

HOLE ID
JOF-K-2A
PAGE 1 OF 3

PROJECT NAME: **Johnsonville Seismic Assessment**
 CLIENT: **Tennessee Valley Authority**
 DRILLING CONTRACTOR: **Stantec**
 PROJECT NUMBER: **220602**
 PROJECT LOCATION: **New Johnsonville, TN**
 SURFACE EL.: **377.51 ft**
 BORING LOC.: **N36.014019827/E-87.594283657**

DRILLING EQUIPMENT & PROCEDURES				RIG MAKE & MODEL	START DATE
CASING TYPE	SAMPLER TYPE	BARREL TYPE	BIT TYPE	CME-75	04/25/16 07:30 AM
HW	SPT	N/A	Upward Discharge		04/25/16 03:00 PM
CASING ID (in)	SAMPLER ID (in)	BARREL ID (in)	DRILL MUD	Bentonite and Barite	DRILLER
3	1.5	N/A			Danny Jessie
CASING HAMMER WT. (lb)	SAMPLER HAMMER WT. (lb)		DRILLING METHOD	Mud Rotary	GEOCOMP REP
140	140				Justin Robichaud
CASING HAMMER FALL (in)	SAMPLER HAMMER FALL (in)		HOIST/HAMMER	Auto	CHECKED BY
30	30				Dan Dwyer

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
0								
5								
10								
15								
20								
25								

REMARKS
 -Attempting to sample critical layer. Wash to 32.5' to begin sampling.
 -Drilling mud densities: 0'-8.9lbs/gal, 20'-9.0lbs/gal, 40'-9.2lbs/gal, 60'-9.5lbs/gal
 -2 Piezometers installed at the following depths: PZ1-50', PZ2-35'
 -No refusal encountered.

SUMMARY	Overburden (ft): 76 Rock Cored (ft): 0.0 Samples: SPT=15 ST=2		
WATER LEVEL DATA	Depth (ft) to:		
Date/Time	Depth to Water	Bot. of Casing	Bot. of Hole
		N/A	N/A

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID: **JOF-K-2A**

(Continued Next Page)

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-K-2A.GPJ



TEST BORING REPORT

HOLE ID
JOF-K-2A
PAGE 2 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
377.51 ft

BORING LOC.
N36.014019827/E-87.594283657

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORKING LOGS\JOF-K-2A.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)
30								
	ST 1		73				brown lean CLAY (CL), about 2.6% sand, PI=21, 24.9% moisture [Alluvial Clay]	
35								
	ST 2		91				brown lean CLAY (CL), about 3.8% sand, PI=19, 24.6% moisture [Alluvial Clay]	
40								
	SPT 1	0-2-3-4 (5)	92				yellowish red lean CLAY (CL), about 7.1% sand, medium stiff, PI=12, 26.7% moisture [Alluvial Clay]	
	SPT 2	0-2-3-4 (5)	88				yellowish red lean CLAY (CL), about 14.9% sand, medium stiff, PI=16, 27.1% moisture [Alluvial Clay]	
45								
	SPT 3	0-2-3	72				yellowish red lean CLAY (CL), about 18.4% sand and 1.5% gravel, medium stiff, PI=15, 29.5% moisture [Alluvial Clay]	
						47.1		330.4
	SPT 4	5-18-25	50				yellowish red clayey GRAVEL (GC) with Sand, hard, about 43.4% sand and 40.7% gravel, PI=12, 17.8% moisture [Alluvial Sand and Gravel]	
						49.5		328.0
50								
	SPT 5	18-18-25	44				reddish brown SAND with trace Gravel, dense, moist [Alluvial Sand and Gravel]	
	SPT 6	11-13-16	44				brown silty SAND (SM) with Gravel, medium dense, about 62.1% sand and 20.8% gravel, non-plastic, 17.1% moisture [Alluvial Sand and Gravel]	
55								
	SPT 7	15-22-26	44				reddish brown SAND with some Gravel, dense, moist [Alluvial Sand and Gravel]	
	SPT 8	5-17-21	33				light brown poorly graded SAND (SP), about 17% gravel and 3.2% fines, medium dense, moist [Alluvial Sand and Gravel]	
60								
	SPT 9	8-14-17	39				reddish brown SAND with trace Gravel, dense, moist [Alluvial Sand and Gravel]	
	SPT 10	19-25-48	61				yellowish red silty SAND (SM) with Gravel, very dense, about 53.1% sand and 33.9% gravel, non-plastic, 12.4% moisture [Alluvial Sand and Gravel]	
65								
	SPT 11	17-11-10	33				reddish brown SAND with some Gravel, medium dense, moist [Alluvial Sand and Gravel]	
	SPT						reddish brown SAND with some Gravel, dense, moist [Alluvial Sand and Gravel]	

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-K-2A

(Continued Next Page)



TEST BORING REPORT

HOLE ID
JOF-K-2A
 PAGE 3 OF 3

PROJECT NUMBER
220602

PROJECT LOCATION
New Johnsonville, TN

SURFACE EL.
 377.51 ft

BORING LOC.
 N36.014019827/E-87.594283657

PROJECT NAME
Johnsonville Seismic Assessment

CLIENT
Tennessee Valley Authority

DRILLING CONTRACTOR
Stantec

GCC VERSION 1.3 - GCCGINTV1.GDT - 10/16/16 16:50 - \\HAL1\GCC\CONSULTING\ACTIVE PROJECTS\220602 - JOF SEISMIC ASSESSMENT\FIELD WORK\BORING LOGS\JOF GINT LOGS.GPJ

Depth (ft)	Sample # Type	Blow Counts (N Value)	Recovery %	Casing (b/ft) Coring (min/ft)	Graphic Log	Depth (ft)	Material Description	Elevation (ft)	
70	SPT 13	12-11-11	39			70.0	reddish yellow well graded GRAVEL (GW) with Silt and Sand, medium dense, about 43.9% sand and 49.4% gravel, non-plastic, 14.5% moisture [Alluvial Sand and Gravel]	307.5	
	SPT 14	48-46-19	39					brown poorly graded GRAVEL (GP), about 42.8% sand and 5.3% fines, very dense, non-plastic, 13.8% moisture [Alluvial Sand and Gravel]	
75	SPT 15	12-12-18	22			76.0		yellowish red well graded GRAVEL (GW) with Silt and Sand, about 32.6% sand and 60.9% gravel, dense, non-plastic, 10.6% moisture [Alluvial Sand and Gravel]	301.5
Bottom of borehole at 76.0 feet.									

Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of ground water may occur due to other factors than those present at the time measurements were made. The ASTM 2488 classification symbol and name presented on the boring logs are based on visual-manual procedures.

HOLE ID
JOF-K-2A

Client Borehole Identification <u>AAP2-PZ-1</u>		Stantec Boring No. <u>PZ-1</u>	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>599464.7- N, 1409841- E</u>	
Project Number <u>175658077</u>		Surface Elevation <u>389.5 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>TVA JOF AAP2</u>		Date Started <u>4/23/18</u>	Completed <u>4/24/18</u>
Project Location <u>Johnson Fossil Plant</u>		Depth to Water <u>N/A</u>	Date/Time <u>4/24/18</u>
Inspector <u>T. Gunter</u>		Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 850XR #953</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Sampler Hammer Type <u>Automatic</u>		Weight <u>140</u>	Drop <u>30</u>
Borehole Azimuth <u>N/A (Vertical)</u>		Efficiency <u>88 % (Avg.)</u>	
		Borehole Inclination (from Vertical) <u>Vertical</u>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
389.5	0.0	Top of Hole							
		Blank drilled to 35 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
354.5	35.0	Ash, grey, wet, fly ash		SPT-1	35.0 - 36.5	1.5	WOH	--	Added water to prevent heave.
				SPT-2	37.5 - 39.0	1.5	WOH-1	--	

TVA RD BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
343.4	46.1	Ash, grey, wet, fly ash (Continued)		SPT-3	39.0 - 40.5	1.5	WOH	--	
				SPT-4	40.5 - 42.0	1.5	WOH	--	
				SPT-5	42.0 - 43.5	1.5	WOH	--	
				SPT-6	43.5 - 45.0	1.5	WOH	--	
				SPT-7	45.0 - 46.5	1.5	WOH-	--	
							WOH-2	--	
							2-4-5	--	
333.2	56.3	Lean Clay, grey to brown and grey, wet, with sand, silty		SPT-8	46.5 - 48.0	1.5		--	
				ST-1	48.0 - 50.0	1.1		--	
				SPT-9	50.0 - 51.5	1.5	2-3-5	--	
				ST-2	51.5 - 53.5	1.7		--	
				SPT-10	53.5 - 55.0	1.5	1-2-3	--	
				SPT-11	55.0 - 56.5	1.5	2-3-6	--	
322.0	67.5	Sand With Silt, brown, with chert and trace river gravel		SPT-12	56.5 - 58.0	1.5	10-10-11	--	
				SPT-13	58.0 - 59.5	1.5	7-11-9	--	
				SPT-14	59.5 - 61.0	1.5	9-12-14	--	
				SPT-15	61.0 - 62.5	1.5	10-14-16	--	
				SPT-16	63.5 - 65.0	1.5	10-11-13	--	
				SPT-17	66.0 - 67.5	1.5	13-20-21	--	
		No Refusal / Bottom of Hole Terminated at 67.5 feet. Vibrating wire Piezometer installed and grouted.							

TVA RD BORING LOG JOF AAPZ.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18



SUBSURFACE LOG

Client Borehole Identification AAP2-PZ-2 Stantec Boring No. PZ-2
 Client Tennessee Valley Authority Boring Location 599547.9- N, 1410126- E
 Project Number 175658077 Surface Elevation 389.8 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 4/18/18 Completed 4/19/18
 Project Location Johnson Fossil Plant Depth to Water N/A Date/Time 4/19/18
 Inspector T. Gunter Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
389.8	0.0	Top of Hole							
		Blank drilled to 40 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
349.8	40.0								

TVA RO BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

DRAFT

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
340.7	49.1	Ash, wet		SPT-1	40.0 - 41.5	1.5	WOH	--	450 psi down pressure
				SPT-2	42.5 - 44.0	1.5	WOH-1	--	
				SPT-3	44.0 - 45.5	1.5	WOH	--	
				SPT-4	45.5 - 47.0	1.5	WOH	--	
				SPT-5	47.0 - 48.5	1.5	WOH	--	
				SPT-6	48.5 - 50.0	1.5	1-5-6	--	
326.8	63.0	Lean Clay, grey to brown and grey, wet, medium stiff to soft, with sand, silty		SPT-7	50.0 - 51.5	1.5	1-3-4	--	
				ST-1	51.5 - 53.5	1.5		--	
				SPT-8	53.5 - 55.0	1.3	1-2-3	--	
				SPT-9	57.5 - 59.0	1.5	2-2-2	--	
				SPT-10	60.0 - 61.5	1.5	WOH-1-1	--	
				SPT-11	61.5 - 63.0	1.5	WOH-16	--	
316.3	73.5	Sand With Silt And Gravel, grey and brown, wet, medium-dense and dense, well graded, some river pebbles		SPT-12	63.0 - 64.5	1.1	20-24-19	--	
				SPT-13	64.5 - 66.0	1.1	7-11-14	--	
				SPT-14	66.0 - 67.5	1.5	8-13-17	--	
				SPT-15	67.5 - 69.0	1.5	8-5-8	--	
				SPT-16	69.0 - 70.5	1.5	20-25-21	--	
				SPT-17	70.5 - 72.0	0.7	7-8-10	--	
				SPT-18	72.0 - 73.5	1.5	10-21-24	--	
		No Refusal / Bottom of Hole Terminated at 73.5 feet. Vibrating wire Piezometer installed and grouted.							

TVA RD BORING LOG JOF AAPZ.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Client Borehole Identification AAP2-PZ-3 Stantec Boring No. PZ-3
 Client Tennessee Valley Authority Boring Location 599982.7- N, 1410241- E
 Project Number 175658077 Surface Elevation 390.0 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 4/17/18 Completed 4/18/18
 Project Location Johnson Fossil Plant Depth to Water 16.0 ft Date/Time 4/18/18
 Inspector T. Gunter Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.0	0.0	Top of Hole							
		Blank drilled to 30 feet. Augers Charged with water to prevent heave after 16'. OVERBURDEN (Ash)							
360.0	30.0	Ash, black, fly ash/bottom ash		SPT-1	30.0 - 31.5	1.5	1-WOH-	--	Charged Augers with water.
				SPT-2	31.5 - 33.0	1.4	WOH	--	
				SPT-3	33.0 - 34.5	1.5	WOH	--	
		Organics at 38.5 feet		SPT-4	34.5 - 36.0	1.5	WOH	--	
				SPT-5	36.0 - 37.5	1.5	WOH	--	
351.0	39.0			SPT-6	37.5 - 39.0	1.5	WOH	--	

TVA RO BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
345.5	44.5	Lean Clay, grey, soft to very soft, silty <i>(Continued)</i>		SPT-7	39.0 - 40.5	1.2	WOH	--	100 psi down pressure
				ST-1	40.5 - 42.5	2.0		--	
				SPT-8	42.5 - 44.0	1.5	1-2-2	--	
328.2 328.0	61.8 62.0	Sandy Lean Clay, grey and brown, medium-stiff and stiff, silty Small pockets of fine grained sand at 56.2-56.3' and 57.5-57.8'		SPT-9	44.0 - 45.5	1.5	2-3-4	--	450 psi down pressure 1' blow back
				SPT-10	45.5 - 47.0	1.5	2-3-4	--	
				SPT-11	47.0 - 48.5	1.5	1-2-4	--	
				SPT-12	48.5 - 50.0	1.5	2-4-6	--	
				SPT-13	50.0 - 51.5	1.5	2-4-6	--	
				ST-2	51.5 - 53.5	2.0		--	
				SPT-14	53.5 - 55.0	1.5	3-5-7	--	
				SPT-15	55.0 - 56.5	1.5	3-4-5	--	
				SPT-16	56.5 - 58.0	1.5	3-5-6	--	
				SPT-17	58.0 - 59.5	0.8	3-4-5	--	
	SPT-18	59.5 - 61.0	1.1	2-1-3	--				
	SPT-19	61.0 - 62.5	1.5	1-1-9	--				
	SPT-20	62.5 - 64.0	1.5	6-9-3	--				
	SPT-21	64.0 - 65.5	1.5	6-9-10	--				
	SPT-22	65.5 - 67.0	1.5	5-12-13	--				
	SPT-23	67.0 - 68.5	1.5	17-17-26	--				
	SPT-24	68.5 - 70.0	1.0	9-6-4	--				
319.0	71.0	Fine grained from 64.7-66.5'		SPT-25	70.0 - 71.5	0.4	4-10-15	--	
315.5	74.5	Sand With Silt, brown, wet, medium dense		SPT-26	71.5 - 73.0	1.4	10-7-4	--	
				SPT-27	73.0 - 74.5	1.5	2-4-6	--	
		No Refusal / Bottom of Hole Terminated at 74.5 feet. Vibrating wire Piezometer installed and grouted.							

Project No.	175551006	Location	N 604039.62, E 1414899.39 (NAD27)		
Project Name	JOF DuPont Dredge Cell PZ's	Boring No.	PZ-3	Total Depth	35.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	438.6 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	8/31/11	Completed	8/31/11
Supervisor	Patrick White	Driller	M. Wethington	Depth to Water	27.0 ft
Logged By	Patrick White	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
438.6'	0.0'	Top of Hole							
436.1'	2.5'	Sandy Lean Clay (CL), brown, moist, medium stiff							Boring advanced using 3 1/4" Hollow Stem Augers LLDPE Liner Encountered at 2 ft. Vibrating Wire Piezometer installed. Transducer Elevation = 404.6 ft.
		Fly Ash and Bottom Ash, gray to dark gray, moist to wet, very soft to very stiff		SPT-1	3.0 - 4.5	1.5	8-16-19	--	
				SPT-2	8.0 - 9.5	1.5	2-2-4	--	
				SPT-3	13.0 - 14.5	1.5	2-1-3	--	
				SPT-4	18.0 - 19.5	1.5	WOR-WOR-WOR	--	
				SPT-5	23.0 - 24.5	1.5	WOH-WOH-1	--	
				SPT-6	28.0 - 29.5	1.5	WOR-WOR-WOH	--	
				SPT-7	33.0 - 34.5	1.5	WOR-WOR-WOR	--	
403.6'	35.0'	No Refusal / Bottom of Hole							Boring backfilled with cement-bentonite grout from 0.0 ft to 35.0 ft.

F:\NSM_LEGACY_175551006 BORINGS\BPJ_FNSM.GDT_10/7/11

Client Borehole Identification <u>AAP2-PZ-4</u>		Stantec Boring No. <u>PZ-4</u>	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>600469.6- N, 1410025- E</u>	
Project Number <u>175658077</u>		Surface Elevation <u>397.1 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>TVA JOF AAP2</u>		Date Started <u>4/25/18</u>	Completed <u>4/26/18</u>
Project Location <u>Johnson Fossil Plant</u>		Depth to Water <u>N/A</u>	Date/Time <u>4/26/18</u>
Inspector <u>T. Gunter</u>		Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 850XR #953</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Sampler Hammer Type <u>Automatic</u>		Weight <u>140</u>	Drop <u>30</u>
Borehole Azimuth <u>N/A (Vertical)</u>		Efficiency <u>88 % (Avg.)</u>	
		Borehole Inclination (from Vertical) <u>Vertical</u>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
397.1	0.0	Top of Hole							
		Blank drilled to 45 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							

DRAFT

TVA RO BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
352.1	45.0	Blank drilled to 45 feet. Augers Charged with water to prevent heave. OVERBURDEN (Ash) (Continued)							
346.1	51.0	Ash		SPT-1	45.0 - 46.5	1.5	WOH	--	300 psi down pressure
				SPT-2	47.5 - 49.0	1.5	WOH	--	
				SPT-3	49.0 - 50.5	1.5	WOH	--	
				SPT-4	50.5 - 52.0	1.5	2-4-4	--	
340.1	57.0	Lean Clay With Sand, brown grey, medium-stiff to soft, silty		ST-1	52.0 - 54.0	1.7		--	
				SPT-5	54.0 - 55.5	1.5	1-1-3	--	
				SPT-6	56.5 - 58.0	1.5	WOH- WOH-2	--	
330.1	67.0	Clayey Sand, brown to light brown, medium-dense		SPT-7	58.0 - 59.5	1.5	1-2-7	--	
				SPT-8	59.5 - 61.0	1.4	5-6-6	--	
				SPT-9	61.0 - 62.5	1.4	3-7-4	--	
				SPT-10	62.5 - 64.0	0.9	6-6-10	--	
				SPT-11	64.0 - 65.5	1.2	6-8-7	--	
				SPT-12	65.5 - 67.0	0.9	5-7-6	--	
		No Refusal / Bottom of Hole Terminated at 67 feet. 3 Vibrating wire Piezometers installed and grouted.							

TVA RD BORING LOG - JOF APPZ.GPJ - FMS\MAGRAPHIC LOG.GDT 8/31/18



SUBSURFACE LOG

Client Borehole Identification AAP2-PZ-5 Stantec Boring No. PZ-5
 Client Tennessee Valley Authority Boring Location 600400.1- N, 1410277- E
 Project Number 175658077 Surface Elevation 397.4 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 5/2/18 Completed 5/2/18
 Project Location Johnson Fossil Plant Depth to Water N/A Date/Time 5/2/18
 Inspector T. Gunter Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
397.4	0.0	Top of Hole							
		Blank drilled to 40 feet. Augers Charged with water to prevent heave							
		OVERBURDEN (Ash)							

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TVA RO BORING LOG JOF AAP2.GPJ FMS\MAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
357.4	40.0	Ash, dark grey, wet		SPT-1	40.0 - 41.5	0.5	1-0-0	--	250 psi down pressure
				SPT-2	42.5 - 44.0	1.5	WOR-WOH	--	
				SPT-3	45.0 - 46.5	1.5	WOR	--	
349.6	47.8			SPT-4	46.5 - 48.0	1.5	WOH-WOH-2	--	
		Lean Clay, brown and grey, medium to stiff, silty with some sand		SPT-5	48.0 - 49.5	1.5	2-4-6	--	
				ST-1	49.5 - 51.5	2.0		--	
				SPT-6	51.5 - 53.0	1.5	WOH-2-4	--	
				SPT-7	54.0 - 55.5	1.5	5-4-4	--	
337.4	60.0			SPT-8	56.5 - 58.0	1.5	1-2-4	--	
		Sand And Clay, silty with lean to coarse grained sand		ST-2	59.0 - 61.0	1.9		--	
335.4	62.0			SPT-9	61.0 - 62.5	1.5	WOR-1-10	--	
		Sand With Silt And Gravel, reddish brown, loose to medium dense, silty with some sand		SPT-10	62.5 - 64.0	1.1	1-5-6	--	
				SPT-11	64.0 - 65.5	1.0	6-9-9	--	
				SPT-12	65.5 - 67.0	1.0	5-5-5	--	
		Fine to coarse grained sand with gravel at 63'		SPT-13	67.0 - 68.5	0.8	4-4-5	--	
325.9	71.5			SPT-14	70.0 - 71.5	1.2	7-10-15	--	
No Refusal / Bottom of Hole Terminated at 71.5 feet. 3 Vibrating wire Piezometers installed and grouted.									



SUBSURFACE LOG

Client Borehole Identification AAP2-PZ-6 Stantec Boring No. PZ-6
 Client Tennessee Valley Authority Boring Location 600613.9- N, 1410816- E
 Project Number 175658077 Surface Elevation 392.2 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 5/23/18 Completed 5/24/18
 Project Location Johnson Fossil Plant Depth to Water N/A Date/Time 5/24/18
 Inspector S. Kinler Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
392.2	0.0	Top of Hole							
		Blank drilled to 35 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
357.2	35.0								

TVA RD BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

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Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		Ash, dark grey, wet, very loose, fly ash and bottom ash (Continued)		SPT-1	35.0 - 36.5	0.8	1-0-1	--	
			SPT-2	36.5 - 38.0	0.2	3-0-0	--		
353.3	38.9		SPT-3	38.0 - 39.5	1.5	1-1-1	--		
352.7	39.5	Lean Clay, light brown and grey, moist		SPT-4	39.5 - 41.0	1.5	WOH- WOH- WOH	--	
351.4	40.8		SPT-5	41.0 - 42.5	1.5	1-1-2	--		
		Ash, dark grey, wet, very loose, fly ash and bottom ash		SPT-6	42.5 - 44.0	1.5	1-3-3	--	
			SPT-7	45.0 - 46.5	1.5	1-3-5	--		
		Lean Clay, light brown and grey to reddish brown and grey, moist, stiff, some organic material, silty from 60-60.5'		SPT-8	47.5 - 49.0	1.5	1-4-5	--	
			SPT-9	50.0 - 51.5	1.5	1-2-5	--		
			ST-1	52.5 - 54.5	2.0	--	--		
			SPT-10	55.0 - 56.5	1.5	1-4-5	--		
			SPT-11	57.5 - 59.0	1.5	2-4-6	--		
331.7	60.5	Silty Sand, dark red brown, medium-dense to very dense		SPT-12	59.0 - 60.5	1.5	6-6-7	--	
			SPT-13	60.5 - 62.0	1.0	6-10-7	--		
			SPT-14	62.0 - 63.5	1.5	15-17-7	--		
			SPT-15	64.5 - 66.0	1.5	23-36-37	--		
			SPT-16	67.0 - 68.5	1.0	7-17-20	--		
321.2	71.0		SPT-17	69.5 - 71.0	1.5	6-12-13	--		
No Refusal / Bottom of Hole Terminated at 71 feet. Vibrating wire Piezometer installed and grouted.									

TVA RD BORING LOG - JOF APPZ.GPJ - FMS\MAGRAPHIC LOG.GDT 8/31/18

Project No.	175551006	Location	N 603792.31, E 1414836.07 (NAD27)		
Project Name	JOF DuPont Dredge Cell PZ's	Boring No.	PZ-6	Total Depth	30.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	439.6 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	8/31/11	Completed	8/31/11
Supervisor	Patrick White	Driller	M. Wethington	Depth to Water	23.6 ft
Logged By	Patrick White	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
439.6'	0.0'	Top of Hole							
437.6'	2.0'	Sandy Lean Clay (CL), brown, moist, medium stiff							Boring advanced using 3 1/4" Hollow Stem Augers LLDPE Liner Encountered at 1.5 ft Vibrating Wire Piezometer installed. Transducer Elevation =410.6 ft.
		Fly Ash and Bottom Ash, gray to dark gray, moist to wet, very soft to very stiff		SPT-1	3.0 - 4.5	1.5	5-8-9	--	
				SPT-2	8.0 - 9.5	1.5	7-11-11	--	
				SPT-3	13.0 - 14.5	1.5	2-3-2	--	
				SPT-4	18.0 - 19.5	1.5	2-1-1	--	
				SPT-5	23.0 - 24.5	1.5	WOR-WOH-WOH	--	
409.6'	30.0'			SPT-6	28.0 - 29.5	1.5	WOH-WOH-WOH	--	Boring backfilled with cement-bentonite grout from 0.0 ft to 30.0 ft.

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 No Refusal /
Bottom of Hole

Client Borehole Identification <u>AAP2-PZ-7</u>		Stantec Boring No. <u>PZ-7</u>	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>601232.1- N, 1410866- E</u>	
Project Number <u>175658077</u>		Surface Elevation <u>403.2 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>TVA JOF AAP2</u>		Date Started <u>5/7/18</u>	Completed <u>5/9/18</u>
Project Location <u>Johnson Fossil Plant</u>		Depth to Water <u>N/A</u>	Date/Time <u>5/9/18</u>
Inspector <u>S. Kinler</u>		Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 850XR #953</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Sampler Hammer Type <u>Automatic</u>		Weight <u>140</u>	Drop <u>30</u>
Borehole Azimuth <u>N/A (Vertical)</u>		Efficiency <u>88 % (Avg.)</u>	
		Borehole Inclination (from Vertical) <u>Vertical</u>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
403.2	0.0	Top of Hole							
		Blank drilled to 32 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
371.2	32.0	Ash, dark grey, wet, very loose to medium dense, fly ash and bottom ash		SPT-1	32.0 - 33.5	1.5	3-WOH- WOH	--	
				SPT-2	33.5 - 35.0	1.5	1-5-7	--	

TVA ROD BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
352.1	51.1	Ash, dark grey, wet, very loose to medium dense, fly ash and bottom ash (Continued)		SPT-3	35.0 - 36.5	1.5	2-WOH-	--	
				SPT-4	36.5 - 38.0	1.5	WOH	--	
				SPT-5	38.0 - 39.5	1.5	WOR-	--	
				SPT-6	39.5 - 41.0	1.5	WOH-	--	
				SPT-7	41.0 - 42.5	1.5	WOH	--	
				SPT-8	42.5 - 44.0	1.5	WOR-8-	--	
				SPT-9	44.0 - 45.5	1.5	13	--	
				SPT-10	45.5 - 47.0	1.5	8-10-12	--	
				SPT-11	47.0 - 48.5	1.5	6-11-14	--	
				SPT-12	48.5 - 50.0	1.5	6-7-2	--	
				SPT-13	50.0 - 51.5	1.5	1-WOH-	--	
				SPT-14	51.5 - 53.0	0.8	WOH	--	
			325.2	78.0	Lean Clay, light brown with gray, moist, very soft, Silt and sand lenses from 52-54' Some gravel at 73'		SPT-15	53.0 - 54.5	1.5
	SPT-16	54.5 - 56.0				1.5	WOR-1-	--	
	SPT-17	56.0 - 57.5				1.5	WOH	--	
	SPT-18	57.5 - 59.0				1.5	WOH	--	
	SPT-19	60.0 - 61.5				1.5	WOH	--	
	SPT-20	62.5 - 64.0				1.5	WOH	--	
	SPT-21	64.0 - 65.5				1.5	WOH	--	
	SPT-22	65.5 - 67.0				1.5	WOH	--	
	SPT-23	67.0 - 68.5				1.5	1-3-5	--	
	SPT-24	70.0 - 71.5				1.5	WOH	--	
	SPT-25	72.5 - 74.0				1.5	WOH-1-1	--	
	SPT-26	75.0 - 76.5				1.5	WOR-7-	--	
	SPT-27	77.5 - 79.0				1.5	10	--	
	SPT-28	80.0 - 81.5				1.5	1-2-2	--	
		Silty Sand, reddish brown with gray, medium-dense, with clay lenses				6-11-15	--		
						3-3-9	--		

TVA ROD BORING LOG - JOF APPZ.GPJ - FMS/AGRAPHC LOG.GDT 8/31/18

Client Borehole Identification <u>AAP2-PZ-7</u>				Stantec Boring No. <u>PZ-7</u>					
Client <u>Tennessee Valley Authority</u>				Boring Location <u>601232.1- N, 1410866- E</u>					
Project Number <u>175658077</u>				Surface Elevation <u>403.2 ft</u>		Elevation Datum <u>NGVD29</u>			
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
316.7	86.5	Silty Sand, reddish brown with gray, medium-dense, with clay lenses (Continued)		SPT-29	82.5 - 84.0	1.5	12-13-13	--	
				SPT-30	85.0 - 86.5	1.5	4-11-11	--	
No Refusal / Bottom of Hole Terminated at 86.5 feet. Vibrating wire Piezometer installed and grouted.									

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TVA ROD BORING LOG JOF AAPZ.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Project No.	175551006	Location	N 603191.34, E 1414943.23 (NAD27)		
Project Name	JOF DuPont Dredge Cell PZ's	Boring No.	PZ-7	Total Depth	26.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	436.9 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	8/31/11	Completed	8/31/11
Supervisor	Patrick White	Driller	M. Wethington	Depth to Water	N/A
Logged By	Patrick White	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
436.9'	0.0'	Top of Hole							
434.9'	2.0'	Sandy Lean Clay (CL), brown, moist, medium stiff							Boring advanced using 3 1/4" Hollow Stem Augers LLDPE Liner Encountered at 2.0 ft Vibrating Wire Piezometer installed. Transducer Elevation = 411.9 ft.
		Fly Ash and Bottom Ash, gray to dark gray, moist to wet, very soft to stiff							
410.9'	26.0'								Boring backfilled with cement-bentonite grout from 0.0 ft to 26.0 ft.

No Refusal /
Bottom of Hole

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Client Borehole Identification AAP2-PZ-8 Stantec Boring No. PZ-8
 Client Tennessee Valley Authority Boring Location 601312.8- N, 1410318- E
 Project Number 175658077 Surface Elevation 404.7 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 5/21/18 Completed 5/23/18
 Project Location Johnson Fossil Plant Depth to Water N/A Date/Time 5/23/18
 Inspector S. Kinler Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
404.7	0.0	Top of Hole							
		Blank drilled to 36 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							

TVA RO BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

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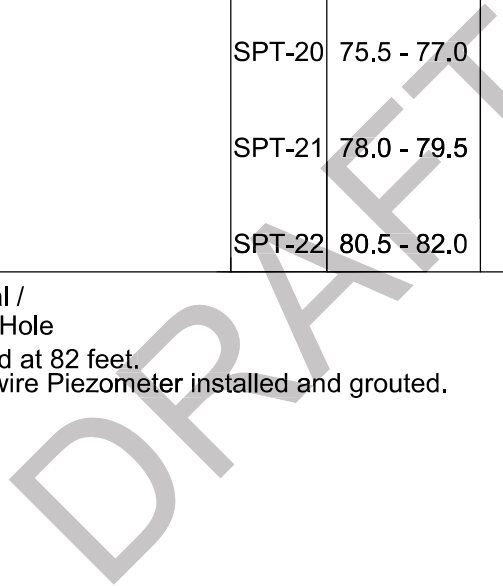
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
368.7	36.0	Blank drilled to 36 feet. Augers Charged with water to prevent heave. OVERBURDEN (Ash) (Continued)							
353.0	51.7	Ash, dark grey, wet, very loose to medium-dense, fly ash and bottom ash Lean Clay, light brown and gray to reddish brown, moist, very soft to stiff, silty Sand lenses at 72'		SPT-1	36.0 - 37.5	1.5	WOH	--	Added water to prevent heave.
				SPT-2	37.5 - 39.0	1.5	WOH	--	
				SPT-3	39.0 - 40.5	1.5	WOH-WOH-1	--	
				SPT-4	40.5 - 42.0	1.5	WOH	--	
				SPT-5	42.0 - 43.5	1.5	2-4-7	--	
				SPT-6	43.5 - 45.0	1.5	WOH-1-WOH	--	
				SPT-7	45.0 - 46.5	1.5	1-0-1	--	
				SPT-8	46.5 - 48.0	1.5	1-1-0	--	
				SPT-9	48.0 - 49.5	1.5	WOH	--	
				SPT-10	49.5 - 51.0	1.5	WOR	--	
				SPT-11	51.0 - 52.5	1.5	WOH-1-1	--	
				SPT-12	52.5 - 54.0	1.5	WOH-1-2	--	
				SPT-13	55.0 - 56.5	1.5	WOH-1-1	--	
				ST-1	57.5 - 59.5	2.0		--	
				SPT-14	60.0 - 61.5	1.5	6-7-8	--	
				SPT-15	62.5 - 64.0	1.5	3-4-5	--	
	ST-2	65.0 - 67.0	2.0		--				
	SPT-16	67.5 - 69.0	1.5	3-4-5	--				

TVA RD BORING LOG JOF APPZ.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Client Borehole Identification	AAP2-PZ-8	Stantec Boring No.	PZ-8
Client	Tennessee Valley Authority	Boring Location	601312.8- N, 1410318- E
Project Number	175658077	Surface Elevation	404.7 ft
		Elevation Datum	NGVD29

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
332.2	72.5			SPT-17	70.0 - 71.5	1.5	1-1-2	--	
				SPT-18	71.5 - 73.0	1.5	WOH-5-5	--	
322.7	82.0	Silty Sand, reddish brown, medium-dense to dense, clay lenses		SPT-19	73.0 - 74.5	1.5	3-5-6	--	
				SPT-20	75.5 - 77.0	1.5	4-4-10	--	
				SPT-21	78.0 - 79.5	1.5	10-15-20	--	
				SPT-22	80.5 - 82.0	1.3	14-11-12	--	

No Refusal /
 Bottom of Hole
 Terminated at 82 feet.
 Vibrating wire Piezometer installed and grouted.



TVA RO BORING LOG JOF APPZ.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Client Borehole Identification AAP2-PZ-9 Stantec Boring No. PZ-9
 Client Tennessee Valley Authority Boring Location 601633- N, 1410631- E
 Project Number 175658077 Surface Elevation 393.3 ft Elevation Datum NGVD29
 Project Name TVA JOF AAP2 Date Started 5/9/18 Completed 5/10/18
 Project Location Johnson Fossil Plant Depth to Water N/A Date/Time 5/10/18
 Inspector S. Kinler Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 Drop 30 Efficiency 88 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
393.3	0.0	Top of Hole							
		Blank drilled to 30 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
363.3	30.0	Ash, dark grey, wet, very loose, fly ash and bottom ash		SPT-1	30.0 - 31.5	1.5	WOR	--	
				SPT-2	31.5 - 33.0	1.5	WOR-1-1	--	
				SPT-3	33.0 - 34.5	1.5	WOH-1-1	--	

TVA RD BORING LOG JOF AAP2 GPJ FMS MAGRAPHIC LOG GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
356.3	37.0	Lean Clay, grey and light brown to reddish brown, moist, soft to stiff, gravel/organics present at 45' Sand lenses present from 51-59'		SPT-4	34.5 - 36.0	1.5	WOH	--	
				SPT-5	36.0 - 37.5	1.5	WOH-	--	
				SPT-6	37.5 - 39.0	1.5	WOH-2 WOH-3-1	--	
				ST-1	40.0 - 42.0	2.0		--	
				SPT-7	42.5 - 44.0	1.5	3-5-3	--	
				SPT-8	45.0 - 46.5	1.5	2-2-3	--	
				ST-2	47.5 - 49.5	1.5		--	
				SPT-9	50.0 - 51.5	1.5	1-2-2	--	
				SPT-10	52.5 - 54.0	1.5	3-4-4	--	
				SPT-11	55.0 - 56.5	1.5	3-5-5	--	
				SPT-12	56.5 - 58.0	1.5	3-3-4	--	
				SPT-13	58.0 - 59.5	1.5	4-8-6	--	
			333.2	60.1	Silt, grey, wet, soft, with clay		SPT-14	59.5 - 61.0	1.5
	SPT-15	61.0 - 62.5				1.5	1-2-2	--	
330.1	63.2	Sand, red, wet, medium-dense to dense, some clay		SPT-16	62.5 - 64.0	1.5	5-21-18	--	
				SPT-17	64.0 - 65.5	1.5	11-13-10	--	
				SPT-18	66.5 - 68.0	1.5	10-10-7	--	
322.8	70.5			SPT-19	69.0 - 70.5	1.5	8-8-20	--	
		No Refusal / Bottom of Hole Terminated at 70.5 feet. Vibrating wire Piezometer installed and grouted.							

TVA ROD BORING LOG JOF AAPZ.GPJ FMS\GRAPHIC LOG.GDT 8/31/18

Client Borehole Identification <u>AAP2-PZ-10</u>		Stantec Boring No. <u>PZ-10</u>	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>602515.4- N, 1410738- E</u>	
Project Number <u>175658077</u>		Surface Elevation <u>390.3 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name <u>TVA JOF AAP2</u>		Date Started <u>5/3/18</u>	Completed <u>5/3/18</u>
Project Location <u>Johnson Fossil Plant</u>		Depth to Water <u>N/A</u>	Date/Time <u>5/3/18</u>
Inspector <u>S. Kinler</u>		Depth to Water <u>N/A</u>	Date/Time <u>N/A</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 850XR #953</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4.25" HSA, 2" Split Spoon w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Sampler Hammer Type <u>Automatic</u>		Weight <u>140</u>	Drop <u>30</u>
Borehole Azimuth <u>N/A (Vertical)</u>		Efficiency <u>88 % (Avg.)</u>	
		Borehole Inclination (from Vertical) <u>Vertical</u>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.3	0.0	Top of Hole							
		Blank drilled to 25 feet. Augers Charged with water to prevent heave.							
		OVERBURDEN (Ash)							
365.3	25.0								
		Ash, dark grey, wet, very loose, fly ash and bottom ash		SPT-1	25.0 - 26.5	1.5	WOR	--	
				SPT-2	26.5 - 28.0	0.5	WOH	--	
				SPT-3	28.0 - 29.5	1.5	WOR	--	
				SPT-4	29.5 - 31.0	1.5	WOR	--	
				SPT-5	31.0 - 32.5	1.5	WOH	--	
356.0	34.3			SPT-6	32.5 - 34.0	1.5	WOH	--	
				SPT-7	34.0 - 35.5	1.5	WOR-2-4	--	

TVA RO BORING LOG JOF AAP2.GPJ FMSMAGRAPHIC LOG.GDT 8/31/18

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks			
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth				
330.3	60.0	Lean Clay, brown with grey, moist, very soft to very stiff, some sand at 59' (Continued)		SPT-8	35.5 - 37.0	1.5	3-5-4	--				
				ST-1	37.0 - 39.0	1.5		--				
				SPT-9	40.0 - 41.5	1.5	WOH-1-3	--				
				SPT-10	42.5 - 44.0	1.5	3-7-9	--				
				SPT-11	45.0 - 46.5	1.5	4-7-9	--				
				SPT-12	47.5 - 49.0	1.5	2-5-6	--				
				SPT-13	50.0 - 51.5	1.5	3-4-4	--				
				SPT-14	51.5 - 53.0	1.5	1-1-2	--				
				SPT-15	53.0 - 54.5	1.5	WOH-1-3	--				
				SPT-16	54.5 - 56.0	1.5	1-3-3	--				
				SPT-17	56.0 - 57.5	1.5	2-3-3	--				
				SPT-18	57.5 - 59.0	1.5	1-3-4	--				
				SPT-19	59.0 - 60.5	1.5	2-4-5	--				
			321.3	69.0	Sand, red brown, loose to dense, some silt Some gravel present from 65.2-65.5'		SPT-20	60.5 - 62.0	0.7	1-2-3	--	
							SPT-21	62.0 - 63.5	1.5	6-12-14	--	
							SPT-22	65.0 - 66.5	1.1	16-13-18	--	
							SPT-23	67.5 - 69.0	1.2	8-7-8	--	
					No Refusal / Bottom of Hole Terminated at 69 feet. Vibrating wire Piezometer installed and grouted.							

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-116-PZ	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>605,526.64 N; 1,412,589.35 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>388.0 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>7/30/19</u>	Completed <u>7/31/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u>	Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID	<u>CME 55T#1, #709</u>	
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>NQ-3 Wireline, Split Barrel, Impregnated Bit</u>			
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>	
Sampler Hammer Type	<u>Automatic</u>	Weight	<u>140 lb</u>	Drop <u>30"</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Approved By	<u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	388.0	Top of Hole					
1	0.8	387.2	Topsoil		SS01G	0.0 - 1.5	1.3	5-4-4
2			LEAN CLAY, CL, 7.5YR 7/1 (light gray) to 7.5YR 6/8 (reddish yellow), medium to high plasticity, firm to very hard, [FILL]		SS02G	1.5 - 3.0	1.4	5-3-5
3	3.3	384.7				SS03aG	3.0 - 3.3	
4			GRAVELLY FAT CLAY, CH, 7.5YR 4/1 (dark gray) to 7.5YR 5/6 (strong brown), medium to high plasticity, firm to very hard, [FILL], [CCR]		SS03bG	3.3 - 4.1	1.5	7-7-12
5	5.4	382.6				SS03cG	4.1 - 4.5	
6			GRAVELLY, CH, 7.5YR 4/6 (strong brown) to 10YR 4/2 (dark grayish brown), medium to high plasticity, firm, [FILL], [CCR]		SS04aG	4.5 - 5.4	1.4	8-5-6
7	7.5	380.5				SS04bG	5.4 - 6.0	
8			GRAVELLY SILTY SAND, SP-SM, 5Y 4/1 (dark gray), very dense, [FILL], [CCR]		SS05G	6.0 - 7.5	0.9	3-2-6
9	9.0	379.0				SS06G	7.5 - 9.0	1.3
10			SANDY SILT SOME CLAY, SP-SM, 10YR 3/1 (very dark gray), very dense, moist, [FILL], [CCR]		SS07G	9.0 - 10.5	1.3	5-5-4
11						SS08G	10.5 - 12.0	1.5
12			SANDY SILT SOME CLAY, SP-SM, 10YR 3/3 (dark brown), non-plastic, wet, [FILL], [CCR]		SS09G	12.0 - 13.5	1.0	9-3-3
13						SS10G	13.5 - 15.0	1.4
14	15.0	373.0			SS11G	15.0 - 16.5	1.5	4-2-3
15					SS12G	16.5 - 18.0	1.5	1-1-2
16	18.0	370.0						

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 7/6/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-116-PZ
Client	Tennessee Valley Authority	Boring Location	605,526.64 N; 1,412,589.35 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	388.0 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			CLAYEY SILT WITH SAND, SP-SM, 10YR 3/4 (dark yellowish brown), very dense, wet, no staining, [FILL], [CCR]					
19				SS13G	18.0 - 19.5	1.5	1-1-2	
20				SS14	19.5 - 21.0	1.5	1-1-10	
21				SS15	21.0 - 22.5	1.4	1-4-4	
22				SS16	22.5 - 24.0	1.5	1-1-2	
23				SS17G	24.0 - 25.5	1.3	1-WH-WH	
24				SS18G	25.5 - 27.0	0.8	WR-WR-WR	
25	27.0			361.0				
26			GRAVELLY FAT CLAY WITH SILT, GP-GC, 10YR 5/6 (yellowish brown) to 10YR 5/1 (gray), very dense					
27	28.3			359.7	SS19aG	27.0 - 28.3	1.5	WR-WR-WR
28			GRAVELLY LEAN CLAY, GP-GC, 5Y 6/4 (pale olive), very dense					
29				SS19bG	28.3 - 28.5			
30	30.0	358.0	SS20G	28.5 - 30.0	1.5	5-8-4		
31			LEAN CLAY WITH SILT, CL, 10YR 4/6 (dark yellowish brown) with 10YR 5/6 (yellowish brown), high plasticity, firm					
32				SS21G	30.0 - 31.5	1.5	3-6-9	
33				SS22G	31.5 - 33.0	1.5	4-5-7	
34	34.5			353.5	SS23G	33.0 - 34.5	1.5	4-5-6
35			FAT CLAY, CH, 10YR 5/6 (yellowish brown) to 10YR 6/1 (gray), medium to high plasticity, firm to very hard					
36				SS24G	34.5 - 36.0	1.5	2-3-4	
37				SS25G	36.0 - 37.5	1.5	4-5-11	
38				SS26G	37.5 - 39.0	1.5	3-4-8	
39				SS27G	39.0 - 40.5	1.5	6-8-8	
40				SS28G	40.5 - 42.0	1.1	6-5-8	

TVA EIP BORING LOG 175568286 JOF TDEC ORDER GPJ TDEC SUBSURF DT 20190530.GDT 7/6/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-116-PZ
Client	Tennessee Valley Authority	Boring Location	605,526.64 N; 1,412,589.35 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	388.0 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43	43.8	344.2	FAT CLAY, CH, 10YR 5/6 (yellowish brown) to 10YR 6/1 (gray), medium to high plasticity, firm to very hard <i>(Continued)</i>		SS29G	42.0 - 43.5	1.5	5-8-14
44						SS30aG	43.5 - 43.8	
45	45.6	342.4	GRAVELLY, GP-GC, 7.5YR 5/6 (strong brown) to 10YR 5/4 (yellowish brown), very dense, moist		SS30bG	43.8 - 45.0	1.5	17-17-15
46						SS31aG	45.0 - 45.6	
47			CLAYEY GRAVEL WITH SAND, GP-GC, 10YR 4/6 (dark yellowish brown) to 7.5YR 4/6 (strong brown), very dense, moist		SS31bG	45.6 - 46.5	1.5	10-12-13
48						SS32G	46.5 - 48.0	1.5
49					SS33G	48.0 - 49.5	1.2	6-10-11
50					SS34G	49.5 - 51.0	1.4	6-11-9
51					SS35G	51.0 - 52.5	1.3	5-10-12
52					SS36G	52.5 - 54.0	1.1	5-11-14
53					SS37G	54.0 - 54.9	0.9	6-50/5"
54								
55	55.6	332.4			SS38G	55.5 - 55.6	0.1	50/1"

Refusal /
Bottom of Hole at 55.6 Ft.

Top of Rock = 55.6 Ft.
Top of Rock Elevation = 332.4 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF.DIT 20180530.GDT 7/6/20

Project No. <u>175559008</u>	Location <u>N 602313.93, E 1410981.18 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-BC Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>391.5 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/17/09</u> Completed <u>3/17/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>40.0 ft</u> Date/Time <u>3/17/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
391.5'	0.0'	Top of Hole							
390.0'	1.5'	POORLY GRADED GRAVEL							Boring advanced using 4 1/4" Hollow Stem Augers
		LEAN CLAY with Sand, brown and gray, moist, medium stiff to very stiff, occasional gravel		SPT-1	1.5 - 3.0	1.1	5-7-9	18	
			SPT-2	3.0 - 4.5	1.2	5-7-9	17		
			SPT-3	4.5 - 6.0	1.4	5-7-8	21		
			SPT-4	6.0 - 7.5	1.2	5-7-6	18		
			SPT-5	7.5 - 9.0	1.3	4-4-8	21		
			SPT-6	9.0 - 10.5	1.0	5-9-12	25		
			SPT-7	10.5 - 12.0	1.5	3-4-7	20		
			SPT-8	12.0 - 13.5	1.3	7-7-8	20		
			SPT-9	13.5 - 15.0	1.4	4-5-6	18		
			SPT-10	15.0 - 16.5	1.4	4-7-9	18		
			SPT-11	16.5 - 18.0	1.4	5-6-7	22		
			SPT-12	18.0 - 19.5	1.5	3-5-7	17		
			SPT-13	19.5 - 21.0	1.3	2-2-5	23		
			SPT-14	21.0 - 22.5	0.9	2-3-4	21		
			SPT-15	22.5 - 24.0	1.1	2-3-4	20		
			SPT-16	24.0 - 25.5	1.2	2-4-6	20		
			SPT-17	25.5 - 27.0	0.9	2-5-5	25		
363.3'	28.2'		SPT-18	27.0 - 28.5	1.2	3-7-11	14		
		SILT, brown and gray, moist to wet, stiff, gravel throughout		SPT-19	28.5 - 30.0	0.5	2-5-9	19	
			SPT-20	30.0 - 31.5	1.5	4-4-9	22		
			SPT-21	31.5 - 33.0	1.2	5-10-8	29		
			ST-1	33.0 - 35.0	0.6		28		
355.5'	36.0'	SPT-22	35.0 - 36.5	1.1	2-2-4	29			
		LEAN CLAY, brown and gray, wet, medium stiff, with silt lenses		SPT-23	36.5 - 38.0	1.5	2-2-3	28	
			SPT-24	38.0 - 39.5	1.5	3-3-3	25		
351.0'	40.5'		SPT-25	39.5 - 41.0	1.5	0-0-4	29		
		LEAN CLAY, gray to brown and gray, moist, soft to stiff, odor from 40.5' to 42.5'		SPT-26	41.0 - 42.5	1.1	3-4-5	26	
			SPT-27	42.5 - 44.0	1.4	1-4-4	27		

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Project No.	175559008	Location	N 602313.93, E 1410981.18 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-BC	Total Depth	61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, gray to brown and gray, moist, soft to stiff, odor from 40.5' to 42.5' (Continued)		SPT-28	45.0 - 46.5	1.1	2-4-5	28	
				SPT-29	47.5 - 49.0	1.4	2-3-4	24	
				SPT-30	50.0 - 51.5	1.3	5-7-7	26	
				SPT-31	52.5 - 54.0	1.3	5-6-6	22	
				SPT-32	55.0 - 56.5	1.5	5-6-8	25	
				SPT-33	57.5 - 59.0	1.4	5-6-7	23	
330.0'	61.5'				SPT-34	60.0 - 61.5	1.4	4-4-4	28

No Refusal /
Bottom of Hole

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Project No.	172679048	Location	N 604074.54, E 1414663.34 (NAD27)		
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-3	Total Depth	41.5 ft
Location	New Johnsonville, Tennessee	Surface Elevation	432.8 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	12/28/09	Completed	12/29/09
Supervisor	S. Vinson	Driller	M.Wethington	Depth to Water	N/A
Logged By	S. Zayko	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois. Cont. %	Classification
Approx Elev	Depth		Rock Core						
432.8'	0.0'	Top of Hole							
431.8'	1.0'	TOPSOIL		SPT-1	0.0 - 1.5	1.3	4-5-5	19	
		FILL-SILTY CLAY, trace course sand, gray to light brown, moist, stiff							
429.8'	3.0'	COMPACTED ASH, dark gray, moist to saturated, soft to stiff		SPT-2	5.0 - 6.5	0.3	3-2-1	15	
				SPT-3	10.0 - 11.5	1.5	4-4-5	39	
416.8'	16.0'	HYDRAULIC ASH, dark gray, saturated, soft to stiff		SPT-4	15.0 - 16.5	1.5	2-2-6	35	
				SPT-5	20.0 - 21.5	1.0	3-4-3	32	

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Project No.	172679048	Location	N 604074.54, E 1414663.34 (NAD27)	
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-3	Total Depth 41.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Classification
Approx Elev	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		HYDRAULIC ASH, dark gray, saturated, soft to stiff (Continued)		SPT-6	25.0 - 26.5	0.2	WOH	34	
				SPT-7	30.0 - 31.5		1-1-1	34	
				SPT-8	35.0 - 36.5	1.3	1-1-1	31	
392.3'	40.5'			SPT-9	40.0 - 41.5	1.0	2-5-6	29	
391.3'	41.5'	LEAN CLAY, light brown, moist, stiff							

No Refusal /
Bottom of Hole

WOH = Weight of Hammer
WOR = Weight of Rods

Slotted Screen piezometer installed, tip elevation approximately 394.53 ft above mean sea level.
0.5' sand seat, followed by 5.0 ft slotted screen with sand pack to 3.0 ft above screen, and a 4.0 ft bentonite seal on top. Grout in the upper 27.0 ft (to top of boring)



Project No.	172679048	Location	N 603834.16, E 1415064.64 (NAD27)		
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-7	Total Depth	41.5 ft
Location	New Johnsonville, Tennessee	Surface Elevation	432.9 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	12/30/09	Completed	12/30/09
Supervisor	S. Vinson Driller M.Wethington	Depth to Water	N/A	Date/Time	N/A
Logged By	S. Zayko	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Classification
Approx Elev	Depth		Rock Core						
432.9'	0.0'	Top of Hole							
432.4'	0.5'	TOPSOIL							
		FILL-SANDY CLAY, with silt, brown, moist, stiff, trace roots		SPT-1	0.0 - 1.5	0.7	2-4-4	24	63% passing #200 S+C (43+20) LL-26, PI-8
429.9'	3.0'	COMPACTED ASH, dark gray, moist, stiff		SPT-2	5.0 - 6.5	1.5	6-4-5	20	
				SPT-3	10.0 - 11.5	1.2	2-2-3	17	
417.9'	15.0'	HYDRAULIC ASH, dark gray, saturated, very soft to medium stiff		SPT-4	15.0 - 16.5	1.5	3-3-3	36	
				SPT-5	20.0 - 21.5	1.5	2-2-4	35	

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Project No.	172679048	Location	N 603834.16, E 1415064.64 (NAD27)	
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-7	Total Depth 41.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Classification
Approx Elev	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		HYDRAULIC ASH, dark gray, saturated, very soft to medium stiff (Continued)		SPT-6	25.0 - 26.5	0.3	2-2-2	34	
				SPT-7	30.0 - 31.5	1.5	2-1-1	32	
				SPT-8	35.0 - 36.5	1.5	WOH	35	
392.4'	40.5'			SPT-9	40.0 - 41.5	0.8	WOH-7-8	26	
391.4'	41.5'	LEAN CLAY, mottled reddish brown to tan brown, moist, stiff							

No Refusal /
Bottom of Hole

WOH = Weight of Hammer

Slotted Screen piezometer installed, tip elevation approximately 393.78 ft above mean sea level.
1.0' sand seat, followed by 5.0 ft slotted screen with sand pack to 2.0 ft above screen, and a 2.0 ft bentonite seal on top. Grout in the upper 30.0 ft (to top of boring)

Project No.	172679048	Location	N 603160.75, E 1414779.25 (NAD27)		
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-12	Total Depth	41.5 ft
Location	New Johnsonville, Tennessee	Surface Elevation	430.7 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	12/17/09	Completed	12/17/09
Supervisor	S. Vinson Driller M.Wethington	Depth to Water	N/A	Date/Time	N/A
Logged By	S. Zayko	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Classification
Approx Elev	Depth		Rock Core						
430.7'	0.0'	Top of Hole							
		FILL-SANDY CLAY, with some root hairs, brown, moist, stiff		SPT-1	0.0 - 1.5	1.2	1-3-6	17	
427.7'	3.0'								
		COMPACTED ASH, dark gray, moist or saturated, stiff		SPT-2	5.0 - 6.5	1.5	9-6-9	16	
				SPT-3	10.0 - 11.5	1.5	2-3-4	49	
416.7'	14.0'								
		HYDRAULIC ASH, dark gray, moist to wet, very soft to stiff		SPT-4	15.0 - 16.5	1.5	2-2-2	45	
				SPT-5	20.0 - 21.5	1.5	2-2-2	37	



Project No.	172679048	Location	N 603160.75, E 1414779.25 (NAD27)	
Project Name	Dupont Road Dredge Cell	Boring No.	DDC-12	Total Depth 41.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois. Cont. %	Classification
Approx Elev	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		HYDRAULIC ASH, dark gray, moist to wet, very soft to stiff <i>(Continued)</i>		SPT-6	25.0 - 26.5	1.5	1-1-1	37	
				SPT-7	30.0 - 31.5	1.5	WOH	37	
				SPT-8	35.0 - 36.5	1.5	WOH	34	
392.7'	38.0'								
		FAT CLAY, trace fine grained sand, yellowish brown to mottled gray							
390.2'	40.5'								
		CLAYEY SAND, with gravel, moist, dense		SPT-9	40.0 - 41.5	1.5	14-18-17	33	
389.2'	41.5'								

No Refusal /
Bottom of Hole

WOH = Weight of Hammer

Slotted Screen piezometer installed, tip elevation approximately 385.23 ft above mean sea level.
1.0' sand seat, followed by 5 ft slotted screen with sand pack to 2.0 ft above screen, and a 2.0 ft bentonite seal on top.
Grout in the upper 30.0 ft (to top of boring)

Project No.	175559008	Location	N 600191.17, E 1410774.31 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-DC	Total Depth	61.5 ft
Location	Humphreys County, Tennessee	Surface Elevation	390.0 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	3/18/09	Completed	3/19/09
Supervisor	N. Puckett	Driller	Tim Caudill	Depth to Water	45.0 ft
Logged By	N. Puckett	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.0'	0.0'	Top of Hole							
		LEAN CLAY, brown and gray, moist, soft to very stiff - tree root encountered at 13.0 feet (approx. 6-in. diam.)		SPT-1	0.0 - 1.5	1.3	3-4-5	16	Boring advanced using 4 1/4" Hollow Stem Augers
			SPT-2	1.5 - 3.0	1.2	6-6-7	17		
			SPT-3	3.0 - 4.5	1.5	3-3-4	21		
			SPT-4	4.5 - 6.0	1.2	4-6-7	18		
			SPT-5	6.0 - 7.5	1.5	7-7-11	17		
			SPT-6	7.5 - 9.0	1.3	5-7-9	18		
			SPT-7	9.0 - 10.5	1.5	5-7-9	18		
			SPT-8	10.5 - 12.0	1.4	5-5-6	18		
			SPT-9	12.0 - 13.5	1.5	3-5-4	20		
			SPT-10	13.5 - 15.0	0.0	7-5-6	--		
			SPT-11	15.0 - 16.5	1.0	5-7-8	16		
			SPT-12	16.5 - 18.0	0.6	5-3-5	19		
			SPT-13	18.0 - 19.5	1.0	3-3-4	22		
			SPT-14	19.5 - 21.0	0.9	2-2-4	20		
			SPT-15	21.0 - 22.5	1.2	2-2-2	22		
			SPT-16	22.5 - 24.0	1.1	1-1-3	23		
365.0'	25.0'		SILT, brown, wet, very soft to very stiff		SPT-17	24.0 - 25.5	1.5	0-1-2	
		SPT-18		25.5 - 27.0	1.1	0-0-2	25		
		SPT-19		27.0 - 28.5	1.0	WOH	23		
		SPT-20		28.5 - 30.0	1.1	0-2-4	19		
		SPT-21		30.0 - 31.5	1.2	1-5-4	18		
		SPT-22		31.5 - 33.0	1.4	3-6-9	18		
		SPT-23		33.0 - 34.5	1.0	1-4-5	20		
355.5'	34.5'	LEAN CLAY, brown and gray, moist to wet, soft to very stiff, gravelly from 34.5' to 36.0', trace amount of sand throughout, increasing silt content with depth		SPT-24	34.5 - 36.0	1.0	2-4-6	17	
			SPT-25	36.0 - 37.5	1.4	1-1-2	26		
			SPT-26	37.5 - 39.0	1.4	0-2-5	26		
			SPT-27	39.0 - 40.5	1.5	3-5-7	24		
			SPT-28	40.5 - 42.0	1.5	3-5-8	23		
			SPT-29	42.0 - 43.5	1.5	3-6-6	22		

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Project No.	175559008	Location	N 600191.17, E 1410774.31 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-DC	Total Depth	61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, brown and gray, moist to wet, soft to very stiff, gravelly from 34.5' to 36.0', trace amount of sand throughout, increasing silt content with depth <i>(Continued)</i>		SPT-30	43.5 - 45.0	1.5	2-5-8	24	Began using drilling fluid at 45.0 feet
				SPT-31	45.0 - 46.5	1.3	2-3-6	24	
				SPT-32	46.5 - 48.0	1.4	4-4-7	23	
				SPT-33	48.0 - 49.5	1.5	4-7-9	26	
				SPT-34	49.5 - 51.0	1.4	3-7-8	24	
				SPT-35	51.0 - 52.5	1.5	7-7-9	22	
				SPT-36	52.5 - 54.0	1.5	6-6-8	22	
				SPT-37	55.0 - 56.5	1.5	4-6-7	22	
				SPT-38	57.5 - 59.0	1.1	5-5-5	24	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
329.0'	61.0'			SPT-39	60.0 - 61.5	1.3	4-17-40	14	

329.0' 61.0'
328.5' 61.5'

SILTY SAND, brown, wet, very dense

No Refusal /
Bottom of Hole

WOH=Weight of Hammer

Project No.	175559008	Location	N 600184.33, E 1410790.81 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-DC-PZ	Total Depth 26.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	391.2 ft. (NGVD29)	
Project Type	Geotechnical Exploration	Date Started	4/1/09	Completed 4/1/09
Supervisor	N. Puckett	Driller	Tim Caudill	Depth to Water 22.0 ft
Logged By	N. Puckett	Date/Time 5/27/09		
		Automatic Hammer	<input type="checkbox"/>	Safety Hammer <input type="checkbox"/>
		Other	<input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
391.2'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 4 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	0.7		18	Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	0.9		19	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
365.2'	26.0'	No Refusal / Bottom of Hole							

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Project No. <u>175559008</u>	Location <u>N 600147.64, E 1410847.53 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-DT Total Depth <u>56.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>365.3 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/10/09</u> Completed <u>3/10/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>18.0 ft</u> Date/Time <u>3/10/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
365.3'	0.0'	Top of Hole							
		LEAN CLAY with Gravel, brown, tan, and gray, moist, soft to stiff		SPT-1	0.0 - 1.5	1.0	3-3-5	18	Boring advanced using 3 1/4" Hollow Stem Augers
			SPT-2	1.5 - 3.0	1.2	4-6-7	17		
			SPT-3	3.0 - 4.5	1.1	3-4-5	19		
			SPT-4	4.5 - 6.0	1.3	3-2-6	20		
			SPT-5	6.0 - 7.5	1.5	5-7-9	20		
			SPT-6	7.5 - 9.0	1.5	5-5-8	18		
			SPT-7	9.0 - 10.5	1.5	3-3-8	23		
			SPT-8	10.5 - 12.0	1.0	2-3-2	38		
			SPT-9	12.0 - 13.5	1.5	2-3-4	29		
			SPT-10	13.5 - 15.0	1.5	2-2-4	28		
			SPT-11	15.0 - 16.5	1.5	2-3-4	25		
			SPT-12	16.5 - 18.0	1.0	3-2-4	26		
			ST-1	18.0 - 20.0	2.0		25		
			SPT-13	20.0 - 21.5	1.5	3-4-6	25		
			SPT-14	22.5 - 24.0	1.5	4-5-8	21		
			SPT-15	25.0 - 26.5	1.5	3-6-8	21		
			SPT-16	27.5 - 29.0	1.5	6-6-7	22		
			SPT-17	30.0 - 31.5	1.5	2-4-5	22		
331.5'	33.8'	POORLY GRADED SAND, dark brown, brown, tan, and gray, wet, loose to dense		SPT-18	32.5 - 34.0	1.5	4-6-10	24	Began using drilling fluid at 18.0 feet
			SPT-19	35.0 - 36.5	0.9	3-5-7	23		
			SPT-20	37.5 - 39.0	1.1	8-11-13	21		
			SPT-21	40.0 - 41.5	1.5	12-20-19	17		
			SPT-22	42.5 - 44.0	1.5	4-2-4	22		

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Project No.	175559008	Location	N 600147.64, E 1410847.53 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-DT	Total Depth 56.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
308.8'	56.5'	POORLY GRADED SAND, dark brown, brown, tan, and gray, wet, loose to dense <i>(Continued)</i>		SPT-23	45.0 - 46.5	1.5	4-8-6	21	Boring backfilled with bentonite grout from 0.0 ft to 56.5 ft.
				SPT-24	47.5 - 49.0	1.5	2-2-2	34	
				SPT-25	50.0 - 51.5	1.2	11-11-11	24	
				SPT-26	52.5 - 54.0	1.0	7-9-10	20	
				SPT-27	55.0 - 56.5	1.4	7-10-12	24	

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 599528.35, E 1410416.19 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-EC Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>390.2 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/19/09</u> Completed <u>3/19/09</u>
Supervisor <u>N. Puckett</u> Driller <u>J. Felts</u>	Depth to Water <u>15.0 ft</u> Date/Time <u>3/19/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.2'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 4 1/4" Hollow Stem Augers
									Began using drilling fluid at 15.0 feet
360.2'	30.0'	LEAN CLAY, brown and gray, moist, medium stiff to very stiff, gravelly from 33.0' to 34.5'							
				SPT-1	30.0 - 31.5	1.0	2-3-3	22	
				SPT-2	31.5 - 33.0	1.3	6-8-14	18	
				SPT-3	33.0 - 34.5	1.0	14-16-16	16	
				SPT-4	34.5 - 36.0	0.8	3-4-5	23	
				SPT-5	36.0 - 37.5	0.9	3-5-7	25	
				SPT-6	37.5 - 39.0	0.8	6-7-7	23	
				SPT-7	39.0 - 40.5	0.8	3-4-4	24	
				SPT-8	40.5 - 42.0	1.1	4-4-7	25	
				SPT-9	42.0 - 43.5	1.5	4-6-8	22	

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Project No.	175559008	Location	N 599528.35, E 1410416.19 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-EC	Total Depth 61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
342.2'	48.0'	LEAN CLAY, brown and gray, moist, medium stiff to very stiff, gravelly from 33.0' to 34.5' <i>(Continued)</i>		SPT-10	43.5 - 45.0	1.3	5-8-10	22	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
				SPT-11	45.0 - 46.5	1.3	6-8-9	22	
				SPT-12	46.5 - 48.0	1.3	5-6-8	22	
332.2'	58.0'	SILT, brown and gray, moist, stiff, trace amounts of sand throughout		SPT-13	48.0 - 49.5	1.2	3-6-7	23	
				SPT-14	49.5 - 51.0	1.5	6-7-7	22	
				SPT-15	51.0 - 52.5	1.2	5-5-6	22	
				SPT-16	52.5 - 54.0	1.5	4-4-5	24	
				SPT-17	55.0 - 56.5	1.4	4-6-7	24	
328.7'	61.5'	SILTY SAND with Gravel, brown and gray, wet, medium dense		SPT-18	57.5 - 59.0	1.4	3-2-9	29	
				SPT-19	60.0 - 61.5	1.3	4-7-13	20	

No Refusal /
Bottom of Hole

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Project No.	175559008	Location	N 599517.65, E 1410428.37 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-EC-PZ	Total Depth 27.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	390.4 ft. (NGVD29)	
Project Type	Geotechnical Exploration	Date Started	4/1/09	Completed 4/1/09
Supervisor	N. Puckett	Driller	Tim Caudill	Depth to Water 3.8 ft
Logged By	N. Puckett	Date/Time	5/27/09	
		Automatic Hammer	<input type="checkbox"/>	Safety Hammer <input type="checkbox"/>
		Other	<input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.4'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 4 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	1.3		19	Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
									Screened zone from 15 ft to 25 ft
				ST-2	25.0 - 27.0	0.8		20	Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 27.0 ft

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 599486.09, E 1410496.27 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. <u>STN-ET</u> Total Depth <u>55.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>363.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/9/09</u> Completed <u>3/9/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>28.0 ft</u> Date/Time <u>3/9/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
363.8'	0.0'	Top of Hole							
		LEAN CLAY, brown, tan, and gray, moist, soft to stiff, with gravel, roots, peat, chert. Ash layer from 4.5' to 4.9'		SPT-1	0.0 - 1.5	0.8	2-1-2	21	Boring advanced using 3 1/4" Hollow Stem Augers SPT-2 low rec. due to large gravel
				SPT-2	1.5 - 3.0	0.2	2-3-3	20	
				SPT-3	3.0 - 4.5	1.5	6-6-7	21	
				SPT-4	4.5 - 6.0	1.5	5-5-8	21	
				ST-1	6.0 - 8.0	0.9		19	
				SPT-5	8.0 - 9.5	1.1	WOH-2-2	25	
				SPT-6	9.5 - 11.0	1.5	1-2-2	28	
				SPT-7	11.0 - 12.5	1.4	2-4-4	27	
				ST-2	12.5 - 14.5	1.8		26	
				SPT-8	14.5 - 16.0	1.5	2-2-2	27	
				SPT-9	16.0 - 17.5	1.5	2-4-4	24	
				SPT-10	17.5 - 19.0	1.5	3-6-9	20	
				SPT-11	19.0 - 20.5	1.5	4-6-9	22	
				SPT-12	21.5 - 23.0	1.5	6-10-10	22	
	SPT-13	24.0 - 25.5	1.5	2-5-8	25				
	SPT-14	26.5 - 28.0	1.3	4-4-6	26				
	SPT-15	29.0 - 30.5	1.5	3-3-3	29				
	SPT-16	31.5 - 33.0	1.5	4-10-6	18				
	SPT-17	34.0 - 35.5	1.0	6-13-14	17				
	SPT-18	36.5 - 38.0	1.1	7-10-14	15				
	SPT-19	39.0 - 40.5	1.5	14-12-12	17				
	SPT-20	41.5 - 43.0	1.2	4-10-12	20				
334.3'	29.5'	POORLY GRADED SAND with Silt, brown, tan, gray, and black, wet, loose to medium dense							Began using drilling fluid at 28.0 feet

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Project No.	175559008	Location	N 599486.09, E 1410496.27 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-ET	Total Depth 55.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		POORLY GRADED SAND with Silt, brown, tan, gray, and black, wet, loose to medium dense <i>(Continued)</i>		SPT-21	44.0 - 45.5	1.3	8-14-11	19	Boring backfilled with bentonite grout from 0.0 ft to 55.5 ft
				SPT-22	46.5 - 48.0	1.4	11-14-14	22	
				SPT-23	49.0 - 50.5	1.0	4-7-7	16	
				SPT-24	51.5 - 53.0	1.2	10-10-10	18	
308.3'	55.5'			SPT-25	54.0 - 55.5	1.3	6-7-5	20	

No Refusal /
Bottom of Hole

WOH=Weight of
Hammer

Project No.	175559008	Location	N 599486.09, E 1410496.27 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-ET-PZ	Total Depth 35.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	363.8 ft. (NGVD29)	
Project Type	Geotechnical Exploration	Date Started	3/16/09	Completed 3/16/09
Supervisor	Russ Mehnert	Driller	G. Thompson	Depth to Water 5.5 ft
Logged By	Russ Mehnert	Date/Time	5/27/09	
		Automatic Hammer	<input type="checkbox"/>	Safety Hammer <input type="checkbox"/>
		Other	<input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
363.8'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
									Piezometer constructed from 24 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
									Screened zone from 24 ft to 34 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 35.0 ft
328.8'	35.0'	No Refusal / Bottom of Hole							

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Project No. <u>175559008</u>	Location <u>N 598898.88, E 1410062.79 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-FC Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>389.4 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/2/09</u> Completed <u>4/2/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>17.5 ft</u> Date/Time <u>4/2/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.4'	0.0'	Top of Hole							
389.1'	0.3'	CRUSHED STONE		SPT-1	0.0 - 1.5	1.2	15-7-10	16	Boring advanced using 4 1/4" Hollow Stem Augers
		LEAN CLAY, brown and gray, moist, stiff to very stiff - with small rounded gravel below 10.5 feet		SPT-2	1.5 - 3.0	1.3	4-8-11	15	
			SPT-3	3.0 - 4.5	1.2	5-7-9	18		
			SPT-4	4.5 - 6.0	1.0	5-6-8	22		
			SPT-5	6.0 - 7.5	1.4	5-8-14	16		
			SPT-6	7.5 - 9.0	1.2	5-9-10	16		
			SPT-7	9.0 - 10.5	1.0	4-3-5	20		
			SPT-8	10.5 - 12.0	0.9	3-5-6	16		
			SPT-9	12.0 - 13.5	1.0	3-5-6	19		
374.9'	14.5'		SPT-10	13.5 - 15.0	1.5	4-30-49	11		
		BOTTOM ASH, black, moist to wet, medium to very dense		SPT-11	15.0 - 16.5	1.4	10-23-22	12	Began using drilling fluid at 17.5 feet
371.6'	17.8'	LEAN CLAY, brown and gray, moist to wet, medium to very stiff - dark gray layer from 32.0 to 35.0 feet		SPT-12	16.5 - 18.0	1.1	4-11-4	13	
			SPT-13	18.0 - 19.5	0.9	0-1-3	24		
			ST-1	19.5 - 21.5	1.5		25		
			SPT-14	21.5 - 23.0	1.0	3-3-5	26		
			SPT-15	23.0 - 24.5	1.0	2-2-4	22		
			SPT-16	24.5 - 26.0	1.2	2-2-5	24		
			SPT-17	26.0 - 27.5	1.3	4-6-8	22		
			SPT-18	27.5 - 29.0	1.5	5-7-9	22		
			SPT-19	29.0 - 30.5	0.9	4-5-4	25		
			SPT-20	30.5 - 32.0	0.9	5-7-9	25		
			SPT-21	32.0 - 33.5	1.0	2-2-3	23		
			SPT-22	33.5 - 35.0	1.2	1-3-2	25		
			ST-2	35.0 - 37.0	1.1		26		
			SPT-23	37.0 - 38.5	1.3	0-3-5	25		
			SPT-24	38.5 - 40.0	1.2	2-4-8	24		
			SPT-25	40.0 - 41.5	1.4	5-7-8	22		
		SPT-26	41.5 - 43.0	1.5	4-6-8	25			
		SPT-27	43.0 - 44.5	1.5	3-4-5	23			

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Project No.	175559008	Location	N 598898.88, E 1410062.79 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-FC	Total Depth 61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
335.4'	54.0'	LEAN CLAY, brown and gray, moist to wet, medium to very stiff <i>(Continued)</i>		ST-3	44.5 - 46.5	2.0		24	
				SPT-28	46.5 - 48.0	1.3	0-2-4	24	
				SPT-29	48.0 - 49.5	1.4	1-5-6	24	
				SPT-30	49.5 - 51.0	1.5	7-5-7	24	
				SPT-31	51.0 - 52.5	1.3	3-4-6	27	
				SPT-32	52.5 - 54.0	1.4	5-6-5	28	
				SPT-33	54.0 - 55.5	1.5	0-0-0	29	
328.4'	61.0'	SILT, dark gray and gray, wet, very soft to medium stiff		SPT-34	55.5 - 57.0	1.5	0-2-3	28	
				SPT-35	57.0 - 58.5	1.5	0-2-3	28	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
				SPT-36	58.5 - 60.0	1.5	1-2-2	28	
				SPT-37	60.0 - 61.5	1.4	0-2-19	19	

POORLY GRADED SAND with Gravel, gray, wet, dense

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 598892.27, E 1410076.24 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-FC-PZ Total Depth <u>26.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>389.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/7/09</u> Completed <u>4/7/09</u>
Supervisor <u>N. Puckett</u> Driller <u>J. Felts</u>	Depth to Water <u>3.6 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
389.8'	0.0'	Top of Hole							
		OVERBURDEN							
				ST-1	5.0 - 7.0	1.3		18	Boring advanced using 3 1/4" Hollow Stem Augers Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	1.0		18	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
363.8'	26.0'								

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 598868.34, E 1410145.49 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-FT Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>362.9 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/9/09</u> Completed <u>3/9/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>27.5 ft</u> Date/Time <u>3/9/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
362.9'	0.0'	Top of Hole							
		LEAN CLAY with Gravel, brown, tan, and gray, moist, soft to very stiff		SPT-1	0.0 - 1.5	0.9	0-2-2	22	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	1.0	5-7-7	18	
				SPT-3	3.0 - 4.5	1.4	4-5-8	20	
				SPT-4	4.5 - 6.0	0.1	2-3-3	23	
				SPT-5	6.0 - 7.5	1.2	3-2-3	22	
				SPT-6	7.5 - 9.0	1.3	3-5-5	25	
				SPT-7	9.0 - 10.5	1.5	2-1-2	25	
				SPT-8	10.5 - 12.0	1.4	WOH-1-3	23	
				SPT-9	12.0 - 13.5	1.5	3-6-8	24	
				SPT-10	13.5 - 15.0	1.3	9-10-14	22	
				SPT-11	15.0 - 16.5	1.5	3-5-7	23	
				SPT-12	17.5 - 19.0	1.5	6-7-9	23	
				SPT-13	20.0 - 21.5	1.5	5-6-7	23	
				SPT-14	22.5 - 24.0	1.5	5-7-9	25	
				SPT-15	25.0 - 26.5	1.5	2-5-5	23	
			332.9'	30.0'	POORLY GRADED SAND, brown, tan, and gray, wet, medium dense		SPT-16	27.5 - 29.0	
			SPT-17	30.0 - 31.5		1.0	5-5-7	14	
			SPT-18	32.5 - 34.0		1.3	4-12-15	25	
			SPT-19	35.0 - 36.5		1.3	7-10-16	20	
			SPT-20	37.5 - 39.0		1.5	7-11-14	21	
			SPT-21	40.0 - 41.5		1.0	8-9-14	16	
			SPT-22	42.5 - 44.0		1.1	9-14-19	18	

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Project No.	175559008	Location	N 598868.34, E 1410145.49 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-FT	Total Depth 61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
310.1'	52.8'	POORLY GRADED SAND, brown, tan, and gray, wet, medium dense <i>(Continued)</i> - with clay lense at 52.5'		SPT-23	45.0 - 46.5	1.5	7-11-14	26	SPT-26 sample split
				SPT-24	47.5 - 49.0	1.2	5-6-9	30	
				SPT-25	50.0 - 51.5	1.5	2-2-3	30	
				SPT-26	52.5 - 54.0	1.3	5-6-9	16	
301.4'	61.5'	POORLY GRADED SAND with Gravel, brown, gray, tan, and black, wet, medium dense		SPT-27	55.0 - 56.5	0.7	6-7-8	19	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
				SPT-28	57.5 - 59.0	0.7	5-6-7	18	
				SPT-29	60.0 - 61.5	1.0	9-12-11	19	

No Refusal /
Bottom of Hole

WOH=Weight of
Hammer

Project No. <u>175559008</u>	Location <u>N 598868.34, E 1410145.49 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. <u>STN-FT-PZ</u> Total Depth <u>36.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>362.9 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/9/09</u> Completed <u>3/9/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>1.9 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
362.9'	0.0'	Top of Hole							
		OVERBURDEN							<p>Boring advanced using 3 1/4" Hollow Stem Augers</p> <p>Piezometer constructed from 25.3 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen</p> <p>Screened zone from 25.3 ft to 35.3 ft</p> <p>Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 36.5 ft</p>
326.4'	36.5'								

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 598719.43, E 1409736.38 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-GC Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>389.6 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/7/09</u> Completed <u>4/7/09</u>
Supervisor <u>N. Puckett</u> Driller <u>J. Felts</u>	Depth to Water <u>17.0 ft</u> Date/Time <u>4/7/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.6'	0.0'	Top of Hole							
389.2'	0.4'	POORLY GRADED GRAVEL		SPT-1	0.0 - 1.5	1.3	13-8-11	16	Boring advanced using 4 1/4" Hollow Stem Augers
		LEAN CLAY, brown and gray, moist, medium to stiff, increasing rock content with depth		SPT-2	1.5 - 3.0	1.1	8-8-9	20	
			SPT-3	3.0 - 4.5	1.3	3-5-8	16		
			SPT-4	4.5 - 6.0	1.5	5-5-9	17		
			SPT-5	6.0 - 7.5	1.4	4-8-8	18		
			SPT-6	7.5 - 9.0	1.3	5-10-13	16		
			SPT-7	9.0 - 10.5	1.3	5-7-10	17		
			SPT-8	10.5 - 12.0	1.3	3-6-8	15		
			SPT-9	12.0 - 13.5	0.5	2-5-6	19		
			SPT-10	13.5 - 15.0	0.9	2-5-8	19		
374.1'	15.5'		BOTTOM ASH, black, moist to wet, medium to dense		SPT-11	15.0 - 16.5	1.5	5-45-50	9
		LEAN CLAY, brown and gray, moist to wet, stiff		SPT-12	16.5 - 18.0	0.9	12-18-19	15	
			SPT-13	18.0 - 19.5	1.2	10-13-5	16		
369.8'	19.8'		SPT-14	19.5 - 21.0	0.9	2-4-5	23		
			SPT-15	21.0 - 22.5	0.9	4-3-7	21		
			ST-1	22.5 - 24.5	1.2		22		
			SPT-16	24.5 - 26.0	1.4	2-3-6	23		
			SPT-17	26.0 - 27.5	1.1	6-7-7	21		
			SPT-18	27.5 - 29.0	1.5	3-4-5	22		
			SPT-19	29.0 - 30.5	1.0	2-6-6	22		
			SPT-20	30.5 - 32.0	1.5	0-3-4	23		
			SPT-21	32.0 - 33.5	1.0	1-3-4	24		
			SPT-22	33.5 - 35.0	1.1	2-3-4	25		
			SPT-23	35.0 - 36.5	1.4	0-0-3	27		
			ST-2	36.5 - 38.5	1.5		22		
			SPT-24	38.5 - 40.0	1.5	5-5-6	24		
			SPT-25	40.0 - 41.5	1.3	3-6-9	24		
			SPT-26	41.5 - 43.0	1.5	3-5-7	25		
		SPT-27	43.0 - 44.5	1.5	5-7-12	23			

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Project No.	175559008	Location	N 598719.43, E 1409736.38 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-GC	Total Depth	61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
340.1'	49.5'	LEAN CLAY, brown and gray, moist to wet, stiff <i>(Continued)</i>		ST-3	44.5 - 46.5	1.6		29		
				SPT-28	46.5 - 48.0	1.5	1-6-6	26		
				SPT-29	48.0 - 49.5	1.5	6-7-8	25		
328.6' 328.1'	61.0' 61.5'	SILT, brown and gray to gray, wet, very soft to very stiff		SPT-30	49.5 - 51.0	1.5	3-3-4	22		
				SPT-31	51.0 - 52.5	1.5	6-6-7	25		
				SPT-32	52.5 - 54.0	1.4	6-5-8	24		
				SPT-33	54.0 - 55.5	1.5	5-8-17	25		
				SPT-34	55.5 - 57.0	1.5	0-0-0	28		
				SPT-35	57.0 - 58.5	1.5	4-5-3	27		
				SPT-36	58.5 - 60.0	0.0	0-0-0	--		Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
				SPT-37	60.0 - 61.5	1.5	0-1-19	27		

POORLY GRADED SAND,
brown, moist, dense

No Refusal /
Bottom of Hole

Project No.	175559008	Location	N 598696.58, E 1409758.99 (NAD27)
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-GC-PZ Total Depth 27.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	389.8 ft. (NGVD29)
Project Type	Geotechnical Exploration	Date Started	4/7/09
Supervisor	N. Puckett	Driller	J. Felts
Logged By	N. Puckett	Depth to Water	13.0 ft
		Date/Time	5/27/09
		Automatic Hammer	<input type="checkbox"/>
		Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
389.8'	0.0'	Top of Hole							
		OVERBURDEN							
				ST-1	5.0 - 7.0	1.3		18	Boring advanced using 3 1/4" Hollow Stem Augers Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
									Screened zone from 15 ft to 25 ft
				ST-2	25.0 - 27.0	0.7		19	Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 27.0 ft

No Refusal / Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 598582.54, E 1409772.40 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-GT Total Depth <u>51.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>360.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/10/09</u> Completed <u>3/10/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>K. Clements</u>	Depth to Water <u>24.5 ft</u> Date/Time <u>3/10/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
360.8'	0.0'	Top of Hole							
		LEAN CLAY with Gravel and Organics, brown and gray, moist, soft to very stiff		SPT-1	0.0 - 1.5	1.2	2-2-3	23	Boring advanced using 3 1/4" Hollow Stem Augers
			SPT-2	1.5 - 3.0	1.0	2-2-4	23		
			SPT-3	3.0 - 4.5	1.5	2-2-2	27		
			SPT-4	4.5 - 6.0	1.4	3-5-6	22		
			SPT-5	6.0 - 7.5	1.5	5-5-8	23		
			SPT-6	7.5 - 9.0	1.5	2-5-7	24		
			SPT-7	9.0 - 10.5	1.5	9-10-5	22		
			SPT-8	10.5 - 12.0	1.5	8-7-10	21		
			ST-1	12.0 - 14.0	2.0		28		
			SPT-9	14.5 - 16.0	1.5	WOH-4-6	22		
			SPT-10	17.0 - 18.5	1.5	3-5-7	23		
			SPT-11	19.5 - 21.0	1.5	3-4-6	24		
			SPT-12	22.0 - 23.5	1.5	3-4-5	23		
			SPT-13	24.5 - 26.0	1.5	3-4-6	22		
			SPT-14	27.0 - 28.5	1.5	1-1-1	26		
		SPT-15	29.5 - 31.0	1.5	WOH-1-1	26			
		POORLY GRADED SAND with Gravel, tan, brown, and gray, wet, very loose to dense		SPT-16	32.0 - 33.5	1.2	10-13-18	17	Began using drilling fluid at 24.5 feet
			SPT-17	34.5 - 36.0	0.6	6-5-6	18		
			SPT-18	37.0 - 38.5	1.0	3-7-7	27		
			SPT-19	39.5 - 41.0	0.6	WOH-WOH-1	21		
			SPT-20	42.0 - 43.5	0.4	7-7-7	18		
329.8'	31.0'								

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Project No.	175559008	Location	N 598582.54, E 1409772.40 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-GT	Total Depth 51.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
309.8'	51.0'	POORLY GRADED SAND with Gravel, tan, brown, and gray, wet, very loose to dense <i>(Continued)</i>		SPT-21	44.5 - 46.0	1.1	7-10-20	18	Boring backfilled with bentonite grout from 0.0 ft to 51.0 ft
				SPT-22	47.0 - 48.5	0.4	5-7-11	20	
				SPT-23	49.5 - 51.0	1.5	14-11-14	17	

No Refusal /
Bottom of Hole

WOH=Weight of Hammer

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Project No. <u>175559008</u>		Location <u>N 599345.93, E 1409646.07 (NAD27)</u>	
Project Name <u>Johnsonville Fossil Plant -- TVA</u>		Boring No. STN-HC Total Depth <u>61.5 ft</u>	
Location <u>Humphreys County, Tennessee</u>		Surface Elevation <u>389.5 ft. (NGVD29)</u>	
Project Type <u>Geotechnical Exploration</u>		Date Started <u>3/3/09</u> Completed <u>3/4/09</u>	
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>		Depth to Water <u>15.5 ft</u> Date/Time <u>3/3/09</u>	
Logged By <u>Russ Mehnert</u>		Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.5'	0.0'	Top of Hole							
		LEAN CLAY with Sand, brown, gray, and red, moist, medium stiff to very stiff - layer of gravel from 8.0 to 8.7 feet		SPT-1	0.0 - 1.5	0.9	6-3-2	20	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	1.5	4-4-7	23	
				SPT-3	3.0 - 4.5	1.5	3-6-7	24	
				SPT-4	4.5 - 6.0	1.5	3-5-7	21	
				SPT-5	6.0 - 7.5	1.5	3-5-8	24	
				SPT-6	7.5 - 9.0	1.5	5-11-8	22	
				SPT-7	9.0 - 10.5	1.5	4-7-9	20	
				SPT-8	10.5 - 12.0	1.5	4-7-10	21	
				SPT-9	12.0 - 13.5	1.5	3-5-5	22	
			375.0'	14.5'		SPT-10	13.5 - 15.0	1.5	
		BOTTOM ASH, dark gray and black, moist to wet, very loose to dense, with layers of clay and fly ash throughout		SPT-11	15.0 - 16.5	1.5	13-18-15	14	Began using drilling fluid at 15.5 feet
				SPT-12	16.5 - 18.0	1.5	2-1-1	33	
				SPT-13	18.0 - 19.5	1.5	8-10-12	14	
				SPT-14	19.5 - 21.0	1.3	12-13-10	13	
368.5'	21.0'								
		FLY ASH, dark gray, wet, very loose		SPT-15	21.0 - 22.5	0.9	3-2-1	37	
				SPT-16	22.5 - 24.0	1.5	2-1-1	39	
				SPT-17	24.0 - 25.5	1.5	WOR	33	
				SPT-18	25.5 - 27.0	1.5	WOR-WOH-3	27	
				SPT-19	27.0 - 28.5	0.9	3-3-4	23	
		LEAN CLAY, tan, gray, and brownish yellow, moist to wet, medium stiff to stiff		SPT-20	28.5 - 30.0	0.9	3-3-6	21	
				SPT-21	30.0 - 31.5	1.3	4-5-7	28	
				SPT-22	31.5 - 33.0	1.4	5-7-10	22	
				SPT-23	33.0 - 34.5	1.4	4-4-7	25	
				SPT-24	34.5 - 36.0	1.5	4-5-7	26	
				SPT-25	36.0 - 37.5	1.5	5-8-7	32	
				SPT-26	37.5 - 39.0	1.5	3-5-5	23	
				SPT-27	39.0 - 40.5	1.5	4-5-6	27	
				SPT-28	40.5 - 42.0	1.5	4-4-5	26	
				SPT-29	42.0 - 43.5	1.5	3-3-5	27	

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Project No.	175559008	Location	N 599345.93, E 1409646.07 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-HC	Total Depth 61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
335.5'	54.0'	LEAN CLAY, tan, gray, and brownish yellow, moist to wet, medium stiff to stiff <i>(Continued)</i>		SPT-30	43.5 - 45.0	1.5	2-2-4	31	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
				SPT-31	45.0 - 46.5	1.5	2-3-4	29	
				SPT-32	46.5 - 48.0	1.5	5-6-6	27	
				SPT-33	48.0 - 49.5	1.5	2-3-3	29	
				SPT-34	49.5 - 51.0	1.5	3-4-8	26	
				SPT-35	51.0 - 52.5	1.5	4-4-5	28	
				SPT-36	52.5 - 54.0	1.5	2-3-5	27	
329.5'	60.0'	CLAYEY SAND with Gravel, tan and gray, wet, loose to dense		SPT-37	54.0 - 55.5	1.5	3-2-4	28	
				SPT-38	55.5 - 57.0	1.5	2-6-12	23	
				SPT-39	57.0 - 58.5	1.5	12-31-34	22	
				SPT-40	58.5 - 60.0	1.0	7-15-21	24	
328.0'	61.5'	POORLY GRADED SAND with Gravel, tan and gray, wet, dense		SPT-41	60.0 - 61.5	1.1	13-27-28	20	

No Refusal /
Bottom of Hole

WOH=Weight of Hammer,
WOR=Weight of Rods

Project No.	175559008	Location	N 599314.96, E 1409635.77 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-HC-PZ	Total Depth 27.0 ft
Location	Humphreys County, Tennessee	Surface Elevation	390.0 ft. (NGVD29)	
Project Type	Geotechnical Exploration	Date Started	4/2/09	Completed 4/2/09
Supervisor	N. Puckett	Driller	Tim Caudill	Depth to Water 3.6 ft
Logged By	N. Puckett	Date/Time	5/27/09	
		Automatic Hammer	<input type="checkbox"/>	Safety Hammer <input type="checkbox"/>
		Other	<input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.0'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	0.6		20	Piezometer constructed from 14.2 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
									Screened zone from 14.2 ft to 24.2 ft
				ST-2	25.0 - 27.0	0.2		23	Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 27.0 ft

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 599308.41, E 1409545.23 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-HT Total Depth <u>51.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>363.1 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/11/09</u> Completed <u>3/11/09</u>
Supervisor <u>N. Puckett</u> Driller <u>J. Felts</u>	Depth to Water <u>29.0 ft</u> Date/Time <u>3/11/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
363.1'	0.0'	Top of Hole							
362.8'	0.3'	ROOT ZONE							
		LEAN CLAY, brown, medium to very stiff		SPT-1	0.0 - 1.5	1.5	3-7-9	21	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	1.4	6-9-9	18	
				SPT-3	5.0 - 6.5	1.5	3-4-5	22	
				SPT-4	7.5 - 9.0	1.3	2-2-3	28	
				SPT-5	10.0 - 11.5	1.5	2-3-3	25	
				SPT-6	12.5 - 14.0	1.5	2-5-6	25	
				SPT-7	15.0 - 16.5	1.5	2-3-4	29	
				SPT-8	17.5 - 19.0	1.4	1-2-3	26	
				SPT-9	20.0 - 21.5	1.3	2-4-5	24	
				SPT-10	22.5 - 24.0	1.4	3-5-7	25	
				SPT-11	25.0 - 26.5	1.4	4-5-7	25	
				SPT-12	27.5 - 29.0	1.5	2-3-4	28	
				SPT-13	30.0 - 31.5	1.3	2-2-2	28	
				SPT-14	32.5 - 34.0	1.1	1-3-15	26	Began using drilling fluid at 29.0 feet
329.6'	33.5'	WELL GRADED SAND with Silt and Gravel, brown, wet, medium dense to dense		SPT-15	35.0 - 36.5	1.0	6-10-11	18	
				SPT-16	37.5 - 39.0	1.1	6-10-13	19	
				SPT-17	40.0 - 41.5	1.3	12-22-19	19	
				SPT-18	42.5 - 44.0	1.3	15-16-11	16	

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Project No.	175559008	Location	N 599308.41, E 1409545.23 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-HT	Total Depth	51.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
311.6'	51.5'	WELL GRADED SAND with Silt and Gravel, brown, wet, medium dense to dense <i>(Continued)</i>		SPT-19	45.0 - 46.5	1.2	4-5-7	16	Boring backfilled with bentonite grout from 0.0 ft to 51.5 ft
				SPT-20	47.5 - 49.0	1.4	19-15-12	16	
				SPT-21	50.0 - 51.5	1.5	12-16-16	15	

No Refusal /
Bottom of Hole

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Project No.	175559008	Location	N 599308.41, E 1409545.23 (NAD27)
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-HT-PZ Total Depth 48.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
315.1'	48.0'	OVERBURDEN (Continued)							

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 600055.90, E 1409637.66 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-IC Total Depth <u>61.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>389.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/4/09</u> Completed <u>3/4/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>15.2 ft</u> Date/Time <u>3/4/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.8'	0.0'	Top of Hole							
389.4'	0.4'	POORLY GRADED GRAVEL		SPT-1	0.0 - 1.5	1.1	7-4-6	16	Boring advanced using 3 1/4" Hollow Stem Augers SPT-1 sample split
		LEAN CLAY, brown, moist, stiff to very stiff		SPT-2	1.5 - 3.0	1.0	6-8-9	18	
			SPT-3	3.0 - 4.5	1.2	3-5-6	20		
			SPT-4	4.5 - 6.0	1.5	3-3-7	20		
			SPT-5	6.0 - 7.5	1.3	5-7-11	15		
			SPT-6	7.5 - 9.0	1.3	3-4-7	22		
			SPT-7	9.0 - 10.5	1.3	3-3-5	22		
			SPT-8	10.5 - 12.0	1.5	4-5-7	21		
			SPT-9	12.0 - 13.5	1.4	1-4-8	23		
375.8'	14.0'				SPT-10	13.5 - 15.0	1.5	5-7-13	
		BOTTOM ASH, dark gray to black, moist to wet, medium dense		SPT-11	15.0 - 16.5	1.3	5-12-11	15	Began using drilling fluid at 15.2 feet
371.3'	18.5'			SPT-12	16.5 - 18.0	1.5	4-10-6	16	SPT-13 sample split
		FLY ASH with Organics, dark gray, moist to wet, very loose to loose		SPT-13	18.0 - 19.5	1.4	3-5-3	23	
			SPT-14	19.5 - 21.0	1.5	2-1-1	45		
			SPT-15	21.0 - 22.5	1.3	2-1-1	38		
			SPT-16	22.5 - 24.0	1.5	WOR-1-1	38		
			SPT-17	24.0 - 25.5	1.5	1-1-1	31		
363.8'	26.0'				SPT-18	25.5 - 27.0	1.1	WOH	29
		LEAN CLAY, brown, tan, and gray, moist to wet, very soft to very stiff, with silt and sand layers throughout		SPT-19	27.0 - 28.5	1.3	WOH-2-3	27	
			SPT-20	28.5 - 30.0	1.5	WOH-4-5	26		
			SPT-21	30.0 - 31.5	1.5	3-5-5	26		
			SPT-22	32.5 - 34.0	1.5	5-7-7	22		
			SPT-23	35.0 - 36.5	1.5	4-6-13	23		
			SPT-24	37.5 - 39.0	1.5	4-7-7	23		
			SPT-25	40.0 - 41.5	1.5	3-5-7	23		
			SPT-26	42.5 - 44.0	1.5	4-4-6	24		

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Project No.	175559008	Location	N 600055.90, E 1409637.66 (NAD27)	
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-IC	Total Depth 61.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, brown, tan, and gray, moist to wet, very soft to very stiff, with silt and sand layers throughout <i>(Continued)</i>		SPT-27	45.0 - 46.5	1.5	4-3-4	27	
				SPT-28	47.5 - 49.0	1.5	3-3-4	26	
				SPT-29	50.0 - 51.5	1.5	3-4-3	26	
				SPT-30	52.5 - 54.0	1.5	WOH-2-3	29	
				SPT-31	55.0 - 56.5	1.3	4-3-3	26	
				SPT-32	57.5 - 59.0	1.5	2-2-4	30	Boring backfilled with bentonite grout from 0.0 ft to 61.5 ft
328.3'	61.5'				SPT-33	60.0 - 61.5	1.5	WOH-3-4	31

No Refusal /
Bottom of Hole

WOH=Weight of Hammer,
WOR=Weight of Rods

Project No. <u>175559008</u>	Location <u>N 600086.63, E 1409629.83 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-IC-PZ Total Depth <u>32.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>390.1 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/1/09</u> Completed <u>4/1/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>3.3 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.1'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
				ST-1	10.0 - 12.0	0.9		20	Piezometer constructed from 20 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
									Screened zone from 20 ft to 30 ft
358.1'	32.0'			ST-2	30.0 - 32.0	0.9		22	Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 32.0 ft

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 600103.14, E 1409560.28 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-IT Total Depth <u>51.5 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>368.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/23/09</u> Completed <u>3/24/09</u>
Supervisor <u>B. Evans</u> Driller <u>J. Felts</u>	Depth to Water <u>16.5 ft</u> Date/Time <u>3/24/09</u>
Logged By <u>B. Evans</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
368.8'	0.0'	Top of Hole							
367.3'	1.5'	POORLY GRADED GRAVEL							Boring advanced using 3 1/4" Hollow Stem Augers
366.8'	2.0'	TOPSOIL							
		SANDY LEAN CLAY, brown, moist, medium stiff to very stiff		SPT-1	1.5 - 3.0	1.0	1-3-5	23	Began using drilling fluid at 16.5 feet
			SPT-2	3.0 - 4.5	1.3	5-10-12	16		
			SPT-3	4.5 - 6.0	0.0	7-9-9	--		
			SPT-4	6.0 - 7.5	1.3	5-5-6	19		
			SPT-5	7.5 - 9.0	0.9	2-3-4	21		
			SPT-6	9.0 - 10.5	1.3	3-4-5	22		
			SPT-7	10.5 - 12.0	1.2	2-3-4	22		
			SPT-8	12.0 - 13.5	1.5	2-2-3	21		
			SPT-9	13.5 - 15.0	1.5	2-3-4	27		
			SPT-10	15.0 - 16.5	1.5	2-2-3	21		
			SPT-11	16.5 - 18.0	1.5	4-5-5	23		
			SPT-12	18.0 - 19.5	1.5	3-6-6	24		
			SPT-13	19.5 - 21.0	1.2	2-4-5	26		
			SPT-14	21.0 - 22.5	1.1	2-5-6	24		
			SPT-15	22.5 - 24.0	1.3	1-3-4	26		
			SPT-16	24.0 - 25.5	1.5	3-4-4	26		
			SPT-17	25.5 - 27.0	1.5	2-2-4	26		
			SPT-18	27.0 - 28.5	1.2	3-3-4	25		
337.3'	31.5'			SPT-19	30.0 - 31.5	1.5	2-4-5	25	
		SILT, brown and tan, moist, medium stiff to stiff, sand content increasing with depth		SPT-20	32.5 - 34.0	1.5	4-5-4	26	
			SPT-21	35.0 - 36.5	1.5	2-3-3	27		
330.1'	38.7'		SPT-22	37.5 - 39.0	1.5	2-2-17	27		
		POORLY GRADED GRAVEL with Sand, reddish tan, medium dense to dense, traces of clay		SPT-23	40.0 - 41.5	1.2	6-13-6	17	
			SPT-24	42.5 - 44.0	1.3	17-20-24	19		

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Project No.	175559008	Location	N 600103.14, E 1409560.28 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-IT	Total Depth	51.5 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
317.3'	51.5'	POORLY GRADED GRAVEL with Sand, reddish tan, medium dense to dense, traces of clay <i>(Continued)</i>		SPT-25	45.0 - 46.5	1.1	13-10-12	15	Boring backfilled with bentonite grout from 0.0 ft to 51.5 ft
				SPT-26	47.5 - 49.0	1.2	5-8-13	22	
				SPT-27	50.0 - 51.5	1.1	19-20-20	14	

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>		Location <u>N 600817.61, E 1409871.68 (NAD27)</u>	
Project Name <u>Johnsonville Fossil Plant -- TVA</u>		Boring No. STN-JC Total Depth <u>61.0 ft</u>	
Location <u>Humphreys County, Tennessee</u>		Surface Elevation <u>389.6 ft. (NGVD29)</u>	
Project Type <u>Geotechnical Exploration</u>		Date Started <u>3/5/09</u> Completed <u>3/5/09</u>	
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>		Depth to Water <u>16.5 ft</u> Date/Time <u>3/5/09</u>	
Logged By <u>Russ Mehnert</u>		Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.6'	0.0'	Top of Hole							
		LEAN CLAY with Gravel and Organics, brown, tan, gray, and red, moist, medium stiff to very stiff		SPT-1	0.0 - 1.5	0.8	5-5-7	19	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	1.2	6-9-10	18	
				SPT-3	3.0 - 4.5	1.2	3-6-5	22	
				SPT-4	4.5 - 6.0	1.1	3-3-5	21	
				SPT-5	6.0 - 7.5	1.3	6-9-10	21	
				SPT-6	7.5 - 9.0	1.2	3-4-4	26	
				SPT-7	9.0 - 10.5	1.4	3-3-5	18	
				SPT-8	10.5 - 12.0	1.3	3-3-4	24	
				SPT-9	12.0 - 13.5	1.4	4-6-8	26	
			375.2'	14.4'		SPT-10	13.5 - 15.0	1.5	
		BOTTOM ASH, dark gray to black, wet, very loose to dense		SPT-11	15.0 - 16.5	1.3	12-24-26	14	Began using drilling fluid at 16.5 feet
				SPT-12	16.5 - 18.0	1.4	32-32-32	19	
				SPT-13	18.0 - 19.5	1.1	3-18-12	15	
				SPT-14	19.5 - 21.0	0.8	3-5-5	17	
				SPT-15	21.0 - 22.5	1.3	5-5-4	15	
				SPT-16	22.5 - 24.0	1.1	6-6-4	17	
				SPT-17	24.0 - 25.5	0.0	1-1-1	--	
				SPT-18	25.5 - 27.0	0.8	2-2-3	14	
362.6'	27.0'		SPT-19	27.0 - 28.5	1.2	1-1-2	26		
362.1'	27.5'	FLY ASH, dark gray, wet, loose							
		LEAN CLAY, tan, brown, and gray, moist to wet, very soft to very stiff		ST-1	28.5 - 30.5	1.4		23	
				ST-2	32.5 - 34.5	0.0		--	
				SPT-20	34.5 - 36.0	1.5	4-8-12	26	
				SPT-21	37.0 - 38.5	1.5	5-6-8	28	
				SPT-22	39.5 - 41.0	1.5	5-6-10	25	
				SPT-23	42.0 - 43.5	1.5	3-5-6	28	

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Project No.	175559008	Location	N 600817.61, E 1409871.68 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-JC	Total Depth	61.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, tan, brown, and gray, moist to wet, very soft to very stiff <i>(Continued)</i>		SPT-24	44.5 - 46.0	1.5	5-4-6	25	
				SPT-25	47.0 - 48.5	1.5	4-4-5	27	
				SPT-26	49.5 - 51.0	1.5	WOH-4-3	26	
				SPT-27	52.0 - 53.5	1.5	3-5-7	25	
				SPT-28	54.5 - 56.0	1.5	WOH	29	
				SPT-29	57.0 - 58.5	1.5	4-6-5	25	Boring backfilled with bentonite grout from 0.0 ft to 61.0 ft
330.1'	59.5'			SPT-30	59.5 - 61.0	1.0	9-15-14	19	
328.6'	61.0'	POORLY GRADED SAND with Gravel, tan and brown, wet, dense							

No Refusal /
Bottom of Hole

WOH=Weight of
Hammer

Project No. <u>175559008</u>	Location <u>N 600825.25, E 1409856.37 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-JC-PZ Total Depth <u>26.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>390.0 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/1/09</u> Completed <u>4/1/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>2.8 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.0'	0.0'	Top of Hole							
		OVERBURDEN							
				ST-1	5.0 - 7.0	0.9		19	Boring advanced using 3 1/4" Hollow Stem Augers Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	0.8		20	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
364.0'	26.0'								

No Refusal /
Bottom of Hole

Project No. <u>175559008</u>	Location <u>N 601569.19, E 1410142.99 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-KC Total Depth <u>61.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>389.8 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>3/5/09</u> Completed <u>3/6/09</u>
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>	Depth to Water <u>16.5 ft</u> Date/Time <u>3/6/09</u>
Logged By <u>Russ Mehnert</u>	Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.8'	0.0'	Top of Hole							
389.4'	0.4'	POORLY GRADED GRAVEL		SPT-1	0.0 - 1.5	1.0	5-5-7	18	Boring advanced using 3 1/4" Hollow Stem Augers
		LEAN CLAY with Sand, brown, tan, and gray, moist, stiff to very stiff		SPT-2	1.5 - 3.0	1.1	6-10-7	18	
			SPT-3	3.0 - 4.5	1.2	2-5-5	19		
			SPT-4	4.5 - 6.0	1.2	4-5-6	20		
			SPT-5	6.0 - 7.5	1.4	5-9-10	19		
			SPT-6	7.5 - 9.0	1.2	2-4-4	19		
			SPT-7	9.0 - 10.5	1.3	3-4-5	17		
			SPT-8	10.5 - 12.0	1.4	3-5-6	22		
			SPT-9	12.0 - 13.5	1.5	6-8-8	23		
375.9'	13.9'	BOTTOM ASH, dark gray to black, moist to wet, loose to dense, with fly ash layers		SPT-10	13.5 - 15.0	1.5	3-21-27	11	Began using drilling fluid at 16.5 feet
				SPT-11	15.0 - 16.5	1.5	13-19-36	13	
				SPT-12	16.5 - 18.0	1.5	20-22-26	18	
				SPT-13	18.0 - 19.5	1.3	6-12-12	15	
				SPT-14	19.5 - 21.0	1.3	6-12-14	16	
				SPT-15	21.0 - 22.5	1.5	12-9-7	14	
				SPT-16	22.5 - 24.0	1.4	4-5-5	38	
364.3'	25.5'	LEAN CLAY, brown, tan, and gray, moist to wet, very soft to very stiff		SPT-17	24.0 - 25.5	1.5	4-3-2	43	
				SPT-18	25.5 - 27.0	1.5	WOH	33	
				SPT-19	27.0 - 28.5	1.2	4-7-10	24	
				ST-1	28.5 - 30.5	1.9		23	
				SPT-20	30.5 - 32.0	1.3	5-8-12	24	
				SPT-21	34.5 - 36.0	1.5	4-6-7	19	
				SPT-22	37.0 - 38.5	1.5	3-5-6	22	
				SPT-23	39.5 - 41.0	1.5	3-3-5	25	
				SPT-24	42.0 - 43.5	1.5	2-4-5	26	

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Project No.	175559008	Location	N 601569.19, E 1410142.99 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-KC	Total Depth	61.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, brown, tan, and gray, moist to wet, very soft to very stiff <i>(Continued)</i> - with sand and gravel from 54.5 to 61.0 feet		SPT-25	44.5 - 46.0	1.5	3-3-3	26	
			SPT-26	47.0 - 48.5	1.5	WOH-2-4	27		
			SPT-27	49.5 - 51.0	1.5	3-5-5	28		
			SPT-28	52.0 - 53.5	1.5	3-3-6	27		
			SPT-29	54.5 - 56.0	1.5	4-5-5	26		
			SPT-30	57.0 - 58.5	1.5	4-6-8	26	Boring backfilled with bentonite grout from 0.0 ft to 61.0 ft	
328.8'	61.0'		SPT-31	59.5 - 61.0	1.5	1-3-18	31		

No Refusal /
Bottom of Hole

WOH=Weight of
Hammer

Project No. <u>175559008</u>	Location <u>N 601483.81, E 1410099.66 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-KC-PZ Total Depth <u>26.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>390.5 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/1/09</u> Completed <u>4/1/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>3.5 ft</u> Date/Time <u>4/30/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.5'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	1.2		18	Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	0.7		20	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
364.5'	26.0'								

No Refusal /
Bottom of Hole

Project No.	175559008	Location	N 601488.26, E 1410056.92 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-KT	Total Depth	51.5 ft
Location	Humphreys County, Tennessee	Surface Elevation	377.6 ft. (NGVD29)		
Project Type	Geotechnical Exploration	Date Started	3/26/09	Completed	3/27/09
Supervisor	T. Speer	Driller	J. Felts	Depth to Water	27.0 ft
Logged By	T. Speer	Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>
		Other	<input type="checkbox"/>		

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
377.6'	0.0'	Top of Hole							
376.7'	0.9'	POORLY GRADED GRAVEL		SPT-1	0.0 - 1.5	0.9	2-7-6	9	Boring advanced using 3 1/4" Hollow Stem Augers
		LEAN CLAY, mottled brown and tan to gray, dry, medium to very stiff		SPT-2	1.5 - 3.0	1.0	7-7-8	18	
			SPT-3	3.0 - 4.5	0.8	6-6-7	18		
			SPT-4	4.5 - 6.0	1.5	5-7-7	18		
			SPT-5	6.0 - 7.5	1.3	5-7-8	19		
			SPT-6	7.5 - 9.0	0.9	3-6-6	21		
			SPT-7	9.0 - 10.5	1.3	3-6-8	20		
			SPT-8	10.5 - 12.0	1.4	4-8-11	20		
			SPT-9	12.0 - 13.5	1.5	3-8-12	19		
			SPT-10	13.5 - 15.0	1.4	3-7-12	16		
				SPT-11	15.0 - 16.5	1.5	5-5-9	21	Wood fragment encountered in SPT-9
				SPT-12	16.5 - 18.0	1.1	3-4-12	21	
				SPT-13	18.0 - 19.5	0.7	4-5-7	17	
				SPT-14	19.5 - 21.0	1.4	2-3-5	22	
		- greenish gray clay mix from 21.0 to 21.5 feet		SPT-15	21.0 - 22.5	1.4	2-4-5	20	
				SPT-16	22.5 - 24.0	1.0	3-5-5	18	
				SPT-17	24.0 - 25.5	1.5	3-4-5	22	
				SPT-18	25.5 - 27.0	1.4	2-4-4	23	
				SPT-19	27.0 - 28.5	1.5	3-3-6	26	
				SPT-20	28.5 - 30.0	1.0	2-4-6	24	
				SPT-21	30.0 - 31.5	0.7	2-4-6	25	Began using drilling fluid at 27 feet
				SPT-22	31.5 - 33.0	1.5	3-4-6	25	
				SPT-23	33.0 - 34.5	1.5	3-4-5	28	
				SPT-24	34.5 - 36.0	1.3	2-4-5	26	
				SPT-25	36.0 - 37.5	1.3	2-4-4	28	
				SPT-26	37.5 - 39.0	1.5	2-3-4	29	
				SPT-27	39.0 - 40.5	1.5	2-3-4	26	
				SPT-28	40.5 - 42.0	1.4	2-4-5	27	
		- sand content increasing with depth below 40.5 feet		SPT-29	42.0 - 43.5	1.5	2-4-3	25	

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Project No.	<u>175559008</u>	Location	<u>N 601488.26, E 1410056.92 (NAD27)</u>	
Project Name	<u>Johnsonville Fossil Plant -- TVA</u>	Boring No.	STN-KT	Total Depth <u>51.5 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
332.6'	45.0'			SPT-30	43.5 - 45.0	1.3	2-4-5	25	Boring backfilled with bentonite grout from 0.0 ft to 51.5 ft
		POORLY GRADED SAND with Gravel, reddish orange and tan, wet, medium dense to dense		SPT-31	45.0 - 46.5	1.0	7-18-20	18	
				SPT-32	47.5 - 49.0	1.0	5-27-24	17	
326.1'	51.5'			SPT-33	50.0 - 51.5	1.3	10-11-11	18	

No Refusal /
Bottom of Hole

Project No. <u>175559008</u>		Location <u>N 602377.53, E 1410442.03 (NAD27)</u>	
Project Name <u>Johnsonville Fossil Plant -- TVA</u>		Boring No. STN-LC Total Depth <u>61.0 ft</u>	
Location <u>Humphreys County, Tennessee</u>		Surface Elevation <u>389.9 ft. (NGVD29)</u>	
Project Type <u>Geotechnical Exploration</u>		Date Started <u>3/6/09</u> Completed <u>3/6/09</u>	
Supervisor <u>Russ Mehnert</u> Driller <u>G. Thompson</u>		Depth to Water <u>16.5 ft</u> Date/Time <u>3/6/09</u>	
Logged By <u>Russ Mehnert</u>		Automatic Hammer <input checked="" type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>	

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
389.9'	0.0'	Top of Hole							
		LEAN CLAY, brown and gray, moist, medium to very stiff, with gravel in upper 1.5'. Chert and roots throughout		SPT-1	0.0 - 1.5	1.0	4-3-3	20	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	1.1	3-3-4	20	
				SPT-3	3.0 - 4.5	0.9	2-4-4	21	
				SPT-4	4.5 - 6.0	1.4	3-5-7	18	
				SPT-5	6.0 - 7.5	1.3	7-12-11	24	
				SPT-6	7.5 - 9.0	1.0	2-5-5	19	
				SPT-7	9.0 - 10.5	1.3	4-9-9	18	
				SPT-8	10.5 - 12.0	0.6	4-5-5	19	
				SPT-9	12.0 - 13.5	1.5	4-6-8	28	
375.6'	14.3'	BOTTOM ASH, dark gray to black, wet, medium dense to dense, with layers of clay		SPT-10	13.5 - 15.0	1.5	2-6-24	11	Began using drilling fluid at 16.5 feet
				SPT-11	15.0 - 16.5	1.0	8-30-18	15	
				SPT-12	16.5 - 18.0	1.5	10-14-20	14	
				SPT-13	18.0 - 19.5	1.0	4-15-12	14	
				SPT-14	19.5 - 21.0	1.5	6-27-27	17	
				SPT-15	21.0 - 22.5	1.5	20-32-40	15	
364.9'	25.0'	LEAN CLAY, tan, brown, and gray, moist, soft to very stiff		SPT-16	22.5 - 24.0	1.1	8-16-8	16	
				SPT-17	24.0 - 25.5	1.5	5-3-2	14	
				SPT-18	25.5 - 27.0	0.8	2-1-2	28	
				SPT-19	27.0 - 28.5	1.1	2-2-4	27	
				ST-1	28.5 - 30.5	1.6		22	
				SPT-20	30.5 - 32.0	1.5	2-6-6	22	
				SPT-21	34.5 - 36.0	1.2	3-2-1	26	
				SPT-22	37.0 - 38.5	1.3	3-2-4	28	
				SPT-23	39.5 - 41.0	1.5	4-6-8	27	
	SPT-24	42.0 - 43.5	1.5	6-8-10	25				

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Project No.	175559008	Location	N 602377.53, E 1410442.03 (NAD27)		
Project Name	Johnsonville Fossil Plant -- TVA	Boring No.	STN-LC	Total Depth	61.0 ft

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
		LEAN CLAY, tan, brown, and gray, moist, soft to very stiff <i>(Continued)</i>		SPT-25	44.5 - 46.0	1.5	5-6-8	25	
				SPT-26	47.0 - 48.5	1.5	5-5-7	26	
				SPT-27	49.5 - 51.0	1.5	3-5-6	27	
				SPT-28	52.0 - 53.5	1.5	3-4-4	27	
				SPT-29	54.5 - 56.0	1.5	3-4-5	28	
				SPT-30	57.0 - 58.5	1.5	5-5-8	28	Boring backfilled with bentonite grout from 0.0 ft to 61.0 ft
328.9'	61.0'			SPT-31	59.5 - 61.0	1.5	4-8-12	28	

No Refusal /
Bottom of Hole

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Project No. <u>175559008</u>	Location <u>N 602374.84, E 1410429.97 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-LC-PZ Total Depth <u>26.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>390.5 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/1/09</u> Completed <u>4/1/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>3.3 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
390.5'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	0.8		20	Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	1.1		22	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
364.5'	26.0'								

No Refusal /
Bottom of Hole

Project No.	175559008			Location	N 603157.11, E 1410726.95 (NAD27)				
Project Name	Johnsonville Fossil Plant -- TVA			Boring No.	STN-MC	Total Depth	60.5 ft		
Location	Humphreys County, Tennessee			Surface Elevation	390.6 ft. (NGVD29)				
Project Type	Geotechnical Exploration			Date Started	3/7/09	Completed	3/7/09		
Supervisor	Russ Mehnert	Driller	G. Thompson	Depth to Water	16.5 ft	Date/Time	3/7/09		
Logged By	Russ Mehnert			Automatic Hammer	<input checked="" type="checkbox"/>	Safety Hammer	<input type="checkbox"/>	Other	<input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
390.6'	0.0'	Top of Hole							
		LEAN CLAY with Gravel, brown and gray, moist, medium to very stiff, with bottom ash located in upper 3.7 feet		SPT-1	0.0 - 1.5	1.2	3-3-3	23	Boring advanced using 3 1/4" Hollow Stem Augers
				SPT-2	1.5 - 3.0	0.8	3-3-5	23	
				SPT-3	3.0 - 4.5	1.3	3-2-3	17	
				SPT-4	4.5 - 6.0	1.3	3-5-8	22	
				SPT-5	6.0 - 7.5	1.4	8-9-10	20	
				SPT-6	7.5 - 9.0	1.3	3-4-4	23	
				SPT-7	9.0 - 10.5	1.3	3-4-5	18	
				SPT-8	10.5 - 12.0	1.3	3-5-7	19	
				SPT-9	12.0 - 13.5	1.0	5-6-9	19	
				SPT-10	13.5 - 15.0	1.2	2-6-7	18	
375.4'	15.2'	BOTTOM ASH, dark gray to black, wet, loose to dense		SPT-11	15.0 - 16.5	1.3	12-22-15	12	Began using drilling fluid at 16.5 feet
			SPT-12	16.5 - 18.0	1.5	18-24-22	14		
			SPT-13	18.0 - 19.5	1.0	4-21-26	16		
			SPT-14	19.5 - 21.0	1.2	3-16-24	14		
			SPT-15	21.0 - 22.5	1.5	27-42-29	11		
			SPT-16	22.5 - 24.0	0.9	5-6-7	15		
			SPT-17	24.0 - 25.5	1.1	5-5-7	26		
			SPT-18	25.5 - 27.0	1.0	5-5-5	20		
			SPT-19	27.0 - 28.5	0.9	5-5-4	16		
361.1'	29.5'	LEAN CLAY with Gravel, tan, brown, and gray, moist to wet, soft to very stiff		ST-1	28.5 - 30.5	1.6		27	SPT-22 no recovery due to rock in spoon
			SPT-20	30.5 - 32.0	0.9	9-10-17	24		
			SPT-21	34.0 - 35.5	1.1	2-1-1	34		
			SPT-22	36.5 - 38.0	0.0	4-3-3	--		
			SPT-23	39.0 - 40.5	1.5	4-6-9	27		
			SPT-24	41.5 - 43.0	1.5	5-10-11	26		

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Project No. <u>175559008</u>	Location <u>N 603157.20, E 1410719.51 (NAD27)</u>
Project Name <u>Johnsonville Fossil Plant -- TVA</u>	Boring No. STN-MC-PZ Total Depth <u>26.0 ft</u>
Location <u>Humphreys County, Tennessee</u>	Surface Elevation <u>391.1 ft. (NGVD29)</u>
Project Type <u>Geotechnical Exploration</u>	Date Started <u>4/1/09</u> Completed <u>4/1/09</u>
Supervisor <u>N. Puckett</u> Driller <u>Tim Caudill</u>	Depth to Water <u>5.3 ft</u> Date/Time <u>5/27/09</u>
Logged By <u>N. Puckett</u>	Automatic Hammer <input type="checkbox"/> Safety Hammer <input type="checkbox"/> Other <input type="checkbox"/>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
391.1'	0.0'	Top of Hole							
		OVERBURDEN							Boring advanced using 3 1/4" Hollow Stem Augers
				ST-1	5.0 - 7.0	0.8		19	Piezometer constructed from 15 ft of 1" PVC Riser Pipe and 10 ft of 1" PVC Slotted Screen
				ST-2	10.0 - 12.0	0.8		12	
									Screened zone from 15 ft to 25 ft
									Piezometer backfilled with sand, bentonite pellets, and bentonite grout from 0.0 ft to 26.0 ft
365.1'	26.0'								

No Refusal /
Bottom of Hole

APPENDIX B.5

PERMANENT WELLS

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Project Number <u>175565317</u>	Location <u>N36°01'24.91", W87°58'13.16" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. JOF-101 Total Depth <u>51.5 ft</u>
County <u>Humphreys, TN</u>	Surface Elevation <u>420.7 ft (NGVD29)</u>
Project Type <u>Well Installations</u>	Date Started <u>2/20/16</u> Completed <u>2/20/16</u>
Supervisor <u>B. Bryant</u> Driller <u>G. Thompson</u>	Depth to Water <u>43.0 ft</u> Date/Time <u>2/20/16</u>
Logged By <u>J. Andrew</u>	Depth to Water <u>27.4 ft</u> Date/Time <u>2/20/16</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
420.7	0.0	Top of Hole							
420.2	0.5	Topsoil							4" Diameter PVC Well Installed
		Lean Clay, brown and gray, moist, very stiff to hard		SPT-1	2.5 - 4.0	1.5	5-7-9	--	
			SPT-2	5.0 - 6.5	1.5	8-20-28	--		
			SPT-3	7.5 - 9.0	1.5	7-9-9	--		
410.7	10.0	Lean Clay, brown and gray, moist, stiff to hard, with reddish brown mottling, traces of sandstone fragments		SPT-4	10.0 - 11.5	1.5	7-14-20	--	
			SPT-5	12.5 - 14.0	1.5	4-5-8	--		
			SPT-6	15.0 - 16.5	1.5	8-10-10	--		
403.2	17.5	Lean Clay, brown and gray, moist, stiff to very stiff, with red mottling		SPT-7	17.5 - 19.0	1.5	4-5-6	--	
			SPT-8	20.0 - 21.5	1.5	4-5-5	--		
			SPT-9	22.5 - 24.0	1.5	3-6-8	--		
			SPT-10	25.0 - 26.5	1.5	4-6-7	--		
			SPT-11	27.5 - 29.0	1.5	2-5-7	--		

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Project Number <u>175565317</u>	Location <u>N36°01'24.91", W87°58'13.16" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. JOF-101 Total Depth <u>51.5 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
388.7	32.0	Clayey Sand, reddish brown, moist, hard, with small gravels		SPT-12	30.0 - 31.5	1.5	6-9-10	--	Water encountered @ 43'
385.2	35.5			SPT-13	32.5 - 34.0	1.5	8-38-25	--	
377.7	43.0	Lean Clay, brown and gray, moist, medium stiff to stiff		SPT-14	35.0 - 36.5	1.5	4-5-4	--	
				SPT-15	37.5 - 39.0	1.5	1-3-4	--	
				SPT-16	40.0 - 41.5	1.5	WOH-2-3	--	
376.7	44.0	Sand, gray, moist, medium dense		SPT-17	42.5 - 44.0	1.5	1-4-23	--	
369.2	51.5	Sand, brown and reddish brown, wet, medium dense, gravels		SPT-18	45.0 - 46.5	1.2	3-8-13	--	
				SPT-19	47.5 - 49.0	0.0	12-14-16	--	
				SPT-20	50.0 - 51.5	1.5	13-13-13	--	
				No Refusal / Bottom of Hole					

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Project Number <u>175565317</u>	Location <u>N36°01'14.33", W87°58'29.18" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. JOF-102 Total Depth <u>31.5 ft</u>
County <u>Humphreys, TN</u>	Surface Elevation <u>403.7 ft (NGVD29)</u>
Project Type <u>Well Installations</u>	Date Started <u>2/11/16</u> Completed <u>2/12/16</u>
Supervisor <u>B. Bryant</u> Driller <u>G. Thompson</u>	Depth to Water <u>17.9 ft</u> Date/Time <u>2/11/16</u>
Logged By <u>J. Andrew</u>	Depth to Water <u>15.5 ft</u> Date/Time <u>2/12/16</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
403.7	0.0	Top of Hole							
403.2	0.5	Topsoil							4" Diameter PVC Well Installed
		Lean Clay, reddish brown, damp to moist, stiff, with gravels		SPT-1	2.5 - 4.0	1.2	5-5-4	--	
			SPT-2	5.0 - 6.5	0.9	3-5-8	--		
397.2	6.5	Lean To Fat Clay, brown and gray, damp to moist, stiff		SPT-3	7.5 - 9.0	1.5	5-8-9	--	
			SPT-4	10.0 - 11.5	1.5	11-21-21	--		
			SPT-5	12.5 - 14.0	1.5	11-17-24	--		
388.7	15.0	Lean To Fat Clay, brown and gray, moist, very stiff to hard, with black mottling, gravel		SPT-6	15.0 - 16.5	1.5	6-15-15	--	
			SPT-7	17.5 - 19.0	1.5	8-26-47	--		
383.7	20.0	Clayey Sand, brown, wet, very dense, with gravels 3/8" to 3/4"		SPT-8	20.0 - 21.5	1.1	9-20-16	--	
			SPT-9	22.5 - 24.0	1.0	9-16-21	--		
			SPT-10	25.0 - 26.5	0.9	8-11-8	--		
			SPT-11	27.5 - 29.0	1.0	5-8-9	--		

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Project Number <u>175565317</u>	Location <u>N36°01'14.33", W87°58'29.18" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. <u>JOF-102</u> Total Depth <u>31.5 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
372.7	31.0			SPT-12	30.0 - 31.5	1.5	5-6-12	--	
372.2	31.5	Lean To Fat Clay, tan and light gray, moist, stiff							
		No Refusal / Bottom of Hole							

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Project Number	175565317	Location	N36°01'45.50", W87°59'30.55" (NAD83)		
Project Name	TVA - JOF Well Installations	Boring No.	JOF-103	Total Depth	50.0 ft
County	Humphreys, TN	Surface Elevation	370.7 ft (NGVD29)		
Project Type	Well Installations	Date Started	2/9/16	Completed	2/10/16
Supervisor	B. Bryant	Driller	G. Thompson	Depth to Water	25.2 ft
Logged By	J. Andrew	Depth to Water	17.1 ft	Date/Time	2/10/16

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
370.7	0.0	Top of Hole							
		Crushed Limestone (fill)							4" Diameter PVC Well Installed
366.8	3.9	Lean Clay, brown, moist, stiff to medium, with crushed limestone							
			SPT-1	5.0 - 6.5	1.1	9-15-9	--		
			SPT-2	7.5 - 9.0	0.9	5-6-6	--		
360.7	10.0	Lean Clay, brown, moist, soft to stiff, with gray mottling							
			SPT-3	10.0 - 11.5	0.8	2-3-5	--		
			SPT-4	12.5 - 14.0	0.8	2-2-3	--		
			SPT-5	15.0 - 16.5	1.2	1-2-2	--		
			SPT-6	17.5 - 19.0	0.6	1-2-2	--		
			SPT-7	20.0 - 21.5	1.5	2-3-4	--		
			SPT-8	22.5 - 24.0	1.5	2-4-6	--		
345.7	25.0	Lean To Fat Clay, brown and gray, wet, medium stiff to stiff							
			SPT-9	25.0 - 26.5	1.5	4-6-9	--		
			SPT-10	27.5 - 29.0	1.5	3-5-5	--		

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Project Number <u>175565317</u>	Location <u>N36°01'45.50", W87°59'30.55" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. <u>JOF-103</u> Total Depth <u>50.0 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
335.7	35.0	Lean To Fat Clay, brown and gray, wet, medium stiff to stiff <i>(Continued)</i>		SPT-11	30.0 - 31.5	1.5	4-5-5	--	
				SPT-12	32.5 - 34.0	1.5	3-4-5	--	
331.7	39.0	Fat Clay, brown and reddish brown, wet, stiff, with sand		SPT-13	35.0 - 36.5	1.5	5-5-5	--	
				SPT-14	37.5 - 39.0	1.0	1-2-2	--	
330.7	40.0	Sand, brown, wet, loose							
328.7	42.0	Silt With Sand, gray, wet, loose		SPT-15	40.0 - 41.5	1.5	2-2-2	--	
320.7	50.0	Sand, brown, wet, medium dense, with rounded gravel		SPT-16	42.5 - 44.0	1.5	4-5-10	--	
				SPT-17	45.0 - 46.5	1.5	10-18-8	--	
				SPT-18	47.5 - 49.0	1.5	7-8-10	--	

No Refusal /
Bottom of Hole

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Project Number <u>175565317</u>	Location <u>N36°01'44.00", W87°59'41.48" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. <u>JOF-104</u> Total Depth <u>56.5 ft</u>
County <u>Humphreys, TN</u>	Surface Elevation <u>375.3 ft (NGVD29)</u>
Project Type <u>Well Installations</u>	Date Started <u>2/17/16</u> Completed <u>2/18/16</u>
Supervisor <u>B. Bryant</u> Driller <u>G. Thompson</u>	Depth to Water <u>25.2 ft</u> Date/Time <u>2/17/16</u>
Logged By <u>J. Andrew</u>	Depth to Water <u>20.5 ft</u> Date/Time <u>2/18/16</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core						
375.3	0.0	Top of Hole							
375.1	0.3	Sod							4" Diameter PVC Well Installed
		Lean Clay, brown, moist, stiff to very stiff, with gray mottling		SPT-1	2.5 - 4.0	1.5	6-6-9	--	
				SPT-2	5.0 - 6.5	1.5	6-10-12	--	
				SPT-3	7.5 - 9.0	1.2	5-6-8	--	
364.3	11.0			SPT-4	10.0 - 11.5	0.7	3-4-6	--	
		Lean Clay, gray, moist, stiff to very stiff							
362.3	13.0			SPT-5	12.5 - 14.0	1.3	5-8-9	--	
		Lean Clay, brown and gray, moist to wet, medium stiff to very stiff, with black mottling		SPT-6	15.0 - 16.5	0.8	3-3-5	--	
				SPT-7	17.5 - 19.0	1.5	4-4-7	--	
				SPT-8	20.0 - 21.5	1.5	4-3-4	--	
				SPT-9	22.5 - 24.0	1.5	4-5-5	--	
				SPT-10	25.0 - 26.5	1.5	3-5-6	--	
				SPT-11	27.5 - 29.0	1.5	4-5-8	--	

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Project Number <u>175565317</u>	Location <u>N36°01'44.00", W87°59'41.48" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. <u>JOF-104</u> Total Depth <u>56.5 ft</u>

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
335.3	40.0	Lean Clay, brown and gray, moist to wet, medium stiff to very stiff, with black mottling <i>(Continued)</i>		SPT-12	30.0 - 31.5	1.5	5-6-8	--	51.5' - 55' Augered Without Sampling
				SPT-13	32.5 - 34.0	1.5	2-3-5	--	
				SPT-14	35.0 - 36.5	1.5	2-3-5	--	
				SPT-15	37.5 - 39.0	1.5	3-4-5	--	
330.0	45.3	Lean Clay, brown and gray, wet, medium stiff		SPT-16	40.0 - 41.5	1.5	1-2-4	--	
				SPT-17	42.5 - 44.0	1.5	2-4-4	--	
325.3	50.0	Sand, reddish brown, wet, medium dense to very dense, with gravel		SPT-18	45.0 - 46.5	1.2	3-6-8	--	
				SPT-19	47.5 - 49.0	1.5	16-23-30	--	
319.2	56.1	Gravel With Sand, reddish brown, wet, medium dense to dense		SPT-20	50.0 - 51.5	1.5	13-19-27	--	
318.8	56.5			SPT-21	55.0 - 56.5	1.5	19-10-16	--	
		Sand, dark brown, wet, medium dense							
		No Refusal / Bottom of Hole							

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Project Number	175565317	Location	N36°01'53.44", W87°58'51.05" (NAD83)		
Project Name	TVA - JOF Well Installations	Boring No.	JOF-105	Total Depth	34.0 ft
County	Humphreys, TN	Surface Elevation	402.3 ft (NGVD29)		
Project Type	Well Installations	Date Started	2/19/16	Completed	2/19/16
Supervisor	B. Bryant	Driller	G. Thompson	Depth to Water	25.8 ft
Logged By	J. Andrew	Depth to Water	23.2 ft	Date/Time	2/19/16

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
402.3	0.0	Top of Hole							
401.8	0.5	Topsoil							4" Diameter PVC Well Installed
		Lean Clay, brown and gray, moist, soft to medium stiff, with red and black mottling		SPT-1	2.5 - 4.0	1.3	WOH-2-1	--	
			SPT-2	5.0 - 6.5	1.5	3-4-2	--		
394.8	7.5	Lean Clay, reddish brown, moist, stiff to very stiff, with black mottling		SPT-3	7.5 - 9.0	1.5	5-7-12	--	
			SPT-4	10.0 - 11.5	1.5	7-7-9	--		
			SPT-5	12.5 - 14.0	1.5	6-7-7	--		
386.3	16.0	Sand, reddish brown, moist, loose to dense, with black layers, trace of small gravel		SPT-6	15.0 - 16.5	1.5	5-6-14	--	
			SPT-7	17.5 - 19.0	1.5	19-22-21	--	Wet Zone Noted 18'	
			SPT-8	20.0 - 21.5	1.5	4-4-4	--		
378.3	24.0		SPT-9	22.5 - 24.0	1.5	2-6-19	--		
		Sand, brown, wet, medium dense to dense, with cobbles and red and black mottling		SPT-10	25.0 - 26.5	1.4	10-15-18		
			SPT-11	27.5 - 29.0	0.1	6-7-19	--		

STANTEC\FM\LEGACY_JOE\PROJECT\GPI_FMS\M\GRAPHIC\LOG.GDT 9/21/16

Project Number <u>175565317</u>	Location <u>N36°01'53.44", W87°58'51.05" (NAD83)</u>
Project Name <u>TVA - JOF Well Installations</u>	Boring No. <u>JOF-105</u> Total Depth <u>34.0 ft</u>

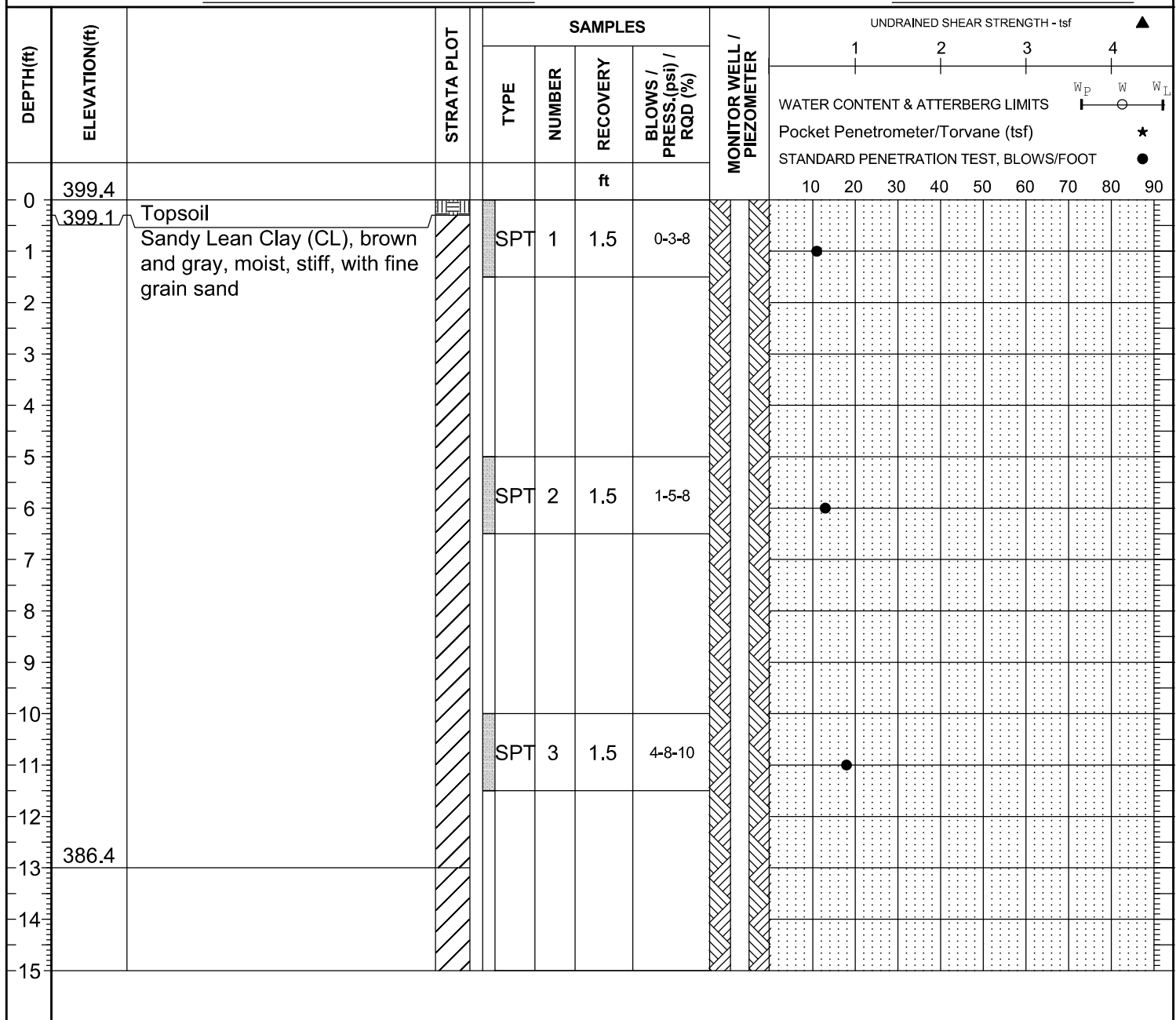
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
370.3	32.0	Weathered Shale, black, moist, stiff		SPT-12	30.0 - 31.5	1.1	6-7-14	--	
368.3	34.0			SPT-13	32.5 - 34.0	1.5	19-24-25	--	

No Refusal /
Bottom of Hole

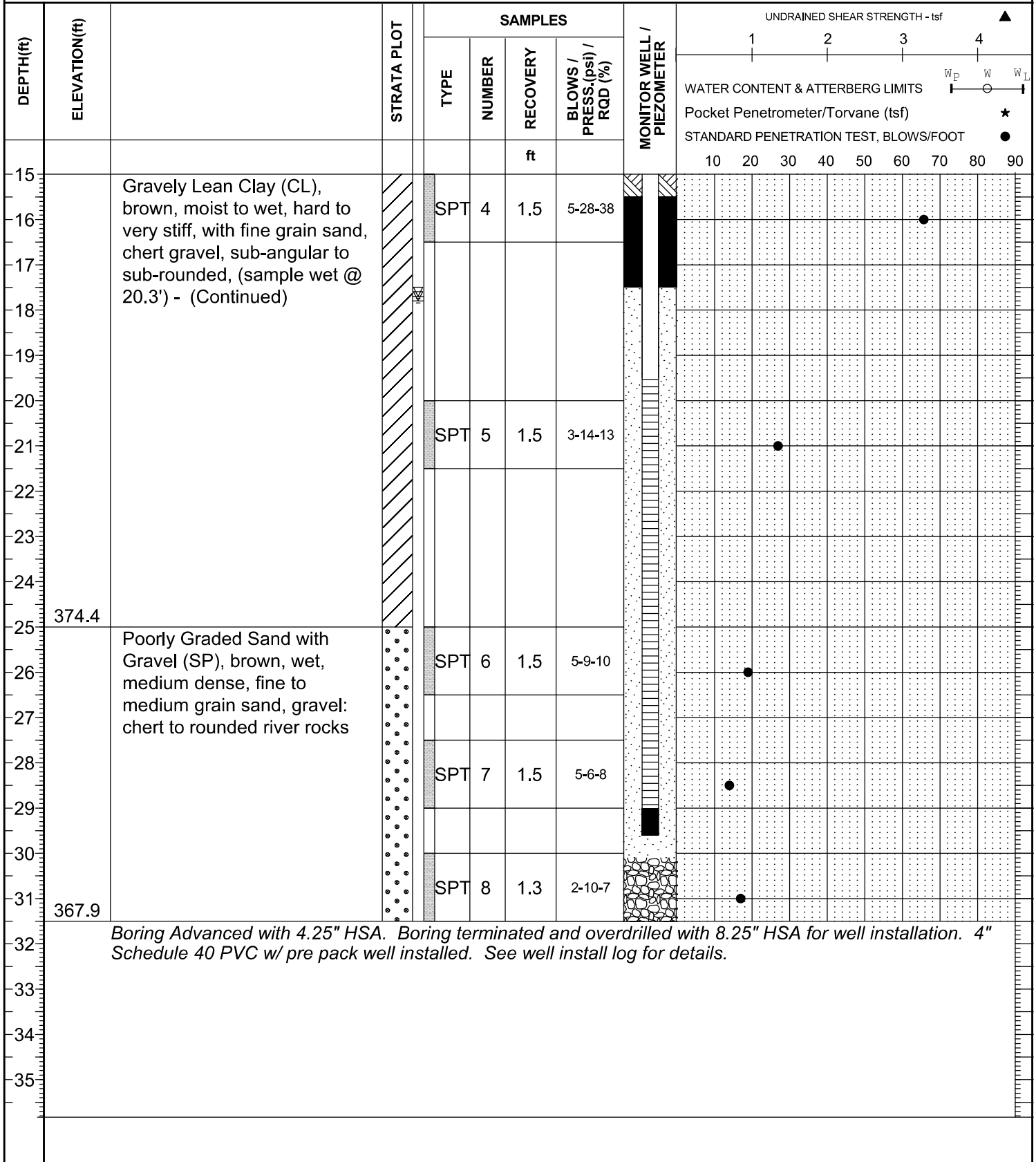
Top of Rock = 32.0
Elevation (370.3)

STANTECFMNM_LEGACY_JOF_PROJECT.GPJ FMS\MAGRAPHIC\LOG.GDT 9/21/16

Client Borehole Identification JOF-106 Stantec Boring No. JOF-106
 Client Tennessee Valley Authority Boring Location 36.0343806214; -87.9802651018 NAD83
 Project Number 175568204 Surface Elevation 399.4 ft Elevation Datum NGVD 29
 Project Name JOF GMMW Install Date Started 4/4/18 Completed 4/5/18
 Project Location Humphreys County, Tennessee Depth to Water 17.8 ft Date/Time 4/4/18
 Inspector Briggs Evans, PG Depth to Water 17.7 ft Date/Time 4/4/18
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850 Track #953
 Overburden Drilling and Sampling Tools (Type and Size) 4.25" HSA, 2" Split Spoon w/o liners
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Sampler Hammer Type Automatic Weight 140 lb Drop 30 in Efficiency 80 % (Avg.)
 Borehole Azimuth N/A (Vertical) Borehole Inclination (from Vertical) Vertical



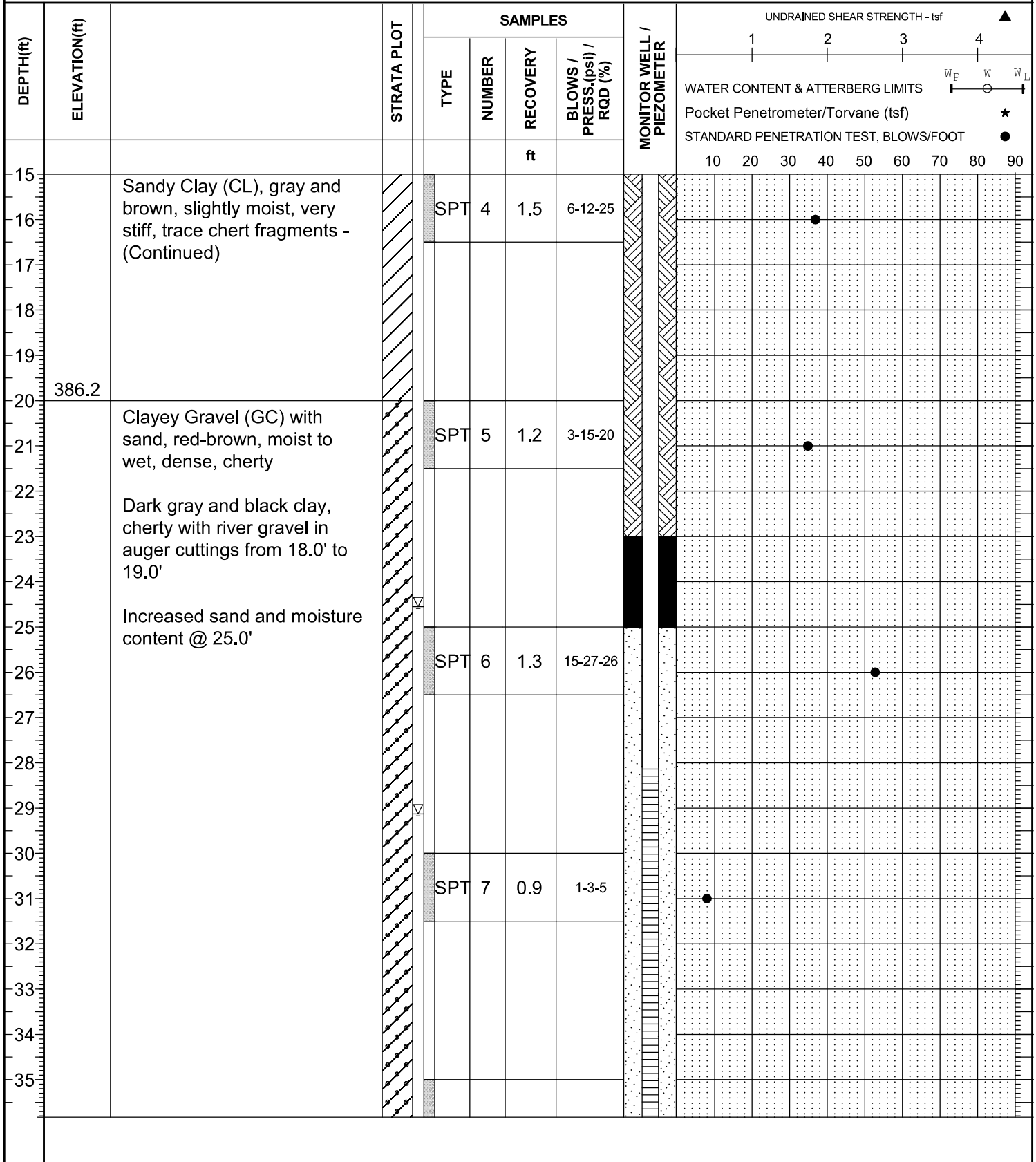
Client Borehole Identification JOF-106 Stantec Boring No. JOF-106
 Client Tennessee Valley Authority Boring Location 36.0343806214; -87.9802651018 NAD83
 Project Number 175568204 Surface Elevation 399.4 ft Elevation Datum NGVD 29



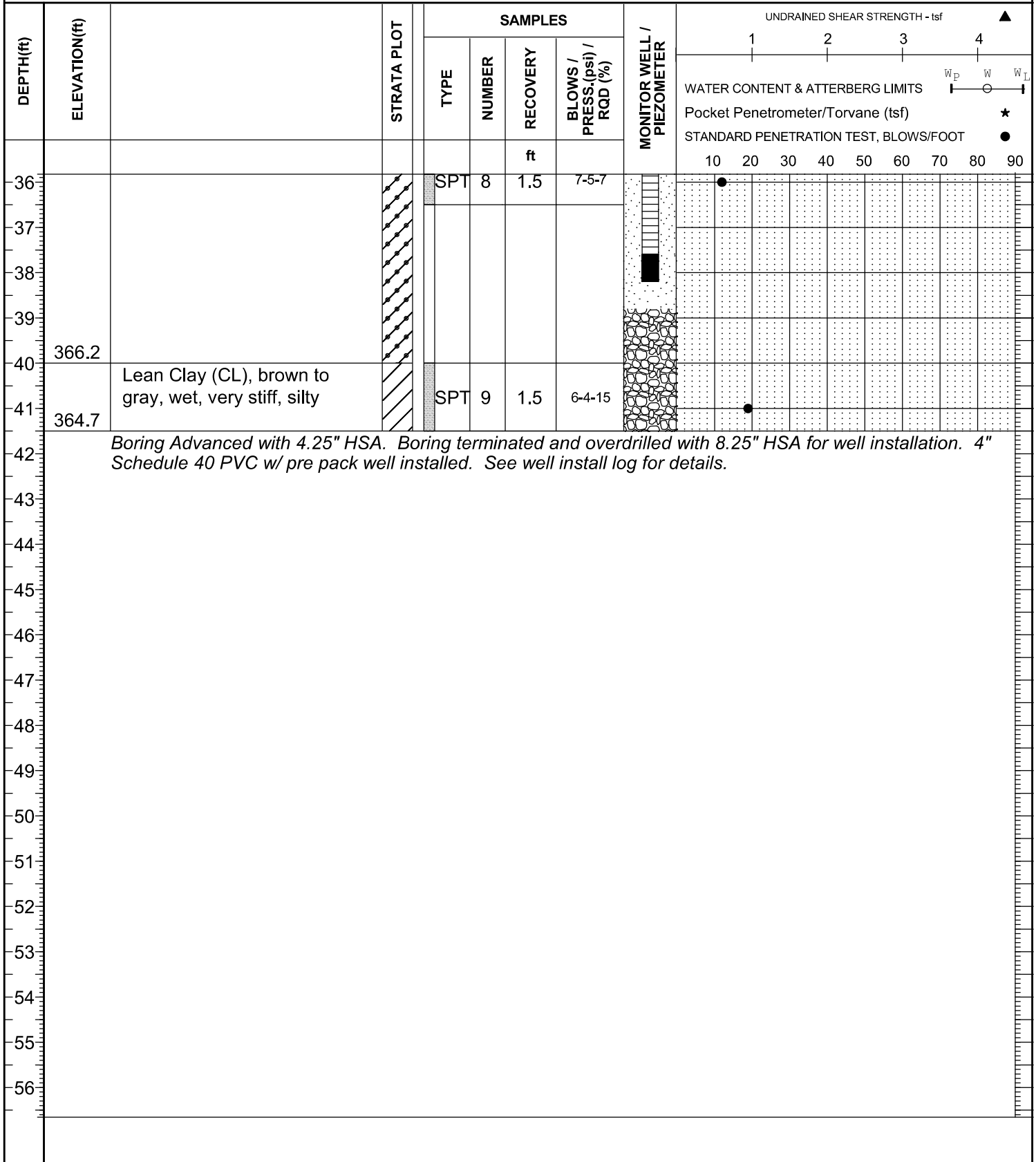
Client Borehole Identification <u>JOF-107</u>	Stantec Boring No. <u>JOF-107</u>
Client <u>Tennessee Valley Authority</u>	Boring Location <u>36.0367694521; -87.9794879082 NAD83</u>
Project Number <u>175568204</u>	Surface Elevation <u>406.2 ft</u> Elevation Datum <u>NGVD 29</u>
Project Name <u>JOF GMMW Install</u>	Date Started <u>4/10/18</u> Completed <u>4/11/18</u>
Project Location <u>Humphreys County, Tennessee</u>	Depth to Water <u>29.1 ft</u> Date/Time <u>4/10/18</u>
Inspector <u>Briggs Evans, PG</u>	Depth to Water <u>24.6 ft</u> Date/Time <u>4/10/18</u>
Drilling Contractor <u>Stantec Consulting Services Inc.</u>	Drill Rig Type and ID <u>CME 850 Track #953</u>
Overburden Drilling and Sampling Tools (Type and Size) <u>4.25" HSA, 2" Split Spoon w/o liners</u>	
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30 in</u> Efficiency <u>80 % (Avg.)</u>	
Borehole Azimuth <u>N/A (Vertical)</u>	Borehole Inclination (from Vertical) <u>Vertical</u>

DEPTH(ft)	ELEVATION(ft)	STRATA PLOT	SAMPLES				MONITOR WELL / PIEZOMETER	UNDRAINED SHEAR STRENGTH - tsf ▲												
			TYPE	NUMBER	RECOVERY	BLOWS / PRESS.(psi) / RQD (%)		WATER CONTENT & ATTERBERG LIMITS												
								Pocket Penetrometer/Torvane (tsf)			STANDARD PENETRATION TEST, BLOWS/FOOT									
					ft		W _P	W	W _L	10	20	30	40	50	60	70	80	90		
0	406.2																			
	406.0	Topsoil	SPT	1	1.5	1-2-3														
1		Lean Clay (CL) with sand, gray with red-brown, moist, medium stiff																		
2																				
3																				
4																				
5																				
6			SPT	2	1.4	1-3-3														
7																				
8																				
9																				
10	396.2																			
		Sandy Clay (CL), gray and brown, slightly moist, very stiff, trace chert fragments	SPT	3	1.2	6-8-14														
11																				
12																				
13																				
14																				
15																				

Client Borehole Identification JOF-107 Stantec Boring No. JOF-107
 Client Tennessee Valley Authority Boring Location 36.0367694521; -87.9794879082 NAD83
 Project Number 175568204 Surface Elevation 406.2 ft Elevation Datum NGVD 29



Client Borehole Identification JOF-107 Stantec Boring No. JOF-107
 Client Tennessee Valley Authority Boring Location 36.0367694521; -87.9794879082 NAD83
 Project Number 175568204 Surface Elevation 406.2 ft Elevation Datum NGVD 29



Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-108
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>604,844.93 N; 1,412,570.95 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>390.6 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/6/19</u> Completed <u>8/6/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u> Logger <u>C. Burton</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID	<u>Geoprobe 6610DT</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>Macro Core 2.0" OD with 60" PVC sample liners</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>N/A</u>	Weight	<u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>K. Carey</u>	Approved By	<u>C. Millhollin</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	390.6	Top of Hole					
0.7	389.9		Topsoil					
1			LEAN CLAY, ML, 7.5YR 5/6 (strong brown) to 7.5YR 5/1 (gray), medium to high plasticity, moist, mixed with CCR, [FILL]		DP01	0.0 - 5.0	4.1	N/A
5.3	385.3		SILTY LEAN CLAY WITH SAND, CL-ML, 2.5Y 5/2 (grayish brown) to 10YR 4/1 (dark gray), low plasticity, moist, with organics and coal fragments, mixed with CCR, [FILL]		DP02	5.0 - 10.0	5.0	N/A
7.8	382.8		SILTY SAND WITH GRAVEL, SM, 10YR 3/1 (very dark gray), non-plastic, with organics and coal fragments, [CCR]					
10.0	380.6		No Refusal / Bottom of Hole at 10.0 Ft.					

Boring JOF-108 was backfilled with grout on 8/6/2019.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-108 Offset A
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,835.25 N; 1,412,561.34 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 389.0 ft </u> Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>	Date Started <u> 8/6/19 </u> Completed <u> 8/6/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>	Depth to Water <u> N/A </u> Date/Time <u> N/A </u>
Inspector <u> C. Burton </u> Logger <u> C. Burton </u>	Depth to Water <u> N/A </u> Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>	Drill Rig Type and ID <u> Geoprobe 6610DT </u>
Overburden Drilling and Sampling Tools (Type and Size) <u> Macro Core 2.0" OD </u>	
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>	
Overdrill Tooling (Type and Size) <u> N/A </u>	Overdrill Depth <u> N/A </u>
Sampler Hammer Type <u> N/A </u> Weight <u> N/A </u> Drop <u> N/A </u> Efficiency <u> N/A </u>	
Borehole Azimuth <u> N/A </u>	Borehole Inclination (from Vertical) <u> N/A </u>
Reviewed By <u> K. Carey </u>	Approved By <u> P. Dunne </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.0	Top of Hole					
1	0.9	388.1	Overburden					
2	2.1	386.9	SANDY LEAN CLAY WITH GRAVEL, CL, 5YR 5/6 (yellowish red) to 5YR 4/1 (dark gray), low plasticity					
3			FAT CLAY WITH GRAVEL, CH, 7.5YR 4/6 (strong brown) to 2.5Y 5/1 (gray), moist, with coal fragments		DP01	0.0 - 5.0	4.3	N/A
4	3.9	385.1	SANDY FAT CLAY WITH GRAVEL, CH, 2.5Y 2.5/1 (black) to 10YR 5/8 (yellowish brown), non to low plasticity, moist					
5	5.2	383.8	POORLY GRADED SAND WITH SILT, SP-SM, 10YR 3/1 (very dark gray) to 7.5YR 2.5/1 (black), medium to coarse, non-plastic, [CCR]		DP02	5.0 - 10.0	3.3	N/A
6								
7								
8								
9								
10	10.0	379.0						

No Refusal /
Bottom of Hole at 10.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/7/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-108 Offset B	
Client	Tennessee Valley Authority	Boring Location	604,847.67 N; 1,412,520.66 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	391.0 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/7/19	Completed 8/7/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A	Overdrill Depth	N/A	
Sampler Hammer Type	N/A	Weight	N/A	Drop N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	391.0	Top of Hole					
	0.0	391.0	Topsoil					
1	1.1	389.9	GRAVELLY LEAN CLAY, CL, 7.5YR 4/6 (strong brown), low to medium plasticity, moist, [FILL]					
2			FAT CLAY SOME GRAVEL, CH, 7.5YR 4/6 (strong brown), medium to high plasticity		DP01	0.0 - 5.0	4.8	N/A
3								
4	3.8	387.2	POORLY GRADED GRAVEL WITH CLAY, GP-GC, 2.5Y 4/1 (dark gray), moist to wet, [FILL], [CCR]					
5								
6								
7								
8					DP02	5.0 - 10.0	4.3	N/A
9								
10								
11								
12	12.4	378.6	FAT CLAY, CH, 2.5Y 5/3 (light olive brown) to 2.5Y 4/2 (dark grayish brown), moist, [FILL]		DP03	10.0 - 15.0	3.2	N/A
13								
14								
15	15.3	375.7	SANDY POORLY GRADED GRAVEL WITH CLAY, GP, 5Y 2.5/1 (black), wet, [CCR]					
16	16.1	374.9	SANDY SILT WITH CLAY, ML, 5Y 2.5/1 (black), non to low plasticity, moist to wet, [FILL], [CCR]		DP04	15.0 - 20.0	5.0	N/A
17								
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 7/6/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-108 Offset B
Client	Tennessee Valley Authority	Boring Location	604,847.67 N; 1,412,520.66 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	391.0 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SANDY SILT WITH CLAY, ML, 5Y 2.5/1 (black), non to low plasticity, moist to wet, [FILL], [CCR] <i>(Continued)</i>					
19								
20								
21								
22	22.6	368.4			DP05	20.0 - 25.0	5.0	N/A
23			SANDY POORLY GRADED GRAVEL WITH SILT, GP-GM, 5Y 2.5/1 (black), moist to wet, [FILL], [CCR]					
24								
25								
26								
27	27.3	363.7			DP06	25.0 - 29.9	2.3	N/A
28			FAT CLAY WITH GRAVEL, CH, 7.5YR 4/4 (brown), moist, Macro core liner crushed in macro core tube					
29	29.9	361.1						

Bedrock Refusal / Bottom of Hole at 29.9 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 7/6/20



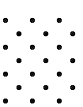




SUBSURFACE LOG

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-108 Offset C	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 604,841.52 N; 1,412,506.20 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 389.5 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 8/22/19 </u>	Completed <u> 8/22/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> 14.0 ft </u>	Date/Time <u> 8/22/19 16:00 </u>
Inspector <u> C. Burton </u>	Logger <u> C. Burton </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>		Drill Rig Type and ID <u> Geoprobe 6610DT </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> Macro Core 2.0" OD with 60" PVC sample liners </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> N/A </u>	Weight <u> N/A </u>	Drop <u> N/A </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> C. Millhollin </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.5	Top of Hole					
	0.4	389.1	Topsoil					
1			SILTY LEAN CLAY, CL, 10YR 7/4 (very pale brown) to 10YR 8/8 (yellow), low plasticity, hard, moist, [FILL]		DP01	0.0 - 5.0	4.5	N/A
2								
3	3.3	386.2	LEAN CLAY WITH SILT, CL, 7.5YR 5/6 (strong brown), medium to high plasticity, very hard, moist, [FILL]		DP02	5.0 - 10.0	4.2	N/A
4								
5								
6			SILTY SAND WITH GRAVEL, SP, 10YR 2/1 (black) with 10YR 6/6 (brownish yellow), fine to coarse, loose, moist, [CCR]		DP03	10.0 - 15.0	4.2	N/A
7								
8								
9								
10	10.0	379.5	SILTY SAND LITTLE GRAVEL, SP, 10YR 3/1 (very dark gray), [CCR]		DP04	15.0 - 20.0	1.9	N/A
11								
12								
13								
14								
15								
16	16.1	373.4						
17								
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-108 Offset C
Client	Tennessee Valley Authority	Boring Location	604,841.52 N; 1,412,506.20 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	389.5 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			SILTY SAND LITTLE GRAVEL, SP, 10YR 3/1 (very dark gray), [CCR] (Continued)						
19									
20	20.1	369.4	SANDY SILT LITTLE GRAVEL, ML, 10YR 3/1 (very dark gray) to 2.5Y 3/1 (very dark gray), non to low plasticity, very soft, wet, [CCR]						
21									
22					DP05	20.0 - 24.5	20.0 - 24.5	4.5	N/A
23									
24	24.5	365.0							

Bedrock Refusal /
Bottom of Hole at 24.5 Ft.

Boring JOF-108 Offset C backfilled with grout on 8/22/2019

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-108 Offset D	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 604,848.71 N; 1,412,465.99 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 390.8 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 8/22/19 </u>	Completed <u> 8/22/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Inspector <u> C. Burton </u>	Logger <u> C. Burton </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>		Drill Rig Type and ID <u> Geoprobe 6610DT </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> Macro Core 2.0" OD with 60" PVC sample liners </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> N/A </u>	Weight <u> N/A </u>	Drop <u> N/A </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> C. Millhollin </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	390.8	Top of Hole					
	0.6	390.2	Topsoil					
1			LEAN CLAY WITH SILT, CL, 7.5YR 6/6 (reddish yellow) to 10YR 6/4 (light yellowish brown), high plasticity, very hard, moist, [FILL]	DP01	0.0 - 5.0	0.0 - 5.0	3.4	N/A
2	2.6	388.2						
3			CLAYEY GRAVEL WITH SAND, GP-GC, 7.5YR 4/4 (brown) to 7.5YR 5/6 (strong brown), non to low plasticity, moist, sand is very fine to medium, [FILL]	DP02	5.0 - 10.0	5.0 - 10.0	2.7	N/A
4								
6	6.2	384.6	FAT CLAY WITH GRAVEL, CH, 7.5YR 4/6 (strong brown) to 7.5YR 4/3 (brown), high plasticity, hard, moist, [FILL]	DP03	10.0 - 13.5	10.0 - 13.5	3.5	N/A
7	7.3	383.5						
9			POORLY GRADED GRAVEL WITH SAND, GP, 10YR 4/4 (dark yellowish brown) to 10YR 3/1 (very dark gray), fine, loose, moist, [CCR]					
10								
11								
12								
13	13.5	377.3						

Bedrock Refusal /
Bottom of Hole at 13.5 Ft.

Boring JOF-108 Offset D was backfilled with grout on 8/22/2019

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
- G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/30/20



SUBSURFACE LOG

Client Borehole ID N/A Stantec Boring No. **JOF-109**
 Client Tennessee Valley Authority Boring Location 605,123.62 N; 1,413,243.55 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 382.8 ft Elevation Datum NGVD29
 Project Name JOF TDEC Order Date Started 6/19/19 Completed 6/20/19
 Project Location New Johnsonville, Humphreys Co., TN Depth to Water N/A Date/Time N/A
 Inspector C. Burton Logger C. Burton Depth to Water N/A Date/Time N/A
 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 55T#1, #709
 Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA, 2" SS w/o liners
 Rock Drilling and Sampling Tools (Type and Size) N/A
 Overdrill Tooling (Type and Size) 8-1/4" HSA overdrill of boring Overdrill Depth 41.0 ft
 Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency N/A
 Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A
 Reviewed By K. Carey Approved By L. Tucker

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	382.8	Top of Hole					
0.1	382.7		Topsoil			0.0 - 1.5	0.9	5-7-7
1.5	381.3		SILTY LEAN CLAY WITH SAND, CL, 2.5Y 8/3 (pale brown) to 2.5Y 8/2 (pale brown), non to low plasticity, medium firm, moist, [FILL]		SS01G	0.0 - 1.5	0.9	5-7-7
2					SS02G	1.5 - 3.0	0.1	6-7-7
3					SS03G	3.0 - 4.5	0.5	3-2-2
4.5	378.3		CLAYEY SILT, CL-ML, 7.5YR 4/2 (brown), low plasticity, very soft to very hard, moist, [FILL]		SS04G	4.5 - 6.0	0.3	1-WH-WH
5					SS05G	6.0 - 7.5	0.3	WH-WH-1
7.7	375.1		SILTY LEAN CLAY WITH GRAVEL, CL, 7.5YR 5/6 (strong brown) to 10YR 5/1 (gray), non-plastic, hard, moist		SS06aG	7.5 - 7.7		
8					SS06bG	7.7 - 9.0	0.9	1-4-12
9	373.8		POORLY GRADED GRAVEL WITH CLAY, GC, 10YR 5/8 (yellowish brown) to 10YR 7/1 (light gray), non-plastic, very dense		SS07G	9.0 - 10.2	1.0	21-40-50/2"
10					SS08G	10.5 - 11.2	0.7	46-50/2"
11					SS09G	12.0 - 13.1	0.7	29-21-50/1"
12					SS10G	13.5 - 14.4	0.9	40-50/5"
13					SS11G	15.0 - 15.4	0.4	50/5"
14					SS12G	16.5 - 16.9	0.4	50/5"

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190630.GDT 8/27/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-109
Client	Tennessee Valley Authority	Boring Location	605,123.62 N; 1,413,243.55 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	382.8 ft
		Elevation Datum	NGVD29



Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			POORLY GRADED GRAVEL WITH CLAY, GC, 10YR 5/8 (yellowish brown) to 10YR 7/1 (light gray), non-plastic, very dense (Continued)							
19				SS13G	18.0 - 19.5	1.3	40-47-48			
20				SS14G	19.5 - 21.0	1.3	41-31-30			
21				SS15G	21.0 - 22.5	0.6	42-32-34			
22				SS16G	22.5 - 24.0	0.6	14-29-49			
23				SS17G	24.0 - 25.2	0.8	48-42-50/2"			
24				SS18G	25.5 - 27.0	1.5	47-43-25			
25				SS19G	27.0 - 28.5	1.4	18-17-19			
26				SS20G	28.5 - 30.0	0.7	17-17-13			
27	27.0			355.8	POORLY GRADED GRAVEL WITH CLAY WITH SAND, GP-GC, 10YR 5/6 (yellowish brown) to 10YR 8/1 (white), very dense, moist					
28				SS21G		30.0 - 31.5	1.1	14-23-35		
29				SS22E		31.5 - 33.0	0.8	12-12-20		
30				SS23E		33.0 - 34.5	0.9	16-44-38		
31				SS24G		34.5 - 36.0	1.1	14-16-30		
32				SS25E		36.0 - 37.5	1.0	25-16-10		
33				SS26E		37.5 - 39.0	0.4	30-24-16		
34				SS27G		39.0 - 40.5	1.3	14-17-20		
35				SS28aG		40.5 - 41.1	1.1	15-14-7		
36		SS28bG	41.1 - 42.0							
37										
38										
39										
40										
41	41.1	341.7								
42										

TVA/EIP BORING LOG: 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 8/27/20

31.5/34.5-20190620

36.0/39.0-20190620

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-109
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>605,123.62 N; 1,413,243.55 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>382.8 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			SANDY LEAN CLAY WITH GRAVEL, CL, 10YR 4/6 (dark yellowish brown) to 10YR 6/3 (pale brown), low to medium plasticity, very soft to very hard, moist <i>(Continued)</i>		SS29G	42.0 - 43.5	0.9	22-13-17
44	44.0					SS30aG	43.5 - 44.0	1.0
45			FAT CLAY, CH, 10R 5/3 (weak red), medium to high plasticity, very hard, moist, iron oxide staining, Color 5G 5/2 metallic appearance on 10R 5/3		SS30bG	44.0 - 45.0		
46	46.5					SS31G	45.0 - 46.5	1.3

No Refusal /
Bottom of Hole at 46.5 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 8/27/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-109-Pre	
Client	Tennessee Valley Authority	Boring Location	605,128.24 N; 1,413,237.64 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	381.5 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	5/21/19	Completed 5/21/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	16.0 ft	Date/Time 5/21/19
Inspector	D. Mihalek	Logger	D. Mihalek	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	GEOPROBE 6610	
Overburden Drilling and Sampling Tools (Type and Size)	DT37 Dual Tube Soil Sampling System with 60" PVC Liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	GH70 Direct Push	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey	Approved By	C. Millhollin	
Efficiency	N/A			

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	381.5	Top of Hole					
1			CLAYEY SILT, ML, 10YR 4/4 (dark yellowish brown), medium plasticity, soft, moist, [FILL]					
2								
3				DP01	0.0 - 5.0	2.1	N/A	
4								
5	5.0	376.5	FAT CLAY, CH, 5Y 3/1 (very dark gray), high plasticity, very soft, moist, [FILL]					
6								
7								
8			DP02	5.0 - 10.0	NR	N/A		
9								
10	10.0	371.5	FAT CLAY, CH, 5Y 3/1 (very dark gray), high plasticity, very soft, wet					
11								
12								
13	12.5	369.0	SANDY CLAY, CL, 10YR 5/6 (yellowish brown), low to medium plasticity, firm, moist, chert fragments (coarse) embedded throughout					
14								
15								
16	15.0	366.5	SANDY CLAY, CL, 10YR 5/6 (yellowish brown), low plasticity, stiff, wet					
17								
18			DP03	10.0 - 15.0	3.5	N/A		
19								
20			DP04	15.0 - 20.0	NR	N/A		

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 6/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-109-Pre
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 605,128.24 N; 1,413,237.64 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 381.5 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18		/ / / / / / / / / /	SANDY CLAY, CL, 10YR 5/6 (yellowish brown), low plasticity, stiff, wet <i>(Continued)</i>					
19		/ / / / / / / / / /						
20	20.0	361.5						

Bedrock Refusal /
Bottom of Hole at 20.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20



SUBSURFACE LOG

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-110	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>605,614.27 N; 1,412,210.58 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>384.0 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>9/10/19</u> Completed <u>9/13/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Inspector <u>S. Stanley</u> Logger <u>S. Stanley</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>M&W Drilling (Subcontractor)</u>		Drill Rig Type and ID <u>Geoprobe 8150LS</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4" X 6" Rotasonic</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>4" x 10" Sonic</u>		Overdrill Depth <u>57.5 ft</u>	
Sampler Hammer Type <u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>			
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	384.0	Top of Hole					
1	1.0	383.0	Crushed stone, [FILL]					
2	2.8	381.2	FAT CLAY SOME SILT, CH, 7.5YR 5/6 (strong brown), low to medium plasticity, firm, moist, [FILL]					
3	4.4	379.6	CLAYEY SILTY SAND LITTLE GRAVEL, CL, 7.5YR 4/3 (brown), non-plastic, dry, [FILL]					
5			CLAYEY SILT, ML, 7.5YR 2.5/1 (black), non-plastic, dry, [CCR]		RS01	0.0 - 10.0	8.5	N/A
10	10.0	374.0	CLAYEY SILTY SAND LITTLE GRAVEL, CL, 7.5YR 5/6 (strong brown), non-plastic, dry, [CCR]					
13	13.0	371.0	SANDY POORLY GRADED SAND WITH SILT LITTLE SILT, SP, 7.5YR 4/2 (brown), moist, [CCR]		RS02	10.0 - 20.0	9.3	N/A
16	16.4	367.6	SANDY POORLY GRADED SAND WITH SILT LITTLE SILT, SP, 7.5YR 2.5/1 (black), moist, [CCR]					

TVA/EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190930.GDT 8/7/20



SUBSURFACE LOG

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
19									
20	20.0	364.0	SILTY SILT, ML, 7.5YR 2.5/1 (black), wet, [CCR]						
21									
22									
23									
24									
25				RS03	20.0 - 30.0	20.0 - 30.0	7.5	N/A	
26									
27	27.6	356.4	FAT CLAY TRACE SILT, CH, 2.5Y 4/3 (olive brown), medium plasticity, firm to hard, moist						
28									
29									
30	30.0	354.0	No Recovery						
31									
32									
33									
34									
35					RS04	30.0 - 40.0	30.0 - 40.0	0.0	N/A
36									
37									
38									
39									
40	40.0	344.0	No Recovery						
41									
42									
43									
44									

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/7/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-110
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>605,614.27 N; 1,412,210.58 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>384.0 ft</u> Elevation Datum <u>NGVD29</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
45			No Recovery (Continued)		RS05	40.0 - 50.0	0.0	N/A
46								
47								
48								
49								
50	50.0	334.0						
51			LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, soft to firm, wet					
52	52.5	331.5			RS06	50.0 - 55.0	5.0	N/A
53			LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 4/1 (dark gray), low to medium plasticity, soft to firm, wet					
54	53.8	330.2						
55			LEAN CLAY TRACE SAND, CL, 7.5YR 5/6 (strong brown), non to low plasticity, firm to hard, moist					
56	55.0	329.0						
57			CLAYEY POORLY GRADED SAND WITH CLAY LITTLE GRAVEL, SP-SC, 7.5YR 4/1 (dark gray), non-plastic, very soft to soft, wet					
58	56.5	327.5						
59			LEAN CLAY TRACE SAND, CL, 7.5YR 5/4 (brown), non-plastic, firm, moist		RS07	55.0 - 60.0	5.0	N/A
60	60.0	324.0						

No Refusal /
Bottom of Hole at 60.0 Ft.

Monitoring well installed in boring. Refer to JOF-110 Well Installation Detail for well construction information.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ_TDEC SUBSURF DT 20190530.GDT 8/7/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-110AIt1	
Client	Tennessee Valley Authority	Boring Location	605,698.83 N; 1,412,298.19 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	378.3 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/22/19	Completed 8/22/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	13.2 ft	Date/Time 8/22/19 09:44
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD with 60" PVC sample liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	N/A	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey		Approved By	C. Millhollin

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	378.3	Top of Hole					
1			Crushed stone, [FILL]					
2	2.2	376.1	SILTY POORLY GRADED SAND WITH GRAVEL, SP, 10YR 3/2 (very dark grayish brown) to 7.5YR 2.5/1 (black), coarse, loose, moist, [CCR]		DP01	0.0 - 5.0	3.3	N/A
3								
4								
5								
6			GRAVELLY POORLY GRADED SAND WITH SILT WITH CLAY, SP, 2.5Y 5/4 (light olive brown) to 2.5Y 2.5/1 (black), medium to coarse, wet, [CCR]		DP02	5.0 - 10.0	3.3	N/A
7								
8								
9								
10			SILTY POORLY GRADED SAND WITH GRAVEL, SP, fine to coarse, loose, wet, [CCR]		DP03	10.0 - 15.0	3.3	N/A
11								
12								
13								
14					DP04	15.0 - 20.0	4.2	N/A
15								
16								
17								
18	15.8	362.5						
19								
20								
21	20.7	357.6						
22								
23								
24								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/28/20

Client Borehole ID N/A Stantec Boring No. **JOF-110Alt1**
 Client Tennessee Valley Authority Boring Location 605,698.83 N; 1,412,298.19 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 378.3 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
21			CLAYEY SILT WITH SAND, ML, 5Y 4/1 (dark gray) and 10YR 3/1 (very dark gray), low plasticity, soft to very soft, wet, [CCR] (Continued)		DP05	20.0 - 25.0	4.8	N/A
22								
23								
24								
25								
26	26.0	352.3						
26.7	351.6		CLAYEY SILT WITH SAND, ML, 2.5Y 4/1 (dark gray), low plasticity, wet, [CCR]		DP06	25.0 - 30.0	4.5	N/A
27			SILTY LEAN CLAY WITH SAND, CL, 2.5Y 4/3 (olive brown) to 2.5Y 5/3 (light olive brown), low to medium plasticity, hard to firm, moist to wet, sand lenses					
28								
29								
30								
31								
32					DP07	30.0 - 35.0	4.0	N/A
33								
34	34.6	343.7						
35			SILTY LEAN CLAY WITH SAND, CL, 2.5Y 4/2 (dark grayish brown) to 10YR 3/3 (dark brown), non-plastic to low plasticity, moist to wet, with lenses of sand and gravel, [FILL]		DP08	35.0 - 40.0	3.4	N/A
36								
37								
38	38.3	340.0						
39			POORLY GRADED GRAVEL WITH SILT WITH SAND, GP-GM, 5Y 2.5/1 (black), non-plastic, medium dense, wet, [FILL]					
40	40.0	338.3						

No Refusal /
Bottom of Hole at 40.0 Ft.

Boring JOF-110Alt1 was backfilled with grout on 8/22/2019

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 9/28/20

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-110-Pre	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 605,619.11 N; 1,412,209.20 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 383.9 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 5/21/19 </u>	Completed <u> 5/21/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> 11.0 ft </u>	Date/Time <u> 5/21/19 11:57 </u>
Inspector <u> D. Mihalek </u>	Logger <u> D. Mihalek </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>		Drill Rig Type and ID <u> GEOPROBE 6610 </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> DT37 Dual Tube Soil Sampling System with 60" PVC Liners </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> N/A </u>		Overdrill Depth <u> N/A </u>	
Sampler Hammer Type <u> GH70 Direct Push </u>	Weight <u> N/A </u>	Drop <u> N/A </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> C. Millhollin </u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.9	Top of Hole					
0.5	383.4		SILTY SAND, SM, 5Y 2.5/1 (black), very fine, loose, moist, [CCR] Geofabric penetrated at 0.5'					
2			SILT, ML, 7.5YR 4/3 (brown), low plasticity, dry No recovery from 2.0' to 5.0'		DP01	0.0 - 5.0	2.0	N/A
5	5.0	378.9	POORLY GRADED SAND, SP, 5Y 2.5/1 (black), fine, loose, moist, [CCR] 1-in lens of CCR at 6.0'		DP02	5.0 - 10.0	3.5	N/A
8			No recovery from 8.3' to 10'					
10	10.0	373.9	POORLY GRADED SAND, SP, 5Y 2.5/1 (black), fine, loose, wet, [CCR]		DP03	10.0 - 15.0	5.0	N/A
15					DP04	15.0 - 20.0	5.0	N/A

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 6/15/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-110-Pre
Client	Tennessee Valley Authority	Boring Location	605,619.11 N; 1,412,209.20 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.9 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI					
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %					
18			POORLY GRADED SAND, SP, 5Y 2.5/1 (black), fine, loose, wet, [CCR] (Continued)										
19													
20													
21													
22													
23							DP05	20.0 - 25.0	NR	N/A			
24													
25													
26													
27													
28					DP06	25.0 - 30.0	NR	N/A					
29													
30													
31	31.0	352.9											
32													
33													
34													
35	35.0	348.9									DP07	30.0 - 35.0	5.0

No Refusal /
Bottom of Hole at 35.0 Ft.

1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 6/15/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-111 Offset A	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>605,022.08 N; 1,412,212.88 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>381.1 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/8/19</u>	Completed <u>8/8/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u>	Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID	<u>Geoprobe 6610DT</u>	
Overburden Drilling and Sampling Tools (Type and Size)	<u>Macro Core 2.0" OD with 60" PVC sample liners</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>	
Sampler Hammer Type	<u>N/A</u>	Weight	<u>N/A</u>	Drop <u>N/A</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Approved By	<u>C. Millhollin</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	381.1	Top of Hole					
	0.3	380.8	Topsoil					
1	1.2	379.9	FAT CLAY WITH GRAVEL, CH, 10YR 6/4 (light yellowish brown), medium to high plasticity, moist, [FILL]					
2	2.2	378.9	FAT CLAY, CH, 10YR 6/8 (brownish yellow) to 10YR 8/1 (white), high plasticity, moist, [FILL]		DP01	0.0 - 5.0	3.2	N/A
3			POORLY GRADED SAND WITH GRAVEL, SP, 10YR 3/4 (dark yellowish brown) to 2.5Y 2.5/1 (black), moist, [CCR]					
6	6.1	375.0	GRAVELLY POORLY GRADED SAND WITH SILT, SP, 5Y 2.5/1 (black), moist, [CCR]		DP02	5.0 - 10.0	3.2	N/A
10	10.0	371.1	No Refusal / Bottom of Hole at 10.0 Ft.					

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-111 Offset B	
Client	Tennessee Valley Authority	Boring Location	605,021.86 N; 1,412,207.96 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	382.4 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/8/19	Completed 8/8/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	11.4 ft	Date/Time 8/8/19 11:56
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD with 60" PVC sample liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	GH70 Direct Push	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey		Approved By	C. Millhollin

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	382.4	Top of Hole					
0.5	381.9		Topsoil					
1	1.3	381.1	LEAN CLAY WITH SILT, CL, 2.5Y 8/1 (white) to 10YR 6/4 (light yellowish brown), low to medium plasticity, moist, [FILL]	DP01	0.0 - 5.0	4.1	N/A	
2	2.9	379.5						
3			LEAN CLAY, CL, 10YR 6/6 (brownish yellow) to 2.5Y 7/1 (light gray), medium plasticity, moist, [FILL]					
4			GRAVELLY POORLY GRADED SAND WITH SILT, SP, 10YR 4/4 (dark yellowish brown) to 2.5YR 3/2 (dusky red), moist, with coal, [CCR]	DP02	5.0 - 10.0	3.7	N/A	
5								
6	6.8	375.6						
7			SILTY POORLY GRADED GRAVEL WITH SAND, GP-GM, 2.5Y 3/1 (very dark gray) to 5Y 3/1 (very dark gray), moist to wet, with coal fragments, [CCR]	DP03	10.0 - 15.0	2.5	N/A	
8								
9								
10								
11			SILT WITH SAND, ML, 7.5YR 4/1 (dark gray), non-plastic, moist to wet, [CCR]	DP04	15.0 - 20.0	4.9	N/A	
12	15.6	366.8						
13			SILTY POORLY GRADED GRAVEL WITH SAND, GP-GM, 10YR 2/1 (black), [CCR]					
14	17.3	365.1						
15								
16								
17	20.2	362.2						
18								
19								
20								
21								
22								
23								
24								

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID N/A Stantec Boring No. **JOF-111 Offset B**
 Client Tennessee Valley Authority Boring Location 605,021.86 N; 1,412,207.96 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 382.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
21			SILT WITH SAND, ML, 2.5Y 3/1 (very dark gray), non to low plasticity, moist to wet, [CCR] <i>(Continued)</i>		DP05	20.0 - 25.0	5.0	N/A
22								
23	23.5	358.9						
24			SILTY LEAN CLAY WITH GRAVEL, CL, 10YR 5/3 (brown) to 2.5Y 2.5/1 (black), low to medium plasticity, moist		DP06	25.0 - 30.0	5.0	N/A
25								
26	26.4	356.0						
27			SANDY POORLY GRADED GRAVEL WITH SILT WITH CLAY, GP-GM, 2.5Y 4/3 (olive brown), wet		DP07	30.0 - 35.0	3.7	N/A
28								
29	28.4	354.0						
30			POORLY GRADED GRAVEL WITH SAND, GP, 10YR 4/2 (dark grayish brown) to 10YR 3/1 (very dark gray), non-plastic, moist to wet		DP08	35.0 - 40.0	5.0	N/A
31								
32			SILTY FAT CLAY WITH SAND, CH, 10YR 5/4 (yellowish brown) to 5Y 7/1 (light gray), medium to high plasticity, moist					
33								
34			CLAYEY POORLY GRADED GRAVEL WITH SAND, GP-GC, 10YR 4/4 (dark yellowish brown), moist to wet					
35								
36			SILTY LEAN CLAY WITH SAND, CL, 10YR 6/6 (brownish yellow) to 10YR 7/1 (light gray), moist to wet					
37								
38	37.3	345.1						
39			SILTY LEAN CLAY WITH SAND, CL, 10YR 6/6 (brownish yellow) to 10YR 7/1 (light gray), moist to wet					
40								
40	39.2	343.2						
40	40.0	342.4						

No Refusal /
Bottom of Hole at 40.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
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- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20



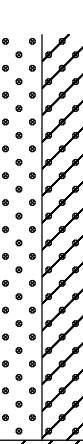

SUBSURFACE LOG

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-111 Offset C	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>604,942.32 N; 1,412,173.07 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>385.3 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/22/19</u>	Completed <u>8/22/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>13.7 ft</u>	Date/Time <u>8/22/19 13:25</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Geo Logic (Subcontractor)</u>		Date/Time <u>N/A</u>	
Overburden Drilling and Sampling Tools (Type and Size)	<u>Macro Core 2.0" OD with 60" PVC sample liners</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>	
Sampler Hammer Type	<u>GH70 Direct Push</u>	Weight	<u>N/A</u>	Drop <u>N/A</u>
Borehole Azimuth	<u>N/A</u>	Efficiency	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
		Approved By	<u>C. Millhollin</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
0	0.0	385.3							
	0.5	384.8							
1									
2									
3	3.1	382.2			DP01	0.0 - 5.0	3.7	N/A	
4									
5									
6									
7									
8						DP02	5.0 - 10.0	4.0	N/A
9									
10									
11	11.4	373.9							
12					DP03	10.0 - 15.0	2.6	N/A	
13									
14									
15									
16									
17									
18					DP04	15.0 - 20.0	4.5	N/A	

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190830.GDT 6/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-111 Offset C
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,942.32 N; 1,412,173.07 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 385.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			GRAVELLY POORLY GRADED SAND WITH SILT, GP-GC, 2.5Y 4/2 (dark grayish brown) to 10YR 5/3 (brown), medium to coarse, loose, wet, [CCR] <i>(Continued)</i>							
19										
20										
21										
22			SILTY LEAN CLAY, CL, 2.5Y 3/1 (very dark gray), medium plasticity, firm, moist to wet							
23										
24	24.5			360.8			DP05	20.0 - 25.0	4.7	N/A
25										
26										
27							DP06	25.0 - 30.0	3.5	N/A
28										
29										
30										
31										
32							DP07	30.0 - 34.5	0.3	N/A
33										
34	34.5			350.8						

Bedrock Refusal /
Bottom of Hole at 34.5 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-111A
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>604,942.32 N; 1,412,173.07 E NAD27 Plant Local</u>
Project Number	<u>175568286</u>	Surface Elevation	<u>385.3 ft</u> Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>9/11/19</u> Completed <u>9/17/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Inspector	<u>S. Stanley</u> Logger <u>S. Stanley</u>	Depth to Water	<u>N/A</u> Date/Time <u>N/A</u>
Drilling Contractor	<u>M&W Drilling (Subcontractor)</u>	Drill Rig Type and ID	<u>Geoprobe 8150LS</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4" X 6" Rotasonic</u>		
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>		
Overdrill Tooling (Type and Size)	<u>8" Rotasonic</u>	Overdrill Depth	<u>N/A</u>
Sampler Hammer Type	<u>N/A</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>		
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>
Reviewed By	<u>K. Carey</u>	Approved By	<u>P. Dunne</u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	385.3	Top of Hole					
1	0.8	384.5	Crushed stone					
2			LEAN CLAY LITTLE SILT, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, very hard, moist, [FILL]					
5	4.8	380.5	LEAN CLAY LITTLE SILT, CL, 7.5YR 2.5/1 (black), non to low plasticity, firm, moist, [FILL]		RS01	0.0 - 10.0	9.6	N/A
9			LEAN CLAY LITTLE SILT, CL, 7.5YR 4/4 (brown), non to low plasticity, firm, moist, [FILL]					
12	12.4	372.9	SILT, ML, 7.5YR 2.5/1 (black), wet, [CCR]					
14	13.5	371.8	POORLY GRADED SAND LITTLE SILT, SP, 7.5YR 2.5/1 (black), loose, moist, [CCR]		RS02	10.0 - 20.0	8.6	N/A

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC SUBSURF DT:20190930.GDT 7/6/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
19			POORLY GRADED SAND LITTLE SILT, SP, 7.5YR 2.5/1 (black), loose, moist, [CCR] <i>(Continued)</i>					
20								
21								
22	22.0	363.3						
23			POORLY GRADED SAND LITTLE SILT, SP, 7.5YR 2.5/1 (black), wet, [CCR]					
24	24.7	360.6			RS03	20.0 - 29.0	9.0	N/A
25			FAT CLAY TRACE SILT, CL, 7.5YR 5/4 (brown), medium plasticity, firm to hard, moist					
26								
27								
28								
29	29.0	356.3						
30	30.0	355.3	Able to push out 8.5" PVC casing to 30' during installation					
31			No recovery					
32					RS04	30.0 - 35.0	0.0	N/A
33								
34								
35	35.0	350.3						
36			POORLY GRADED SAND WITH SILT SOME GRAVEL, SP-SM, 7.5YR 5/6 (strong brown), fine to coarse, low to medium plasticity, loose, moist					
37	37.6	347.7			RS05	35.0 - 40.0	5.0	N/A
38			LEAN CLAY LITTLE SILT, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, soft, moist					
39								
40	40.0	345.3						
41			POORLY GRADED GRAVEL WITH CLAY, GP-GC, 7.5YR 4/1 (dark gray), fine to coarse, low to medium plasticity, very loose, wet					
42								
43								
44								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 7/6/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-111A
Client	Tennessee Valley Authority	Boring Location	604,942.32 N; 1,412,173.07 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	385.3 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
45					RS06	40.0 - 50.0	5.0	N/A
46	46.0	339.3	LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, firm, moist					
47								
48								
49								
50	50.0	335.3	LEAN CLAY, CL, 7.5YR 6/6 (reddish yellow), low to medium plasticity, firm, moist					
51								
52								
53								
54								
55					RS07	50.0 - 60.0	10.0	N/A
56								
57								
58								
59								
60	60.0	325.3						

No Refusal /
Bottom of Hole at 60.0 Ft.

Boring abandoned after surface casing dropped 4' during well completion. Monitoring Well JOF-111 installed adjacent boring JOF-111B.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 7/6/20

Client Borehole ID <u> N/A </u>		Stantec Boring No. JOF-111B	
Client <u> Tennessee Valley Authority </u>		Boring Location <u> 604,940.99 N; 1,412,174.09 E NAD27 Plant Local </u>	
Project Number <u> 175568286 </u>		Surface Elevation <u> 385.3 ft </u>	Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>		Date Started <u> 9/18/19 </u>	Completed <u> 9/19/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>		Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Inspector <u> S. Stanley </u>	Logger <u> S. Stanley </u>	Depth to Water <u> N/A </u>	Date/Time <u> N/A </u>
Drilling Contractor <u> M&W Drilling (Subcontractor) </u>		Drill Rig Type and ID <u> Geoprobe 8150LS </u>	
Overburden Drilling and Sampling Tools (Type and Size) <u> 4" X 6" Rotosonic Casing </u>			
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>			
Overdrill Tooling (Type and Size) <u> 8" Rotosonic Casing </u>		Overdrill Depth <u> 46.5 ft </u>	
Sampler Hammer Type <u> N/A </u>	Weight <u> N/A </u>	Drop <u> N/A </u>	Efficiency <u> N/A </u>
Borehole Azimuth <u> N/A </u>		Borehole Inclination (from Vertical) <u> N/A </u>	
Reviewed By <u> K. Carey </u>		Approved By <u> P. Dunne </u>	

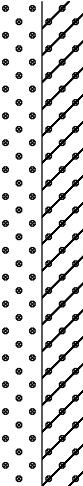
Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	385.3	Top of Hole					
1	1.5	383.8	Crushed stone					
2	2.0	383.3	LEAN CLAY LITTLE SAND, CL, 7.5YR 4/3 (brown), non-plastic, dry, crumbly					
3	3.5	381.8	LEAN CLAY LITTLE SAND, CL, 7.5YR 4/1 (dark gray), non-plastic, soft, dry, crumbly					
4			LEAN CLAY LITTLE SAND, CL, 7.5YR 4/3 (brown), non-plastic, soft, dry, crumbly					
5				RS01		0.0 - 10.0	5.0	N/A
10	10.0	375.3	POORLY GRADED SAND WITH SILT, SM, 7.5YR 2.5/1 (black), loose, wet, [CCR]					
15				RS02		10.0 - 20.0	8.0	N/A

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190930.GDT 6/15/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			POORLY GRADED SAND WITH SILT, SM, 7.5YR 2.5/1 (black), loose, wet, [CCR] <i>(Continued)</i>					
19								
20								
21								
22								
23								
24								
25	25.5	359.8			RS03	20.0 - 30.0	8.0	N/A
26			SILT LITTLE SAND, MH, 7.5YR 2.5/1 (black), wet, [CCR]					
27	27.0	358.3						
28			LEAN CLAY TRACE SILT, CL, 7.5YR 5/4 (brown), low to medium plasticity, firm to hard, moist					
29	29.3	356.0						
30	30.0	355.3	POORLY GRADED GRAVEL WITH CLAY TRACE SILT, GP-GC, 7.5YR 5/1 (gray), low to medium plasticity, soft, moist					
31								
32	32.4	352.9	CLAYEY ORGANIC SILT SOME GRAVEL, OL, 7.5YR 3/1 (very dark gray), low to medium plasticity, wet, moderate organic odor					
33			CLAYEY ORGANIC SILT, OL, 7.5YR 5/4 (brown), low to medium plasticity, wet, moderate organic odor		RS04	30.0 - 35.0	5.0	N/A
34								
35	35.0	350.3						
36			CLAYEY ORGANIC SILT LITTLE SAND, OL, 7.5YR 5/4 (brown) and 7.5YR 7/1 (light gray), low to medium plasticity, soft, wet					
37								
38					RS05	35.0 - 40.0	3.8	N/A
39	39.5	345.8						
40	40.0	345.3	POORLY GRADED GRAVEL WITH CLAY LITTLE SAND, GP-GC, 7.5YR 4/4 (brown), low to medium plasticity, soft, wet					
41								
42								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-111B
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,940.99 N; 1,412,174.09 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 385.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43 44 45 46 47 48 49 50	50.0	335.3			RS06	40.0 - 50.0	5.0	N/A

No Refusal /
Bottom of Hole at 50.0 Ft.

Monitoring well JOF-111 installed in boring on 9/18/19. Refer to JOF-111 well installation detail for well construction details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-111-Pre	
Client	Tennessee Valley Authority	Boring Location	605,017.14 N; 1,412,230.40 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	382.3 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/7/19	Completed 8/7/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	11.1 ft	Date/Time 8/7/19 13:40
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD with 60" PVC sample liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	GH70 Direct Push	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey		Approved By	P. Dunne

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	382.3	Top of Hole					
0.8	381.5		Topsoil					
2.7	379.6		LEAN CLAY SOME GRAVEL, CL, 10YR 5/8 (yellowish brown), medium to high plasticity, moist, [FILL]		DP01	0.0 - 5.0	3.9	N/A
6.0	376.3		FAT CLAY WITH GRAVEL, CH, 2.5Y 3/2 (very dark grayish brown) to 10YR 5/6 (yellowish brown), medium to high plasticity, moist, with coal fragments and organics, [CCR]					
13.3	369.0		SANDY POORLY GRADED GRAVEL, GP, 2.5Y 3/3 (dark olive brown) to N 4/ (dark gray), non-plastic, moist, stratified, coal fragments, [FILL]		DP02	5.0 - 10.0	3.3	N/A
15.3	367.0		FAT CLAY SOME GRAVEL, CH, 5Y 2.5/1 (black), medium to high plasticity, moist, [CCR]		DP03	10.0 - 15.0	3.5	N/A
16			SANDY SILT SOME GRAVEL, ML, 5Y 2.5/1 (black), wet, [CCR]		DP04	15.0 - 20.0	2.5	N/A

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 8/7/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-111-Pre
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 605,017.14 N; 1,412,230.40 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 382.3 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			SANDY SILT SOME GRAVEL, ML, 5Y 2.5/1 (black), wet, [CCR] <i>(Continued)</i>					
19								
20	20.0	362.3						

No Refusal /
Bottom of Hole at 20.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/7/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-112	
Client	Tennessee Valley Authority	Boring Location	604,376.52 N; 1,412,991.02 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	389.8 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/27/19	Completed 8/27/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	S. Stanley	Logger	S. Stanley	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 1050, #952	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	30.9 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	J. Snider	Approved By	L. Tucker	

Depth Ft ³	Lithology		Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.8	Top of Hole					
0.5	389.3		Crushed stone					
1			SANDY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/8 (strong brown), low to medium plasticity, very hard, dry, [FILL] Rock in SS02 from 1.5' to 3.0'		SS01G	0.0 - 1.5	1.2	28-14-9
2					SS02G	1.5 - 3.0	0.4	8-7-6
3								
4	4.0	385.8			SS03G	3.0 - 4.5	1.0	7-3-4
4.5	385.3		SANDY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/2 (brown), low to medium plasticity, firm, moist		SS04G	4.5 - 6.0	1.2	4-2-3
5			SANDY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/8 (strong brown), low to medium plasticity, firm, moist		SS05G	6.0 - 7.5	1.2	3-3-2
6								
7	7.2	382.6						
7.5	382.3		CLAYEY SILT TRACE SAND, CL-ML, 7.5YR 4/6 (strong brown), low to medium plasticity, firm, moist		SS06G	7.5 - 9.0	1.4	WH-1-WH
8			SANDY LEAN CLAY LITTLE GRAVEL, CL, 2.5YR 4/6 (red), low to medium plasticity, very soft, moist		SS07G	9.0 - 10.5	1.0	WH-WH-WH
9	9.2	380.6						
10			SANDY LEAN CLAY LITTLE GRAVEL, CL, 2.5YR 4/6 (red), low plasticity, very soft, wet		SS08G	10.5 - 12.0	1.2	WH-WH-2
11								
12	12.5	377.3			SS09aG	12.0 - 12.5		
13			POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/6 (strong brown), non-plastic, very hard, wet, limestone rock fragments		SS09bG	12.5 - 13.5	1.5	10-19-35
14					SS10G	13.5 - 15.0	1.5	18-26-42
15								
16					SS11G	15.0 - 16.5	1.5	11-20-20
17								
18					SS12G	16.5 - 18.0	1.3	12-14-14

TVA EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 2/20/20

Client Borehole ID N/A Stantec Boring No. **JOF-112**
 Client Tennessee Valley Authority Boring Location 604,376.52 N; 1,412,991.02 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 389.8 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18			POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/6 (strong brown), non-plastic, very hard, wet, limestone rock fragments (Continued)					
19				SS13G	18.0 - 19.5	1.0	9-5-8	
20				SS14E	19.5 - 21.0	1.3	10-10-15	
21				SS15E	21.0 - 22.5	1.1	16-14-11	
22				SS16E	22.5 - 24.0	1.5	9-7-5	
23				SS17E	24.0 - 25.5	0.9	12-16-43	
24				SS18E	25.5 - 26.9	1.4	27-37-50/5"	
25				SS19E	27.0 - 27.3	0.3	50/4"	
26				SS20E	28.5 - 28.9	0.4	50/5"	
27				SS21G	30.0 - 30.9	0.9	40-50/5"	
26.9	362.9		Auger without sampling					
27.0	362.8		Auger without sampling					
27.3	362.5		Auger without sampling					
28			POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/6 (strong brown), non-plastic, very hard, wet, limestone rock fragments					
28.5	361.3							
28.9	360.9		Auger without sampling					
30			POORLY GRADED GRAVEL WITH SILT, GP, 7.5YR 4/3 (brown), non-plastic, very hard, wet, limestone rock fragments					
30.0	359.8							
30.9	358.9		Auger without sampling					

Refusal /
Bottom of Hole at 30.9 Ft.

Permanent monitoring well JOF-112 installed in this boring following over-drilling. See JOF-112 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

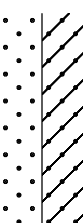

TVA EIP BORING LOG 175568286 JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 2/20/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-112-Pre
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,373.46 N; 1,412,990.25 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 389.2 ft </u> Elevation Datum <u> NGVD29 </u>
Project Name <u> JOF TDEC Order </u>	Date Started <u> 8/6/19 </u> Completed <u> 8/6/19 </u>
Project Location <u> New Johnsonville, Humphreys Co., TN </u>	Depth to Water <u> 9.0 ft </u> Date/Time <u> 8/6/19 13:05 </u>
Inspector <u> C. Burton </u> Logger <u> C. Burton </u>	Depth to Water <u> N/A </u> Date/Time <u> N/A </u>
Drilling Contractor <u> Geo Logic (Subcontractor) </u>	Drill Rig Type and ID <u> Geoprobe 6610DT </u>
Overburden Drilling and Sampling Tools (Type and Size) <u> Macro Core 2.0" OD </u>	
Rock Drilling and Sampling Tools (Type and Size) <u> N/A </u>	
Overdrill Tooling (Type and Size) <u> N/A </u>	Overdrill Depth <u> N/A </u>
Sampler Hammer Type <u> GH70 Direct Push </u> Weight <u> N/A </u> Drop <u> N/A </u> Efficiency <u> N/A </u>	
Borehole Azimuth <u> N/A </u>	Borehole Inclination (from Vertical) <u> N/A </u>
Reviewed By <u> K. Carey </u>	Approved By <u> P. Dunne </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	389.2						
	0.6	388.6						
1			GRAVELLY LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 10YR 6/1 (gray), [FILL]					
2				DP01	0.0 - 5.0	0.0 - 5.0	2.8	N/A
3								
4								
5			LEAN CLAY WITH GRAVEL, CL, 2.5YR 4/8 (red) to 7.5YR 5/6 (strong brown), low to medium plasticity, moist, [FILL]					
6	5.9	383.3		DP02	5.0 - 10.0	5.0 - 10.0	1.6	N/A
7								
8			GRAVELLY LEAN CLAY, CL, 7.5YR 5/6 (strong brown)					
9								
10	10.0	379.2						
11			GRAVELLY POORLY GRADED SAND, SP-SC, 7.5YR 5/4 (brown) to 5YR 4/6 (yellowish red), medium to coarse					
12				DP03	10.0 - 14.0	10.0 - 14.0	3.0	N/A
13			CLAYEY SAND WITH GRAVEL, SP-SC, 7.5YR 6/6 (reddish yellow)					
14	13.8	375.4						
15								
16	15.8	373.4						
17								
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 9/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-112-Pre
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 604,373.46 N; 1,412,990.25 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 389.2 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			CLAYEY SAND WITH GRAVEL, SP-SC, 7.5YR 6/6 (reddish yellow) <i>(Continued)</i>						
19									
20									
21	21.4	367.8							
22			FAT CLAY WITH GRAVEL, CH, 5Y 7/3 (pale yellow), moist		DP05	19.0 - 24.0	3.2	N/A	
23									
24									
25	25.2	364.0			DP06	24.0 - 25.2	0.4	N/A	

Bedrock Refusal /
Bottom of Hole at 25.2 Ft.

As-drilled boring location not surveyed. Horizontal coordinates based on proposed boring location. Vertical coordinates based on 2017 LIDAR surfaces.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 9/15/20

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-113	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>604,136.76 N; 1,412,110.10 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>383.4 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>8/30/19</u> Completed <u>9/3/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>30.2 ft</u> Date/Time <u>9/3/19 10:09</u>	
Inspector <u>S. Stanley</u> Logger <u>S. Stanley</u>		Depth to Water <u>13.0 ft</u> Date/Time <u>9/3/19 10:09</u>	
Drilling Contractor <u>Stantec Consulting Services Inc.</u>		Drill Rig Type and ID <u>CME 1050, #952</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>8-1/4" HSA overdrill of boring</u>		Overdrill Depth <u>49.7 ft</u>	
Sampler Hammer Type <u>Automatic</u> Weight <u>140 lb</u> Drop <u>30"</u>		Efficiency <u>N/A</u>	
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.4						
1	1.0	382.4	Overburden - general description of previously air-excavated material: Gravel mixed with clay, [FILL] Fat Clay mixed with gravel, moist, [FILL] Hole backfilled with coarse sand to 6.0' bgs after completion of air-excavation.					
6	6.0	377.4						
7			SILTY FAT CLAY, CH, 7.5YR 5/6 (strong brown), medium plasticity, very soft, moist		SS01G	6.0 - 7.5	0.4	3-2-3
8					SS02G	7.5 - 9.0	0.2	5-2-2
9	9.5	373.9						
10			SILTY LEAN CLAY, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, firm, moist		SS03G	9.0 - 10.5	1.2	2-2-3
11					SS04G	10.5 - 12.0	1.5	2-2-4
12					SS05G	12.0 - 13.5	1.5	1-2-3
13					SS06G	13.5 - 15.0	1.5	2-3-3
14	15.0	368.4						
15			SILTY LEAN CLAY, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, firm, wet		SS07G	15.0 - 16.5	0.9	3-2-2
16					SS08G	16.5 - 18.0	1.2	3-2-3

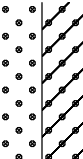
TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190930.GDT 6/15/20

Client Borehole ID N/A Stantec Boring No. **JOF-113**
 Client Tennessee Valley Authority Boring Location 604,136.76 N; 1,412,110.10 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 383.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18		[Diagonal Hatching]	SILTY LEAN CLAY, CL, 7.5YR 5/6 (strong brown), low to medium plasticity, firm, wet (Continued)					
19							18.0 - 19.5	1.2
20	20.0	363.4	SILTY LEAN CLAY LITTLE GRAVEL, CL, 2.5YR 4/6 (red), low plasticity, firm, wet					
21						19.5 - 21.0	1.5	3-3-4
22	22.5	360.9				21.0 - 22.5	1.5	3-3-2
23			SILTY LEAN CLAY LITTLE GRAVEL, CL, 7.5YR 5/4 (brown), low plasticity, firm, wet					
24	24.0	359.4				22.5 - 24.0	1.5	1-2-3
25			CLAYEY SILT LITTLE GRAVEL, ML, 7.5YR 5/4 (brown), non-plastic, very soft, wet, water on SS					
26						24.0 - 25.5	1.5	3-3-3
27	27.5	355.9	CLAYEY SILT LITTLE SAND, ML, 7.5YR 3/3 (dark brown), non-plastic, very soft, wet, water on SS					
28	28.2	355.2				25.5 - 27.0	1.5	WH-WH-1
29			SANDY SILTY GRAVEL, GC, 7.5YR 4/4 (brown), fine to coarse, loose, wet, with chert					
30	30.0	353.4				27.0 - 28.5	1.5	7-18-23
31			SANDY SILTY GRAVEL, GC, 7.5YR 5/6 (strong brown), fine to coarse, loose, wet, with chert					
32						28.5 - 30.0	1.5	24-30-30
33			SANDY SILTY GRAVEL, GC, 7.5YR 5/6 (strong brown), fine to coarse, loose, wet, with chert					
34						30.0 - 31.5	1.4	20-13-25
35			SANDY SILTY GRAVEL, GC, 7.5YR 5/6 (strong brown), fine to coarse, loose, wet, with chert					
36						31.5 - 33.0	1.2	19-14-23
37			SANDY SILTY GRAVEL, GC, 7.5YR 5/6 (strong brown), fine to coarse, loose, wet, with chert					
38						33.0 - 34.5	1.5	20-15-25
39			SANDY SILTY GRAVEL, GC, 7.5YR 5/6 (strong brown), fine to coarse, loose, wet, with chert					
40	40.2	343.2				34.5 - 36.0	1.3	23-14-17
41	41.5	341.9	CLAYEY GRAVEL WITH SILT, GP-GC, 7.5YR 5/4 (brown) to 2.5YR 8/1 (white), fine to medium, dense, moist, poorly graded					
42						36.0 - 37.5	1.2	30-30-30
			CLAYEY GRAVEL WITH SILT, GP-GC, 7.5YR 5/4 (brown) to 2.5YR 8/1 (white), fine to medium, dense, moist, poorly graded					
						37.5 - 39.0	1.3	18-22-35
			CLAYEY GRAVEL WITH SILT, GP-GC, 7.5YR 5/4 (brown) to 2.5YR 8/1 (white), fine to medium, dense, moist, poorly graded					
						39.0 - 40.1	1.0	50-35-50/1"
			CLAYEY GRAVEL WITH SILT, GP-GC, 7.5YR 5/4 (brown) to 2.5YR 8/1 (white), fine to medium, dense, moist, poorly graded					
						40.5 - 40.9	0.4	50/5"

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 6/15/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-113
Client	Tennessee Valley Authority	Boring Location	604,136.76 N; 1,412,110.10 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.4 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			CLAYEY GRAVEL WITH SILT, GP-GC, 2.5Y 8/1 (white) to 2.5Y 7/4 (pale brown), fine to medium, moist (Continued)		SS25G	42.0 - 43.5	1.3	15-30-37
44	44.7			SS26G	43.5 - 44.7	1.1	23-22-50/2"	

No Refusal /
Bottom of Hole at 44.7 Ft.

Permanent monitoring well JOF-113 installed in this boring following over-drilling. See JOF-113 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20



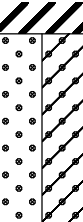

SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-113 Offset A	
Client	Tennessee Valley Authority	Boring Location	604,133.73 N; 1,412,109.26 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	382.8 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/21/19	Completed 8/21/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	13.1 ft	Date/Time 8/22/19 06:50
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD with 60" PVC liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	GH70 Direct Push	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey		Approved By	C. Millhollin

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	382.8	Top of Hole					
1	1.0	381.8	Overburden - general description of previously air-excavated material to 6.0' bgs: Gravel mixed with clay, moist, [FILL]					
2			FAT CLAY WITH GRAVEL, moist, [FILL]					
3								
4								
5			Hole backfilled with coarse sand to 6.0' bgs after completion of air excavation.					
6	6.0	376.8						
7			FAT CLAY WITH GRAVEL, CH, 7.5YR 5/4 (brown) to 10YR 5/4 (yellowish brown), high plasticity, moist, [FILL]		DP01	5.0 - 10.0	1.9	N/A
8								
9								
10								
11								
12								
13								
14								
15	15.0	367.8						
16			FAT CLAY, CH, 10YR 5/6 (yellowish brown) to 7.5YR 4/4 (brown), high plasticity, moist, [FILL]					
17	16.6	366.2						
18	17.2	365.6	FAT CLAY, CH, 10YR 5/8 (yellowish brown) to 7.5YR 7/1 (light gray), high plasticity, hard to firm, [FILL]		DP03	15.0 - 20.0	1.9	N/A
19								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/17/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-113 Offset A
Client	Tennessee Valley Authority	Boring Location	604,133.73 N; 1,412,109.26 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	382.8 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
18	18.5	364.3	 GRAVELLY FAT CLAY WITH SAND, CH, 7.5YR 5/6 (strong brown), firm, wet, [FILL] (Continued) GRAVELLY CLAYEY SAND, GP-GC, 7.5YR 5/6 (strong brown), high plasticity, medium dense, wet					
19								
20								
21	21.7	361.1						
22			 SILTY LEAN CLAY, CL, 7.5YR 5/6 (strong brown) to 10YR 6/6 (brownish yellow), medium plasticity, firm, moist		DP04	20.0 - 25.0	3.7	N/A
23								
24								
25								
26								
27					DP05	25.0 - 28.4	2.9	N/A
28	28.4	354.4						

Bedrock Refusal /
Bottom of Hole at 28.4 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/17/20




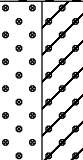
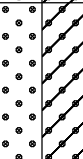
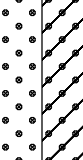
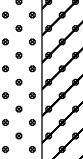
SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-114		
Client	Tennessee Valley Authority	Boring Location	603,597.10 N; 1,412,156.67 E NAD27 Plant Local		
Project Number	175568286	Surface Elevation	383.7 ft	Elevation Datum	NGVD29
Project Name	JOF TDEC Order	Date Started	9/10/19	Completed	9/10/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	18.5 ft	Date/Time	9/10/19 15:28
Inspector	C. Burton	Logger	C. Burton	Depth to Water	23.1 ft
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 85#2, #951		
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes				
Rock Drilling and Sampling Tools (Type and Size)	N/A				
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	40.5 ft		
Sampler Hammer Type	Automatic	Weight	140 lb	Drop	30"
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A		
Reviewed By	K. Carey	Approved By	P. Dunne		

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.7						
1	1.0	382.7	Overburden - description of previously air-excavated material: Gravel mixed with clay, moist, [FILL]					
2			Fat Clay, with gravel, moist, [FILL]					
3			Hole backfilled with coarse sand to 6.0' bgs after completion of air-excavation. Lithology determined from air knifing cuttings.					
4								
6	6.0	377.7						
7	7.5	376.2	FAT CLAY WITH SAND, CH, 10YR 5/4 (yellowish brown), [FILL]		SS01G	6.0 - 7.5	0.3	WH-WH-1
8			FAT CLAY, CH, 7.5YR 6/4 (light brown) with 7.5YR 7/1 (light gray), medium to high plasticity, very soft to firm, moist, [FILL]		SS02G	7.5 - 9.0	1.5	2-2-5
10	10.3	373.4			SS03aG	9.0 - 10.3	1.2	3-2-5
11	11.2	372.5	LEAN CLAY, CL, medium to high plasticity, firm, moist, [FILL]		SS03bG SS04aG	10.3 - 10.5 10.5 - 11.2	1.3	3-3-3
12					SS04bG	11.2 - 12.0		
13	13.5	370.2	FAT CLAY WITH GRAVEL, CH, 7.5YR 5/2 (brown) to 10YR 4/4 (dark yellowish brown), medium to high plasticity, firm, moist, with coal fragments, [FILL]		SS05G	12.0 - 13.5	0.9	1-2-2
14					SS06G	13.5 - 15.0	1.0	1-1-1
15	15.0	368.7	FAT CLAY WITH GRAVEL, CH, 7.5YR 5/3 (brown) with 7.5YR 7/1 (light gray), medium to high plasticity, very soft, moist, [FILL]		SS07	15.0 - 16.5	1.3	1-3-4
16					SS08	16.5 - 18.0	1.1	WH-1-1
17					SS09	18.0 - 19.5	1.3	WH-WH-WH
18					SS10G	19.5 - 21.0	1.3	WH-WH-WH
19								
20								
21								

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190930.GDT - 10/27/20

Client Borehole ID N/A Stantec Boring No. **JOF-114**
 Client Tennessee Valley Authority Boring Location 603,597.10 N; 1,412,156.67 E NAD27 Plant Local
 Project Number 175568286 Surface Elevation 383.7 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
21	21.4	362.3	 FAT CLAY WITH GRAVEL, CH, 10YR 5/3 (brown) to 10YR 6/6 (brownish yellow), medium to high plasticity, very soft to firm, moist, [FILL]		SS11aG	21.0 - 21.4	0.9	WH-1-2
22					SS11bG	21.4 - 22.5		
23						SS12G	22.5 - 24.0	0.4
24			 SANDY CLAYEY GRAVEL, GP-GC, 7.5YR 4/6 (strong brown) to 10YR 7/1 (light gray), very fine to medium, very dense, moist to wet		SS13G	24.0 - 25.5	0.3	1-WH-1
25	25.5	358.2			SS14G	25.5 - 27.0	1.5	2-4-4
26					SS15G	27.0 - 28.5	1.2	18-34-32
27			 SANDY CLAYEY GRAVEL, GP-GC, 10YR 5/8 (yellowish brown) to 10YR 7/6 (yellow), fine to medium, very dense, wet		SS16G	28.5 - 30.0	1.0	10-18-18
28	28.5	355.2			SS17G	30.0 - 31.5	1.3	22-24-21
29					SS18G	31.5 - 33.0	1.1	2-20-25
30					SS19G	33.0 - 34.5	1.1	18-28-25
31					SS20G	34.5 - 36.0	1.2	19-20-20
32					SS21G	36.0 - 37.5	1.2	20-23-18
33					SS22G	37.5 - 39.0	1.2	15-16-23
34					SS23G	39.0 - 40.5	1.2	28-25-25
35								
36								
37								
38								
39								
40	40.5	343.2						

No Refusal /
Bottom of Hole at 40.5 Ft.

Permanent monitoring well JOF-114 installed in this boring following over-drilling. See JOF-114 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/27/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-114 Offset A	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>603,594.03 N; 1,412,155.80 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>383.1 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>8/21/19</u>	Completed <u>8/21/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>N/A</u>	Date/Time <u>N/A</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Geo Logic (Subcontractor)</u>	Drill Rig Type and ID	<u>Geoprobe 6610DT</u>	
Overburden Drilling and Sampling Tools (Type and Size)	<u>Macro Core 2.0" OD</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>N/A</u>	Overdrill Depth	<u>N/A</u>	
Sampler Hammer Type	<u>GH70 Direct Push</u>	Weight	<u>N/A</u>	Drop <u>N/A</u>
Borehole Azimuth	<u>N/A</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Approved By	<u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.1	Top of Hole					
1	1.0	382.1	Overburden, previously air-knifed to 6.0'. Gravel mixed with clay					
2			FAT CLAY WITH GRAVEL, CH, high plasticity, moist, (as interpreted from spoils generated during air knifing)					
6	6.0	377.1	Air-knife boring backfill (coarse sand) from 5.0' to 6.0'					
7			FAT CLAY WITH GRAVEL, CH, 7.5YR 5/6 (strong brown) to 5YR 7/1 (light gray), high plasticity, moist, [FILL]		DP01	5.0 - 10.0	3.9	N/A
11	10.6	372.5	FAT CLAY WITH GRAVEL, CH, 10YR 4/3 (brown) with 10YR 5/1 (gray), medium to high plasticity, moist, with coal fragments, [FILL]		DP02	10.0 - 12.0	1.2	N/A

Bedrock Refusal /
Bottom of Hole at 12.0 Ft.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 7/6/20




SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-114-Pre	
Client	Tennessee Valley Authority	Boring Location	603,597.10 N; 1,412,156.67 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	383.7 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	8/21/19	Completed 8/21/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	N/A	Date/Time N/A
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Geo Logic (Subcontractor)	Drill Rig Type and ID	Geoprobe 6610DT	
Overburden Drilling and Sampling Tools (Type and Size)	Macro Core 2.0" OD with 60" PVC sample liners			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	N/A		Overdrill Depth	N/A
Sampler Hammer Type	GH70 Direct Push	Weight	N/A	Drop N/A
Borehole Azimuth	N/A		Borehole Inclination (from Vertical)	N/A
Reviewed By	K. Carey	Approved By	C. Millhollin	
Efficiency	N/A			

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.7						
1	1.0	382.7	Overburden, previously air-knifed material. Gravel mixed with clay					
2			FAT CLAY WITH GRAVEL, CH, high plasticity, [FILL]					
5			Hole backfilled with coarse sand to 6.0' bgs after completion of air-excavation.					
6	6.0	377.7						
7			FAT CLAY SOME GRAVEL, CH, 10YR 5/8 (yellowish brown) to 2.5Y 8/1 (white), high plasticity, [FILL]		DP01	5.0 - 10.0	4.1	N/A
9	9.1	374.6						
10			FAT CLAY WITH GRAVEL, CH, 10YR 5/4 (yellowish brown) to 10YR 5/6 (yellowish brown), high plasticity, moist, with coal fragments, [FILL]		DP02	10.0 - 15.0	2.4	N/A
18	18.0	365.7			DP03	15.0 - 20.0	4.0	N/A

TVA/EIP BORING LOG - 175568286 - JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 7/13/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-114-Pre
Client	Tennessee Valley Authority	Boring Location	603,597.10 N; 1,412,156.67 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	383.7 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			FAT CLAY WITH GRAVEL, CH, 2.5Y 6/3 (light yellowish brown) to 10YR 5/4 (yellowish brown), high plasticity, hard, moist, [FILL]							
19										
20										
21										
22										
23							DP04	20.0 - 25.0	2.1	N/A
24										
25										
26							DP05	25.0 - 27.5	2.5	N/A
27	27.5			356.2						

Bedrock Refusal /
Bottom of Hole at 27.5 Ft.

Boring JOF-114-Pre was backfilled with grout on 8/21/2019.


- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 7/13/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-117	
Client	Tennessee Valley Authority	Boring Location	602,823.15 N; 1,412,216.73 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	384.1 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	9/12/19	Completed 9/12/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	30.2 ft	Date/Time 9/13/19 07:18
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 85#2, #951	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	40.7 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	K. Carey	Approved By	P. Dunne	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	384.1						
1	1.0	383.1	 Overburden - general description of previously air-excavated material: GRAVEL mixed with clay, moist, [FILL]					
2			FAT CLAY WITH GRAVEL, CH, moist, [FILL]					
3			Hole backfilled with coarse sand to 6.0' bgs after completion of air-excitation.					
4								
5								
6	6.0	378.1						
7			SANDY FAT CLAY WITH GRAVEL, CH, 7.5YR 5/6 (strong brown) to 10YR 8/1 (white), medium to high plasticity, very soft to firm, moist, [FILL]		SS01G	6.0 - 7.5	0.9	1-2-3
8					SS02G	7.5 - 9.0	0.3	2-1-1
9					SS03G	9.0 - 10.5	0.2	WH-1-1
10					SS04G	10.5 - 12.0	0.5	3-4-4
11					SS05G	12.0 - 13.5	1.0	4-3-3
12	12.0	372.1			SS06G	13.5 - 15.0	1.0	2-2-4
13			FAT CLAY SOME GRAVEL, CH, 10YR 5/8 (yellowish brown) and 10YR 8/1 (white), medium to high plasticity, very soft to firm, moist, with roots and pieces of wood, [FILL]		SS07G	15.0 - 16.5	1.3	2-1-2
14								
15								
16								
17								

TVA/EIP BORING LOG: 175568286, JOF, TDEC, ORDER, GPJ, TDEC, SUBSURF, DT, 20190530, GDT, 3/10/21




SUBSURFACE LOG

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
17			FAT CLAY SOME GRAVEL, CH, 10YR 5/8 (yellowish brown) and 10YR 8/1 (white), medium to high plasticity, very soft to firm, moist, with roots and pieces of wood, [FILL] (Continued)		SS08G	16.5 - 18.0	1.2	WH-WH-3		
18				SS09G	18.0 - 19.5	1.0	1-4-3			
19				SS10G	19.5 - 21.0	0.5	4-3-3			
20				SS11G	21.0 - 22.5	1.0	1-1-1			
21				SS12	22.5 - 24.0	0.0	WH-WH-1			
22				SS13G	24.0 - 25.5	0.5	3-1-2			
23				SS14G	25.5 - 27.0	0.5	WH-WH-2			
24				SS15G	27.0 - 28.5	1.5	WH-WH-1			
25				SS16G	28.5 - 30.0	0.5	WH-WH-1			
26				SS17G	30.0 - 31.5	0.4	1-5-6			
27	27.0			357.1	FAT CLAY SOME SAND, CH, 10YR 5/4 (yellowish brown), medium to high plasticity, very soft to very hard, moist to wet, [FILL]		SS18G	31.5 - 33.0	1.0	1-1-2
28				SS19		33.0 - 34.5	0.0	WH-1-1		
29				SS20G		34.5 - 36.0	1.2	WH-1-1		
30				SS21G		36.0 - 37.5	0.6	WH-1-1		
31		SS22G	37.5 - 39.0	0.4		WH-1-1				
32			GRAVELLY LEAN CLAY WITH SILT, CL, 10YR 5/4 (yellowish brown) to 2.5Y 4/3 (olive brown), medium plasticity, very soft to firm, moist to wet, with roots and shale fragments, [FILL]							
33										
34										
35	36.0	348.1								
36										
37										
38										
39	39.0	345.1								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 3/10/21

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-117
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 602,823.15 N; 1,412,216.73 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 384.1 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
40	40.5	343.6			SS23G	39.0 - 40.5	0.9	WH-1-2

GRAVELLY FAT CLAY, CH, 2.5Y 4/3 (olive brown),
medium to high plasticity, firm, moist, [FILL]
(Continued)

No Refusal /
Bottom of Hole at 40.5 Ft.

Permanent monitoring well JOF-117 installed in this boring following overdrilling. See JOF-117 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 3/10/21

Client Borehole ID <u>N/A</u>		Stantec Boring No. JOF-117 Offset A	
Client <u>Tennessee Valley Authority</u>		Boring Location <u>602,820.03 N; 1,412,215.82 E NAD27 Plant Local</u>	
Project Number <u>175568286</u>		Surface Elevation <u>383.2 ft</u> Elevation Datum <u>NGVD29</u>	
Project Name <u>JOF TDEC Order</u>		Date Started <u>8/21/19</u> Completed <u>8/21/19</u>	
Project Location <u>New Johnsonville, Humphreys Co., TN</u>		Depth to Water <u>22.5 ft</u> Date/Time <u>8/21/19 09:13</u>	
Inspector <u>C. Burton</u> Logger <u>C. Burton</u>		Depth to Water <u>N/A</u> Date/Time <u>N/A</u>	
Drilling Contractor <u>Geo Logic (Subcontractor)</u>		Drill Rig Type and ID <u>Geoprobe 6610DT</u>	
Overburden Drilling and Sampling Tools (Type and Size) <u>Macro Core 2.0" OD with 60" PVC sample liners</u>			
Rock Drilling and Sampling Tools (Type and Size) <u>N/A</u>			
Overdrill Tooling (Type and Size) <u>N/A</u> Overdrill Depth <u>N/A</u>			
Sampler Hammer Type <u>GH70 Direct Push</u> Weight <u>N/A</u> Drop <u>N/A</u> Efficiency <u>N/A</u>			
Borehole Azimuth <u>N/A</u>		Borehole Inclination (from Vertical) <u>N/A</u>	
Reviewed By <u>K. Carey</u>		Approved By <u>C. Millhollin</u>	



Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	383.2	Top of Hole					
1			Waste, air-knife excavation to 6.0'. No loggable recovery.					
2			Overburden - general description of previously air-excavated material: GRAVEL mixed with clay, moist, [FILL]					
3								
4			Hole backfilled with coarse sand to 6.0' bgs after completion of air-excavation.					
5								
6	6.0	377.2						
7			GRAVELLY FAT CLAY WITH GRAVEL, CH, 7.5YR 4/6 (strong brown) to 10YR 5/2 (grayish brown), fine, medium to high plasticity, moist, with coal and wood fragments, [FILL]		DP01	5.0 - 10.0	2.3	N/A
8			Operator used smaller diameter sampler to 15.0', reducing recovery					
9								
10								
11								
12					DP02	10.0 - 15.0	0.8	N/A
13								
14								
15			Switched to standard diameter sampler at 15.0'					
16								
17	16.8	366.4			DP03	15.0 - 20.0	3.9	N/A
18								

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190830.GDT 6/15/20

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
18			FAT CLAY WITH GRAVEL, CH, 7.5YR 5/8 (strong brown) to 10YR 5/1 (gray), high plasticity, firm, moist, iron oxide staining, [FILL] (Continued)						
19									
20									
21	21.4		361.8						
22	22.5		360.7	FAT CLAY WITH GRAVEL, CH, 10YR 5/8 (yellowish brown) to 10YR 5/1 (gray), [FILL]		DP04	20.0 - 25.0	4.3	N/A
23				GRAVELLY FAT CLAY, CH, 10YR 5/4 (yellowish brown), high plasticity, moist, [FILL]					
24									
25									
26									
27	26.9		356.3						
28				FAT CLAY WITH GRAVEL, CH, 10YR 5/4 (yellowish brown) to 2.5Y 7/1 (light gray), high plasticity, soft, moist, with organics - wood fragments, [FILL]		DP05	25.0 - 30.0	3.1	N/A
29									
30									
31									
32									
33						DP06	30.0 - 35.0	2.3	N/A
34									
35	35.7		347.5						
36				CLAYEY POORLY GRADED GRAVEL, GP-GC, 10YR 6/4 (light yellowish brown) to 7.5YR 5/6 (strong brown), moist, [FILL]		DP07	35.0 - 40.0	1.4	N/A
37									
38									
39									
40	40.2	343.0							
41			FAT CLAY, CH, 2.5Y 5/3 (light olive brown) to 10YR 5/4 (yellowish brown), high plasticity, moist, [FILL]						
42									

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-117 Offset A
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 602,820.03 N; 1,412,215.82 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 383.2 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			FAT CLAY, CH, 2.5Y 5/3 (light olive brown) to 10YR 5/4 (yellowish brown), high plasticity, moist, [FILL] <i>(Continued)</i>		DP08	40.0 - 45.0	3.0	N/A
44	44.6 45.0	338.6 338.2					40.0 - 45.0	
45			FAT CLAY, CH, 5YR 5/6 (yellowish red) and 10YR 7/1 (light gray), high plasticity, firm, moist, [FILL]					

No Refusal /
Bottom of Hole at 45.0 Ft.

Boring JOF-117 Offset A was backfilled with grout on 8/21/2019.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT 6/15/20

Client Borehole ID	<u>N/A</u>	Stantec Boring No.	JOF-118	
Client	<u>Tennessee Valley Authority</u>	Boring Location	<u>603,219.11 N; 1,410,969.82 E NAD27 Plant Local</u>	
Project Number	<u>175568286</u>	Surface Elevation	<u>369.3 ft</u>	Elevation Datum <u>NGVD29</u>
Project Name	<u>JOF TDEC Order</u>	Date Started	<u>6/27/19</u>	Completed <u>6/28/19</u>
Project Location	<u>New Johnsonville, Humphreys Co., TN</u>	Depth to Water	<u>7.8 ft</u>	Date/Time <u>7/8/19 09:10</u>
Inspector	<u>C. Burton</u>	Logger	<u>C. Burton</u>	Depth to Water <u>N/A</u>
Drilling Contractor	<u>Stantec Consulting Services Inc.</u>		Date/Time	<u>N/A</u>
Overburden Drilling and Sampling Tools (Type and Size)	<u>4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes</u>			
Rock Drilling and Sampling Tools (Type and Size)	<u>N/A</u>			
Overdrill Tooling (Type and Size)	<u>8-1/4" HSA overdrill of boring</u>	Overdrill Depth	<u>51.0 ft</u>	
Sampler Hammer Type	<u>Automatic</u>	Weight	<u>140 lb</u>	Drop <u>30"</u>
Borehole Azimuth	<u>N/A</u>	Efficiency	<u>N/A</u>	
Reviewed By	<u>K. Carey</u>	Borehole Inclination (from Vertical)	<u>N/A</u>	
		Approved By	<u>P. Dunne</u>	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	369.3		Top of Hole					
1			Blind-drilled through gravel to 2.8', [FILL]					
2.8	366.5		POORLY GRADED GRAVEL WITH CLAY, GP, 10YR 4/4 (dark yellowish brown), very dense, [FILL]		SS01G	3.0 - 4.5	0.2	4-2-4
4.5	364.8		SILTY LEAN CLAY, CL, 10YR 5/4 (yellowish brown) to 2.5Y 5/1 (gray), low plasticity, firm		SS02G	4.5 - 6.0	0.7	2-2-2
6.0					SS03G	6.0 - 7.5	1.5	3-7-5
7.5					SS04G	7.5 - 9.0	1.1	2-2-2
9.0					SS05G	9.0 - 10.5	1.5	2-1-2
10.5					SS06G	10.5 - 12.0	1.5	1-1-2
12.0					SS07G	12.0 - 13.5	1.5	1-2-2
13.5					SS08G	13.5 - 15.0	1.3	1-1-2
15.8	353.5		SILTY LEAN CLAY, CL, 2.5Y 5/1 (gray), very soft to very hard		SS09G	15.0 - 16.5	1.4	1-1-2
16.5					SS10G	16.5 - 18.0	1.5	3-6-4

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 7/6/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-118
Client	Tennessee Valley Authority	Boring Location	603,219.11 N; 1,410,969.82 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	369.3 ft
		Elevation Datum	NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			SILTY LEAN CLAY, CL, 2.5Y 5/1 (gray), very soft to very hard (Continued)							
19				SS11G	18.0 - 19.5	1.5	3-5-6			
20				SS12G	19.5 - 21.0	1.4	5-8-8			
21				SS13G	21.0 - 22.5	1.5	7-12-13			
22				SS14G	22.5 - 24.0	1.5	6-9-13			
23				SS15G	24.0 - 25.5	1.5	6-7-8			
24				SS16G	25.5 - 27.0	0.9	2-3-6			
25				SS17G	27.0 - 28.5	1.5	3-4-6			
26				SS18G	28.5 - 30.0	1.5	3-3-4			
27				SS19G	30.0 - 31.5	1.5	2-2-3			
28				SS20G	31.5 - 33.0	1.5	1-3-3			
29				SS21G	33.0 - 34.5	1.5	3-2-3			
30				SS22G	34.5 - 36.0	1.5	3-3-3			
31				SS23G	36.0 - 37.5	1.5	WH-WH-3			
32				SS24G	37.5 - 39.0	1.5	5-3-5			
33				SS25aG	39.0 - 39.8	1.5	3-22-17			
34	39.8			329.5	SS25bG	39.8 - 40.5				
35					GRAVELLY POORLY GRADED SAND WITH SILT, GP-GM, 7.5YR 4/4 (brown), fine to medium, very dense					
36						SS26G	40.5 - 42.0	1.3	6-11-12	
37										

TVA/EIP BORING LOG 175568286 JOF TDEC ORDER GPJ TDEC SUBSURF DT 20190530.GDT 7/6/20

Client Borehole ID	N/A	Stantec Boring No.	JOF-118
Client	Tennessee Valley Authority	Boring Location	603,219.11 N; 1,410,969.82 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	369.3 ft Elevation Datum NGVD29

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
43			GRAVELLY POORLY GRADED SAND WITH SILT, GP-GM, 7.5YR 4/4 (brown), fine to medium, very dense <i>(Continued)</i>			42.0 - 43.5	1.2	10-26-22	
44							43.5 - 45.0	1.5	5-13-14
45							45.0 - 46.5	1.4	7-7-22
46							46.5 - 48.0	0.7	18-12-14
47							48.0 - 49.5	1.1	7-8-16
48							49.5 - 51.0	0.9	10-10-11
49									
50	51.0	318.3							

No Refusal /
Bottom of Hole at 51.0 Ft.

Permanent monitoring well JOF-118 installed in this boring after overdrilling. Refer to JOF-118 Well Installation Detail for further details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ TDEC SUBSURF.DT 20190530.GDT 7/6/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-119	
Client	Tennessee Valley Authority	Boring Location	598,645.87 N; 1,410,031.49 E NAD27 Plant Local	
Project Number	175568286	Surface Elevation	363.4 ft	Elevation Datum NGVD29
Project Name	JOF TDEC Order	Date Started	7/9/19	Completed 7/10/19
Project Location	New Johnsonville, Humphreys Co., TN	Depth to Water	3.7 ft	Date/Time 7/10/19 15:38
Inspector	C. Burton	Logger	C. Burton	Depth to Water N/A
Drilling Contractor	Stantec Consulting Services Inc.	Drill Rig Type and ID	CME 55T#1, #709	
Overburden Drilling and Sampling Tools (Type and Size)	4-1/4" HSA, 2" SS w/o liners, 3" Shelby Tubes			
Rock Drilling and Sampling Tools (Type and Size)	N/A			
Overdrill Tooling (Type and Size)	8-1/4" HSA overdrill of boring	Overdrill Depth	45.0 ft	
Sampler Hammer Type	Automatic	Weight	140 lb	Drop 30" Efficiency N/A
Borehole Azimuth	N/A	Borehole Inclination (from Vertical)	N/A	
Reviewed By	J. Snider	Approved By	L. Tucker	

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0	0.0	363.4	Top of Hole					
1			Crushed stone mixed with clay, [FILL]		SS01G	0.0 - 1.5	0.3	2-1-2
2					SS02G	1.5 - 3.0	0.5	3-3-3
3	3.0	360.4	FAT CLAY, CH, 10YR 4/3 (brown) with 10YR 6/1 (gray), high plasticity, firm, iron oxide staining		SS03G	3.0 - 4.5	1.3	2-2-5
4					SS04G	4.5 - 6.0	0.8	4-6-6
5					SS05G	6.0 - 7.5	1.1	3-2-4
6					SS06G	7.5 - 9.0	1.4	2-2-2
7	7.5	355.9		SILTY FAT CLAY, CH, 10YR 5/4 (yellowish brown), medium to high plasticity, very soft to very hard		SS07G	9.0 - 10.5	1.3
8					SS08G	10.5 - 12.0	1.5	3-5-7
9					SS09G	12.0 - 13.5	1.5	3-3-5
10					SS10G	13.5 - 15.0	1.5	3-4-7
11					SS11G	15.0 - 16.5	1.5	4-4-5
12			SILTY FAT CLAY, CH, 10YR 5/3 (brown) to 2.5Y 6/3 (light yellowish brown), high plasticity, very soft		SS12G	16.5 - 18.0	1.3	2-3-6
13								

TVA/EIP BORING LOG: 175568286_JOF_TDEC_ORDER.GPJ_TDEC_SUBSURF_DT 20190530.GDT 10/27/20



SUBSURFACE LOG

Client Borehole ID	N/A	Stantec Boring No.	JOF-119
Client	Tennessee Valley Authority	Boring Location	598,645.87 N; 1,410,031.49 E NAD27 Plant Local
Project Number	175568286	Surface Elevation	363.4 ft
		Elevation Datum	NGVD29


Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %		
18			SILTY FAT CLAY, CH, 10YR 5/3 (brown) to 2.5Y 6/3 (light yellowish brown), high plasticity, very soft <i>(Continued)</i>							
19	19.5			343.9		SS13G	18.0 - 19.5	1.5	5-6-10	
20					FAT CLAY, CH, 7.5YR 4/6 (strong brown) with 10YR 6/1 (gray), high plasticity		SS14G	19.5 - 21.0	1.3	7-8-10
21							SS15G	21.0 - 22.5	1.5	7-7-9
22							SS16G	22.5 - 24.0	1.5	4-5-4
23					SS17G	24.0 - 25.5	1.3	5-4-6		
24					SS18G	25.5 - 27.0	1.5	4-2-3		
25	25.5	337.9			SS19G	27.0 - 28.5	1.5	2-2-2		
26			SILTY FAT CLAY, CH, 10YR 4/1 (dark gray) with 7.5YR 5/6 (strong brown), high plasticity		SS20G	28.5 - 30.0	1.5	WH-WH-2		
27					SS21aG	30.0 - 31.3	1.5	1-1-8		
28					SS21bG	31.3 - 31.5				
29					SS22G	31.5 - 33.0	1.5	9-15-31		
30					SS23G	33.0 - 34.5	1.0	10-14-21		
31	31.3	332.1			SS24E	34.5 - 36.0	1.4	18-23-26		
32					SS25E	36.0 - 37.5	1.3	13-19-31		
33					SS26G	37.5 - 39.0	1.5	15-12-15		
34					SS27E	39.0 - 40.5	1.5	9-10-12		
35					SS28E	40.5 - 42.0	1.3	11-18-19		
36										
37										
38										
39										
40										
41										
42										

TVA/EIP BORING LOG: 175568286_JOE_TDEC_ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 10/27/20

34.587 5-20190710

39.042 0-20190710

Client Borehole ID <u> N/A </u>	Stantec Boring No. JOF-119
Client <u> Tennessee Valley Authority </u>	Boring Location <u> 598,645.87 N; 1,410,031.49 E NAD27 Plant Local </u>
Project Number <u> 175568286 </u>	Surface Elevation <u> 363.4 ft </u> Elevation Datum <u> NGVD29 </u>

Lithology			Description	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
43			POORLY GRADED GRAVEL, GP, 7.5YR 4/6 (strong brown) to 7.5YR 5/4 (brown), fine to coarse, very dense, poorly graded <i>(Continued)</i>		SS29G	42.0 - 43.5	1.5	14-11-15
44				SS30G	43.5 - 45.0	1.5	9-13-18	
45	45.0			318.4				

No Refusal /
Bottom of Hole at 45.0 Ft.

Permanent monitoring well JOF-119 installed in this boring following over-drilling. See JOF-119 monitoring well installation log for details.

- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface

TVA/EIP BORING LOG - 175568286 - JOF - TDEC_ORDER.GPJ - TDEC SUBSURF DT 20190530.GDT - 10/27/20

Project Number	175552009	Location	Station ,		
Project Name	South Rail Loop Monitoring Wells	Boring No.	B-6R	Total Depth	18.5 ft
County	TVA JOF SRL NRS-43-1232	Surface Elevation	392.2 ft		
Project Type	Geotechnical Exploration	Date Started	12/12/12	Completed	12/12/12
Supervisor	R. Roberts	Driller	M. Wethington	Depth to Water	14.7 ft
Logged By	Briggs Evans	Depth to Water	N/A	Date/Time	N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
392.2'	0.0'	Top of Hole							
		No Samples Collected							Boring advanced using 4 1/4" Hollow Stem Augers Monitoring Well Installed - see Well Installation Diagram for Details
377.2'	15.0'								Static GW level 14.7' bgs 12/19/2012
		Clayey Gravel With Sand, orange-brown, moist to wet, medium to very dense, rounded and fractured chert fragments Wet at 14.2'		SPT-1	15.0' - 16.5'	1.5'		--	
374.1'	18.1'			SPT-2	16.5' - 18.0'	1.5'		--	
373.7'	18.5'			SPT-3	18.0' - 18.5'	0.5'		--	
		Clay, brown, dry to moist, very stiff							
		No Refusal / Bottom of Hole							

STANTEC\FM\LEGACY_175559034_LOGS\GPJ_FINAL\GRAPHIC\LOG.GDT_4/15/13

Project Number		175552009		Location		Station ,				
Project Name		South Rail Loop Monitoring Wells		Boring No.		B-6R-E1		Total Depth		16.8 ft
County		TVA JOF SRL NRS-43-1232		Surface Elevation		391.4 ft				
Project Type		Geotechnical Exploration		Date Started		11/27/12		Completed		11/27/12
Supervisor		R. Roberts		Driller		M.Wethington		Depth to Water		13.5 ft
Logged By		Briggs Evans		Date/Time		11/29/12		Depth to Water		N/A
Date/Time		N/A		Date/Time		N/A		Date/Time		N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
391.4'	0.0'	Top of Hole								
390.9'	0.5'	Topsoil, dark brown, moist		SPT-1	0.0' - 1.5'	1.0'	2-12-12	--	Boring advanced using 4 1/4" Hollow Stem Augers	
389.5'	1.9'	Clay With Sand, red-brown, moist, very stiff, cherty		SPT-2	1.5' - 3.0'	1.0'	15-15-8	--		
387.1'	4.3'	Sand With Clay, red-orange, moist, hard		SPT-3	3.0' - 4.5'	1.5'	7-8-17	--		
385.1'	6.3'	Clayey Gravel With Sand, red-orange, moist, dense, rounded and fractured chert fragments		SPT-4	4.5' - 6.0'	1.0'	35-25-17	--		
382.2'	9.2'	Clay, brown to light reddish brown, moist, very stiff to hard, trace pea gravel		SPT-5	6.0' - 7.5'	1.5'	5-7-8	--		
				SPT-6	7.5' - 9.0'	1.0'	9-13-18	--		
375.0'	16.4'	Clayey Gravel With Sand, orange-brown, moist to wet, medium to very dense, rounded and fractured chert fragments Wet at 14.2'		SPT-7	9.0' - 10.5'	1.5'	20-37-34	--		
				SPT-8	10.5' - 12.0'	1.2'	17-21-27	--		
				SPT-9	12.0' - 13.5'	1.5'	39-50-43	--		
				SPT-10	13.5' - 15.0'	1.0'	10-12-15	--		Static GW level 13.5' bgs 11/29/12
				SPT-11	15.0' - 16.5'	1.3'	10-14-17	--		
374.8'	16.6'	Clay, dark brown, dry to moist, very stiff		SPT-12	16.5' - 16.8'	0.3'	50+/-0.	--		
374.6'	16.8'									
		Shale, dark gray to black, hard, thin bedded								
		No Refusal / Bottom of Hole								
		Top of Rock = 16.4' Elevation (375.0')								

STANTEC\FWSM_LEGACY_175559034_LOGS.GPJ_FWSM4GRAPHIC.LOG.GDT_4/15/13

Project Number	175552009	Location	Station ,
Project Name	South Rail Loop Monitoring Wells	Boring No.	B-8R Total Depth 14.5 ft
County	TVA JOF SRL NRS-43-1232	Surface Elevation	388.0 ft
Project Type	Geotechnical Exploration	Date Started	12/12/12 Completed 12/12/12
Supervisor	R. Roberts Driller M. Wethington	Depth to Water	8.2 ft Date/Time 12/19/12
Logged By	Briggs Evans	Depth to Water	N/A Date/Time N/A

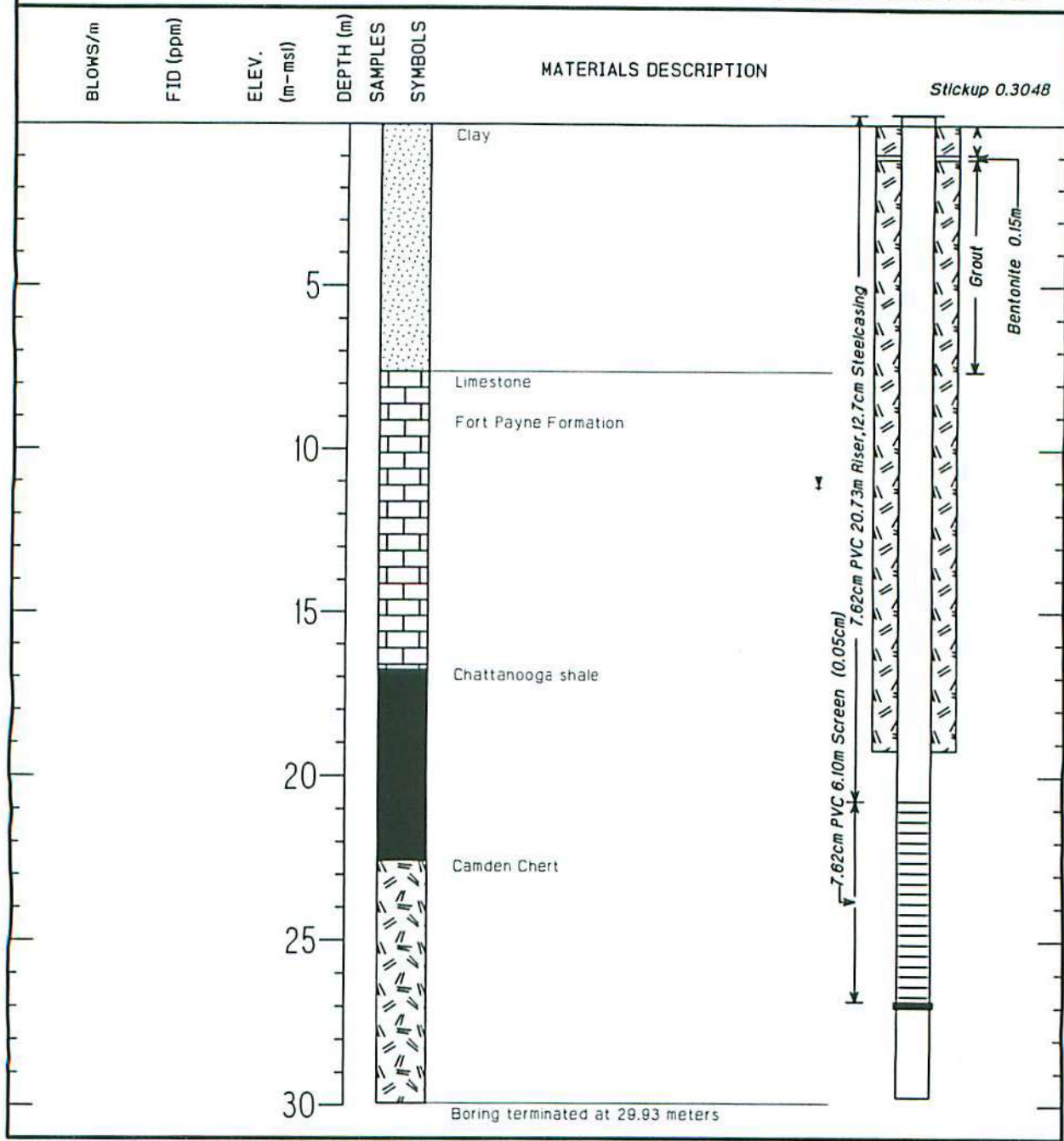
Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	
388.0'	0.0'	Top of Hole							
		No Samples Collected							Boring advanced using 4 1/4" Hollow Stem Augers Monitoring Well Installed - see Well Installation Diagram for Details Static GW level 8.2' bgs 12/19/2012
378.0'	10.0'								
		Clayey Gravel With Sand, orange-brown, moist to wet, dense, rounded and fractured chert fragments Wet at 10.4		SPT-1	10.0' - 12.0'	0.5'		--	
				SPT-2	12.0' - 13.0'	1.5'		--	
374.0'	14.0'			SPT-3	13.0' - 14.5'	1.5'		--	
373.5'	14.5'	Clay, brown to black, dry to moist, hard							
		No Refusal / Bottom of Hole							

STANTEC\FM\SM_LEGACY_175559034_LOGS.GPJ_FINS\MAGRAPHIC.LOG.GDT_4/15/13

Project Number	175552009	Location	Station ,
Project Name	South Rail Loop Monitoring Wells	Boring No.	B-8R-E1 Total Depth 15.0 ft
County	TVA JOF SRL NRS-43-1232	Surface Elevation	388.4 ft
Project Type	Geotechnical Exploration	Date Started	11/27/12 Completed 11/27/12
Supervisor	R. Roberts Driller M. Wethington	Depth to Water	9.4 ft Date/Time 11/29/12
Logged By	Briggs Evans	Depth to Water	N/A Date/Time N/A

Lithology		Description	Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	Remarks	
Elevation	Depth		Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth		
388.4'	0.0'	Top of Hole								
387.9'	0.5'	Topsoil, dark brown, moist		SPT-1	0.0' - 1.5'	1.3'	44-15-1	--	Boring advanced using 4 1/4" Hollow Stem Augers	
		Clay With Gravel, brown to reddish brown, moist, very stiff to hard, cherty		SPT-2	1.5' - 3.0'	0.5'	9-15-15	--		
384.9'	3.5'	Sand With Clay And Gravel, orange-brown, moist, medium, chert fragments		SPT-3	3.0' - 4.5'	1.1'	15-27-29	--		
			SPT-4	4.5' - 6.0'	1.3'	10-33-38	--			
			SPT-5	6.0' - 7.5'	1.5'	47-34-25	--			
379.9'	8.5'		SPT-6	7.5' - 9.0'	1.5'	12-19-31	--			
		Clayey Gravel With Sand, orange-brown, moist to wet, dense, rounded and fractured chert fragments Wet at 10.4		SPT-7	9.0' - 10.5'	1.3'	47-43-10	--		Static GW level 9.4' bgs 11/29/12
			SPT-8	10.5' - 12.0'	1.5'	16-20-14	--			
			SPT-9	12.0' - 13.5'	1.5'	16-25-22	--			
374.4'	14.0'	SPT-10	13.5' - 15.0'	1.5'	27-27-48	--				
373.6'	14.8'	Clay, brown to black, dry to moist, hard								
373.4'	15.0'	Shale, dark gray to black, hard, thin bedded								
		No Refusal / Bottom of Hole								
		Top of Rock = 14.0' Elevation (374.4')								

STANTEC\FM\LEGACY_175552009_LOGS.GPJ_FINAL\GRAPHIC\LOG.GDT_4/15/13

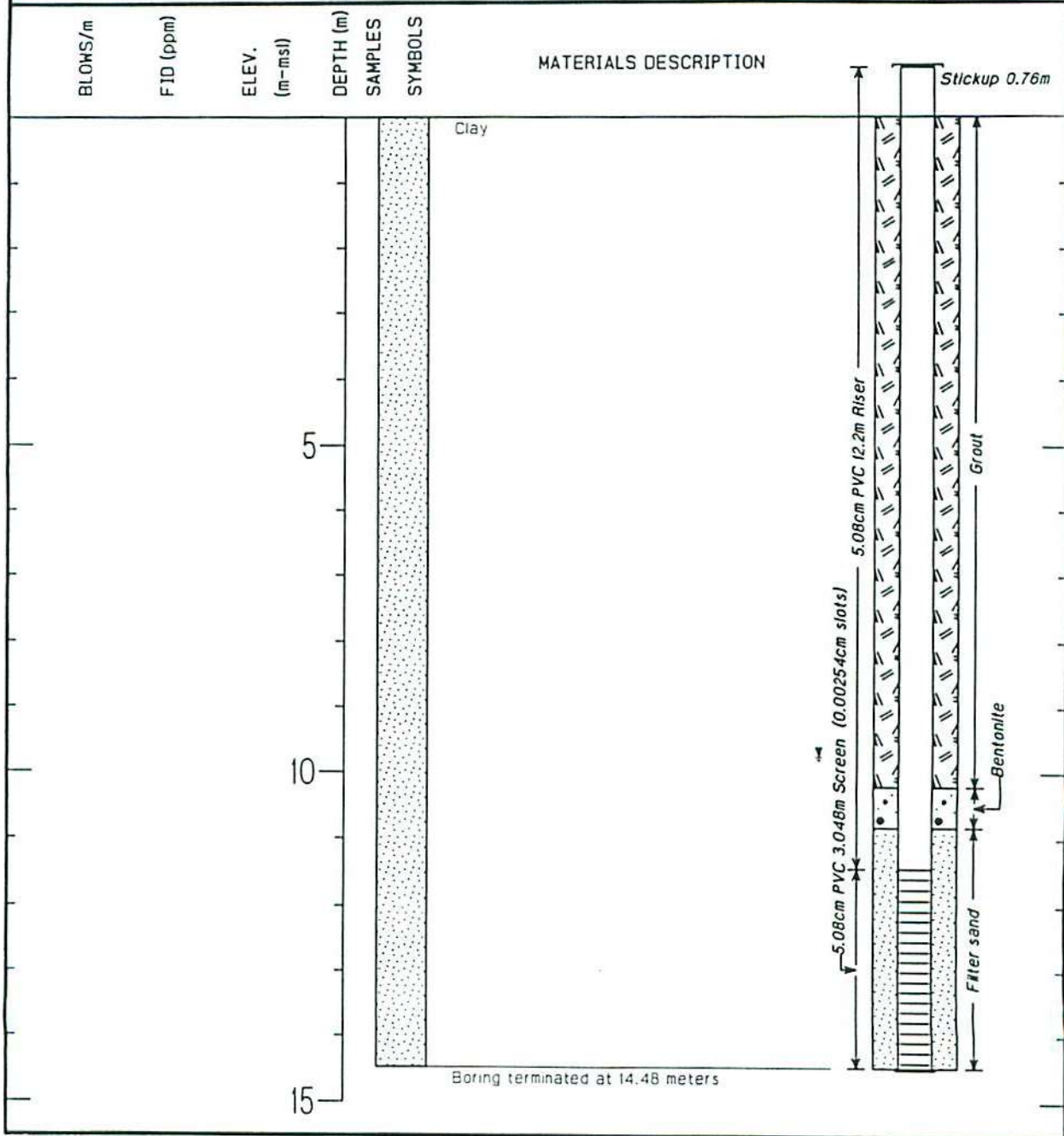


PROJECT	<u>New Johnsonville Demolition Waste Landfill</u>	DRILLING COMPANY	<u>Geological Services</u>
LOCATION	<u>Johnsonville, Tn</u>	DATE DRILLED	<u>1/29/80</u>
DRILL RIG	<u>Hollow Stem Auger 20.3cm borehole</u>	SURFACE ELEVATION	<u>122.90 m-msl</u>
LOGGER/ENGINEER	<u>Davenport</u>	T.O.C. ELEVATION	<u>123.20 m-msl</u>
WATER LEVEL (INITIAL)	<u> </u> m	WATER LEVEL (24-HOUR)	<u>11.13 m</u>
PLANT COORDINATES (east)	<u>755.87m</u>	PLANT COORDINATES (north)	<u>-1035.83m</u>

Tennessee Valley Authority

LOG OF BORING B9

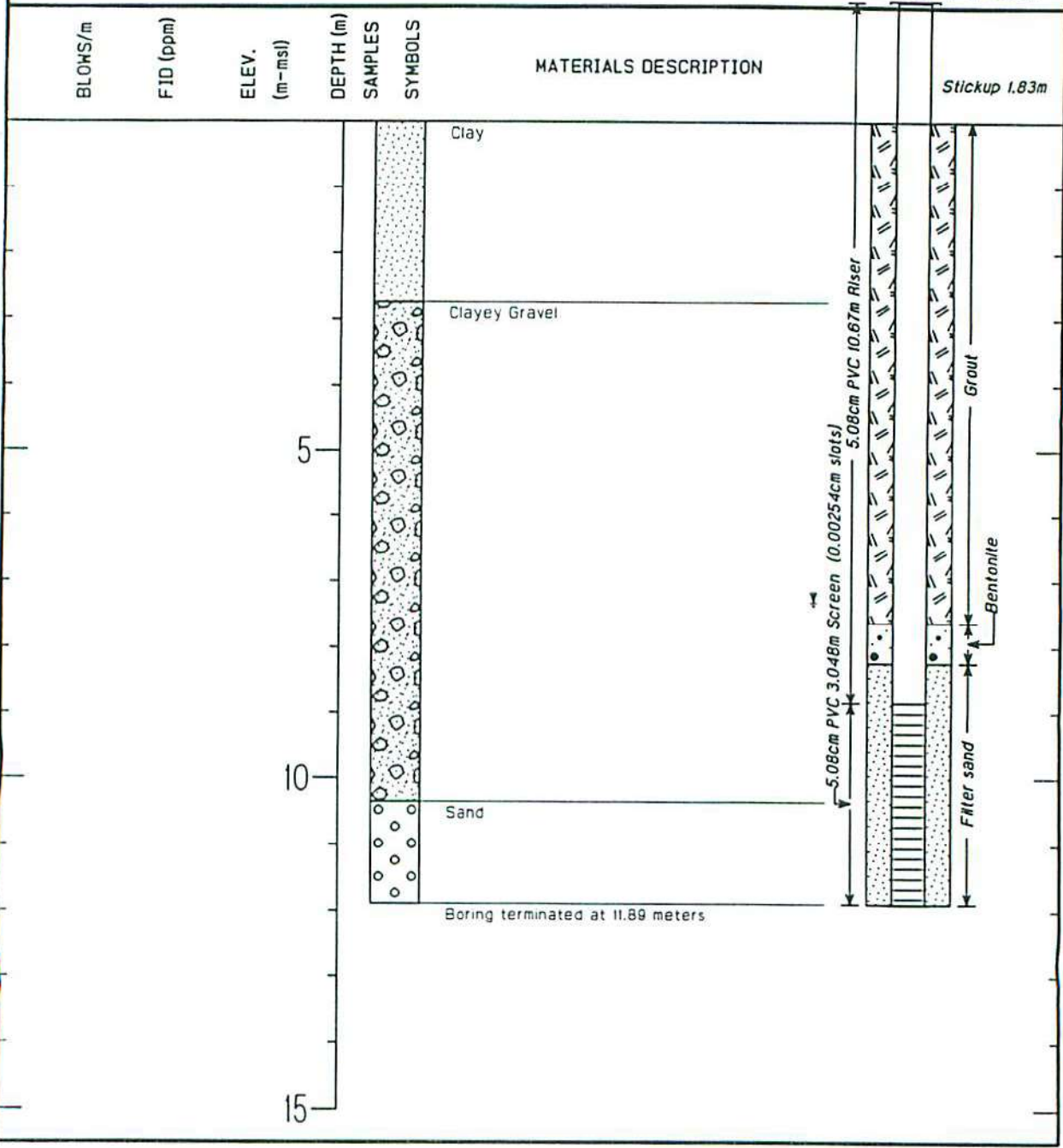
WELL CONSTRUCTION DETAIL



PROJECT <u>New Johnsonville Demolition Waste Landfill</u>	DRILLING COMPANY <u>Law Engineering</u>
LOCATION <u>Johnsonville, Tn</u>	DATE DRILLED <u>8/17/89</u>
DRILL RIG <u>Hollow Stem Auger</u>	SURFACE ELEVATION <u>128.29 m-msl</u>
LOGGER/ENGINEER <u>Tillery</u>	T.O.C. ELEVATION <u>129.06 m-msl</u>
WATER LEVEL (INITIAL) <u> </u> m	WATER LEVEL (24-HOUR) <u>9.7536 m</u>
PLANT COORDINATES (east) <u>1283.54m</u>	PLANT COORDINATES (north) <u>-622.44m</u>

Tennessee Valley Authority

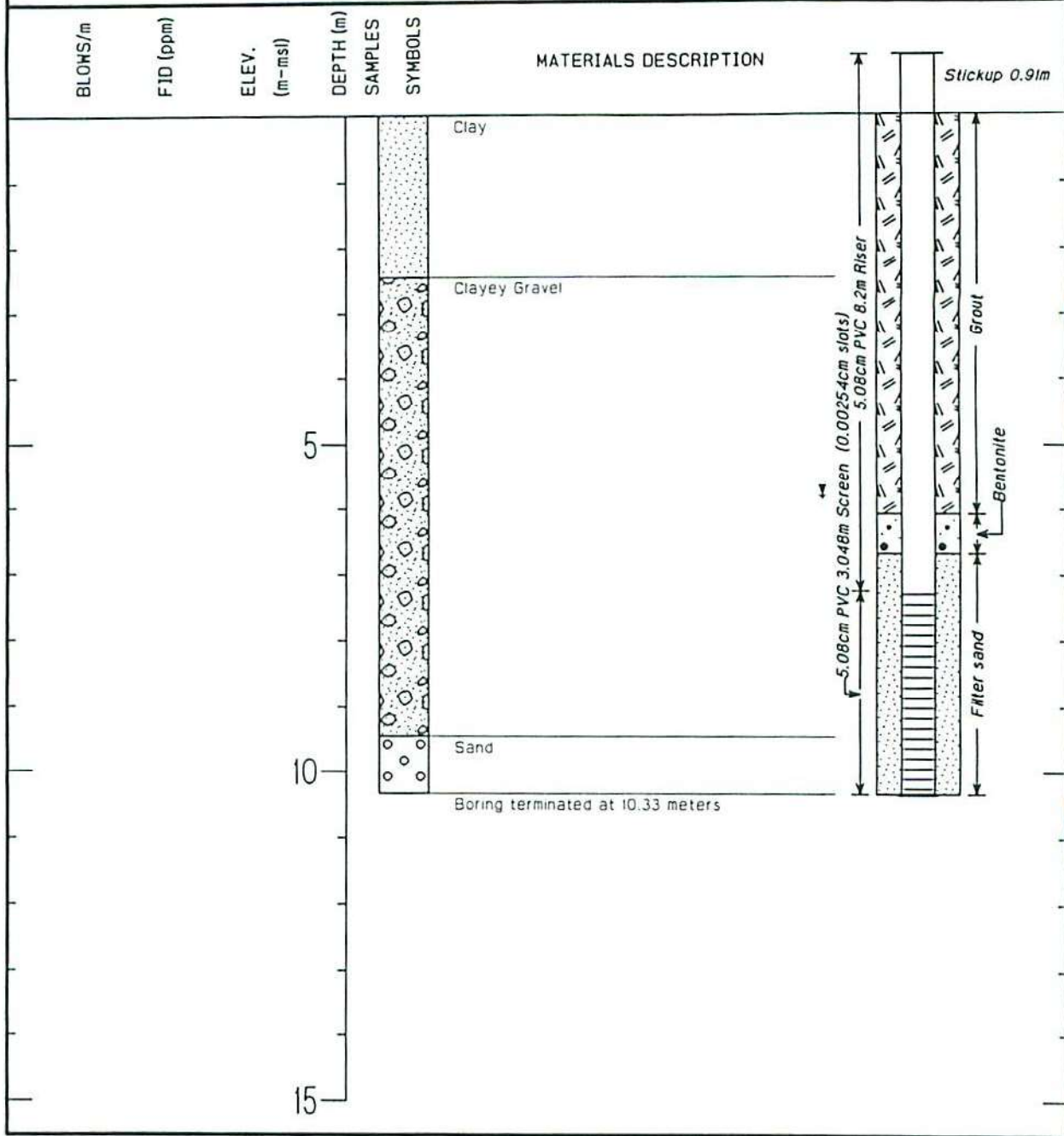
LOG OF BORING B10
WELL CONSTRUCTION DETAIL



PROJECT New Johnsonville Demolition Waste Landfill DRILLING COMPANY Law Engineering
 LOCATION Johnsonville, Tn DATE DRILLED 8/16/89
 DRILL RIG Hollow Stem Auger SURFACE ELEVATION 122.38 m-msl
 LOGGER/ENGINEER Tillery T.O.C. ELEVATION 123.29 m-msl
 WATER LEVEL (INITIAL) m WATER LEVEL (24-HOUR) 7.32 m
 PLANT COORDINATES (east) 763.71m PLANT COORDINATES (north) 57.02m

Tennessee Valley Authority

LOG OF BORING B11
WELL CONSTRUCTION DETAIL

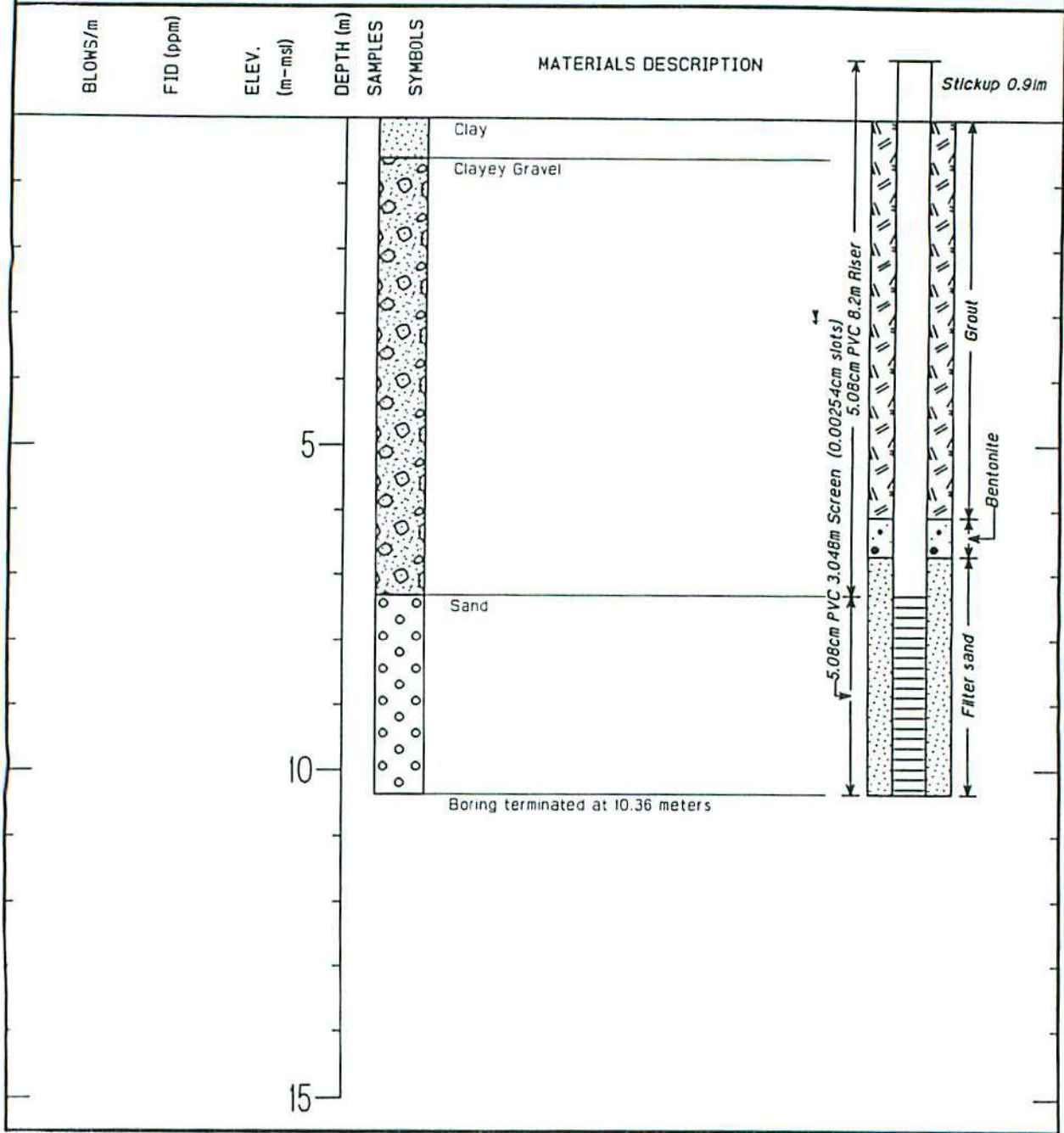


PROJECT <u>New Johnsonville Demolition Waste Landfill</u>	DRILLING COMPANY <u>Law Engineering</u>
LOCATION <u>Johnsonville, Tn</u>	DATE DRILLED <u>8/15/89</u>
DRILL RIG <u>Hollow Stem Auger</u>	SURFACE ELEVATION <u>121.47 m-msl</u>
LOGGER/ENGINEER <u>Tillery</u>	T.O.C. ELEVATION <u>122.38 m-msl</u>
WATER LEVEL (INITIAL) <u> </u> m	WATER LEVEL (24-HOUR) <u>5.79 m</u>
PLANT COORDINATES (east) <u>553.32m</u>	PLANT COORDINATES (north) <u>590.75m</u>

Tennessee Valley Authority

LOG OF BORING B12

WELL CONSTRUCTION DETAIL

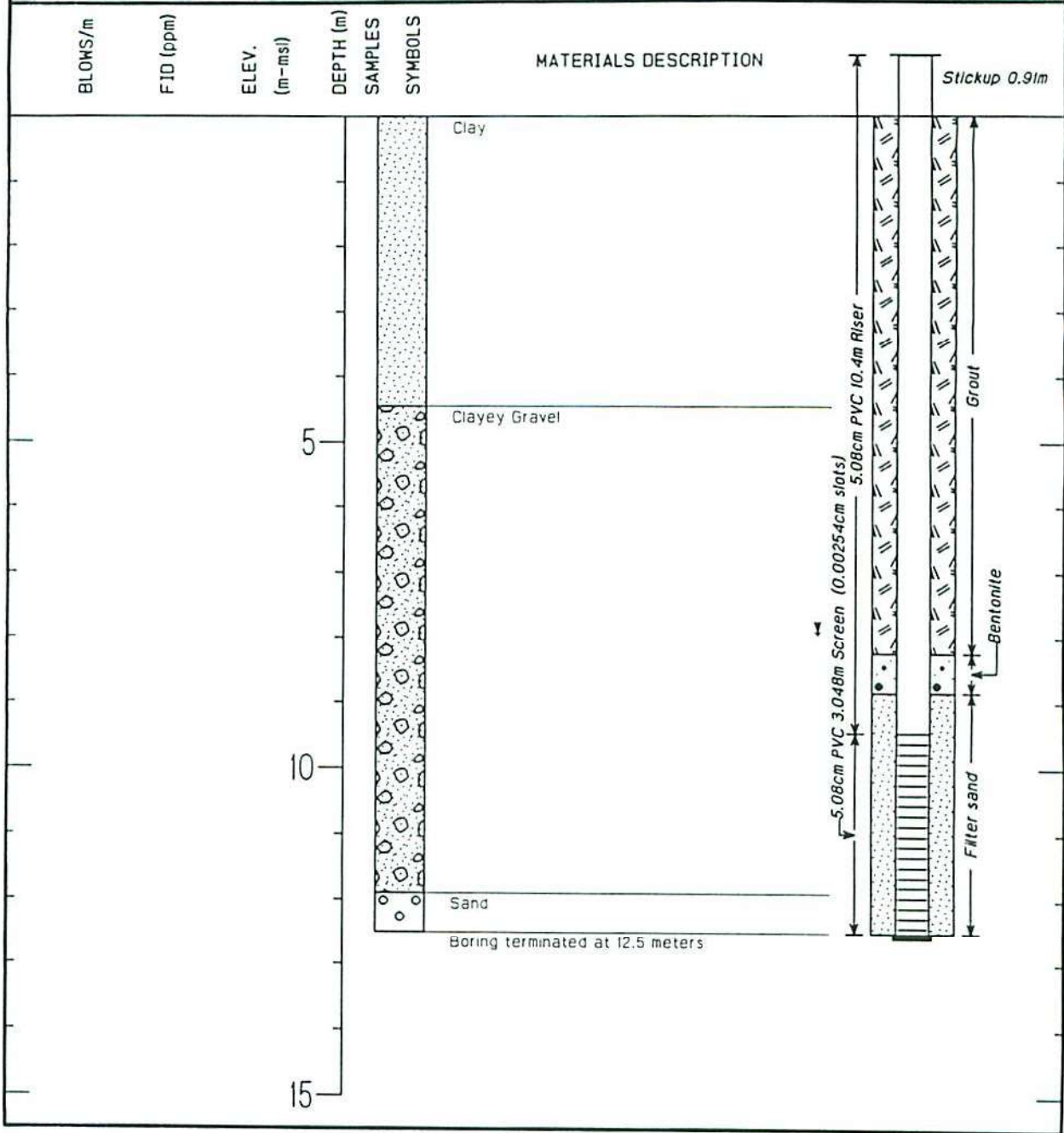


PROJECT New Johnsonville Demolition Waste Landfill DRILLING COMPANY Law Engineering
 LOCATION Johnsonville, Tn DATE DRILLED 8/17/89
 DRILL RIG Hollow Stem Auger SURFACE ELEVATION 119.06 m-msl
 LOGGER/ENGINEER Tillery T.O.C. ELEVATION 119.98 m-msl
 WATER LEVEL (INITIAL) m WATER LEVEL (24-HOUR) 3.08 m
 PLANT COORDINATES (east) 584.66m PLANT COORDINATES (north) 780.50m

Tennessee Valley Authority

LOG OF BORING B13

WELL CONSTRUCTION DETAIL



PROJECT New Johnsonville Demolition Waste Landfill DRILLING COMPANY Law Engineering

LOCATION Johnsonville, Tn DATE DRILLED 8/16/89

DRILL RIG Hollow Stem Auger SURFACE ELEVATION 124.2 m-msl

LOGGER/ENGINEER Tillery T.O.C. ELEVATION 125.12 m-msl

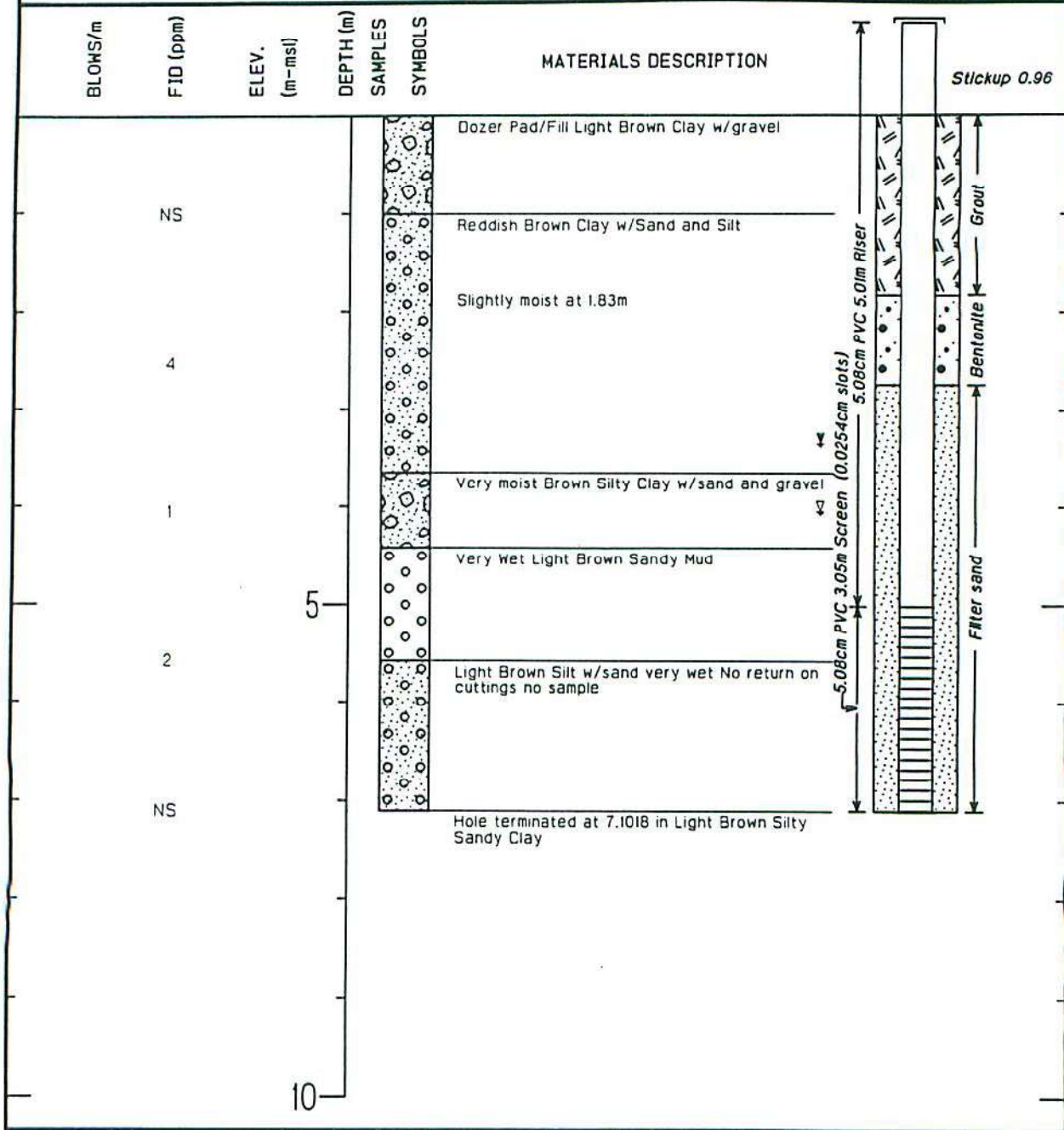
WATER LEVEL (INITIAL) m WATER LEVEL (24-HOUR) 7.9 m

PLANT COORDINATES (east) 808.13m PLANT COORDINATES (north) 429.37m

Tennessee Valley Authority

LOG OF BORING 94-B16

WELL CONSTRUCTION DETAIL



PROJECT New Johnsonville Demolition Waste Landfill DRILLING COMPANY PDR - STEP

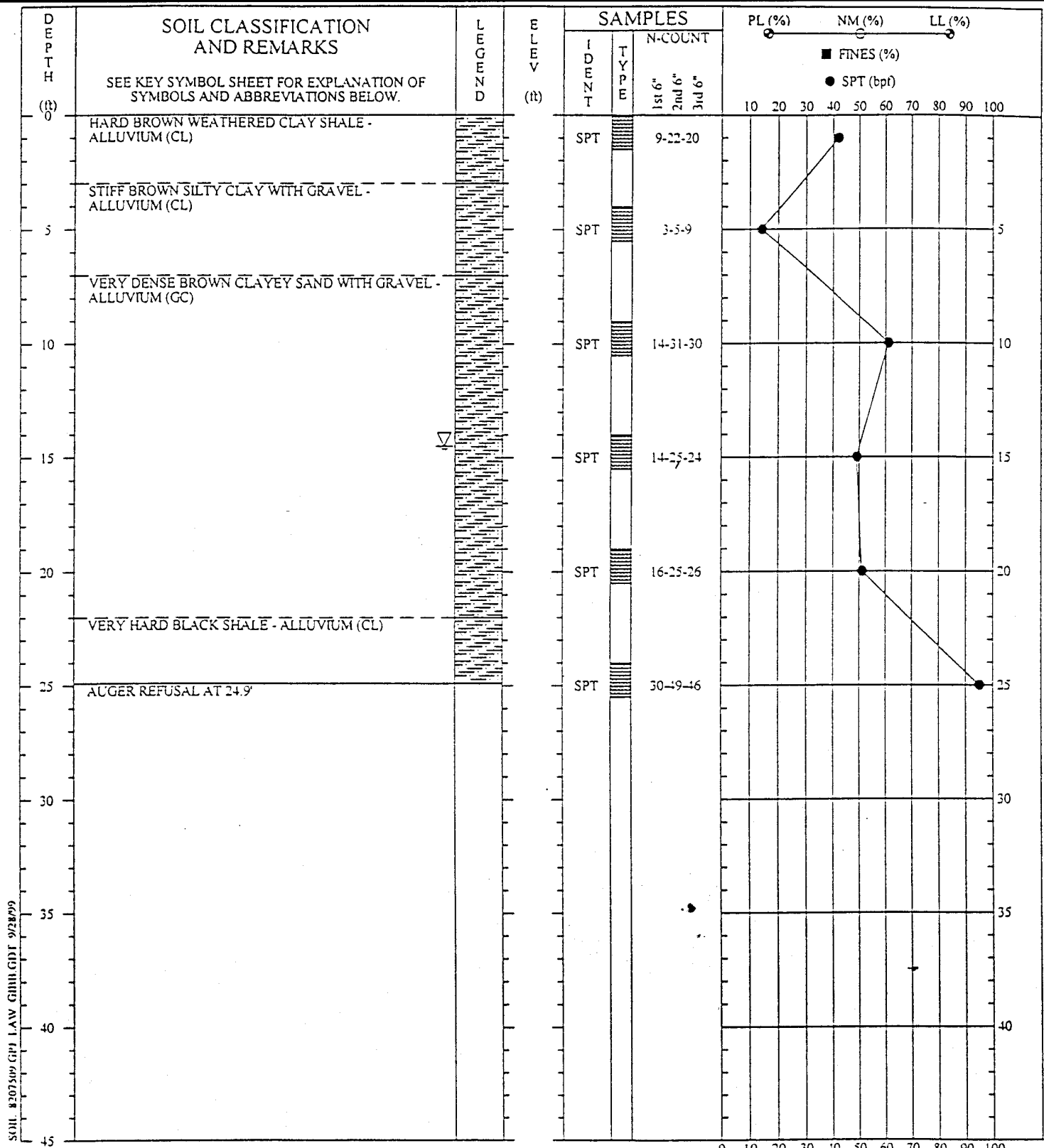
LOCATION Johnsonville, Tn DATE DRILLED 9/26/93 11:00 - 11:30

DRILL RIG CME 75 - 21cm OD Borehole SURFACE ELEVATION 118.12 m-msl

LOGGER/ENGINEER JW-BB T.O.C. ELEVATION 119.08m m-msl

WATER LEVEL (INITIAL) 4.05 m WATER LEVEL (24-HOUR) 3.35 m

PLANT COORDINATES (east) 425.51m PLANT COORDINATES (north) 8.35m

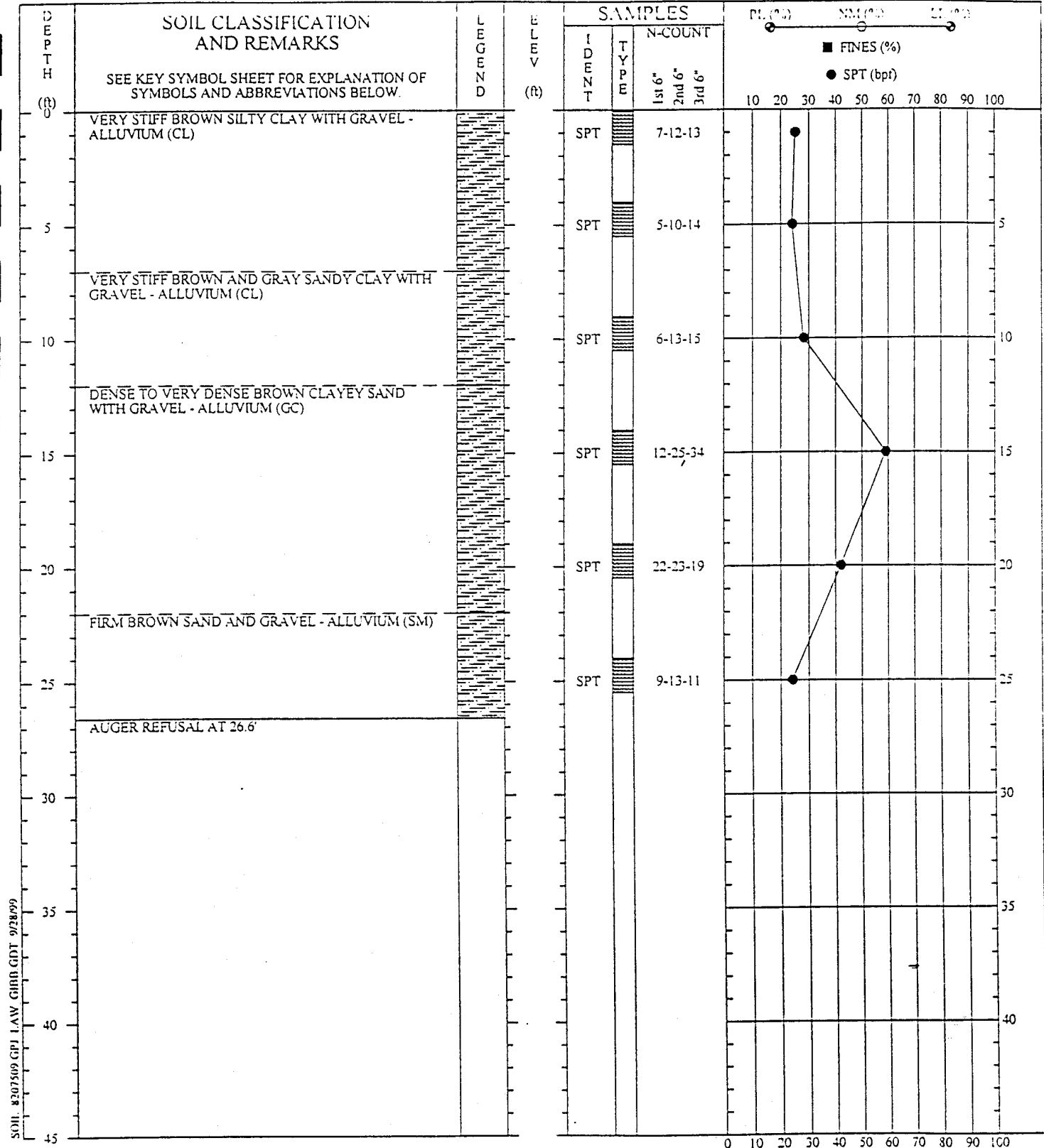


SOIL 8207509 GPI LAW GIBB GDT 9/28/99

REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD	
PROJECT: TVA New Johnsonville Site	BORING NO.: B-19
DRILLED: August 24, 1999	
PROJ. NO.: 50300-8-2075/09/800	PAGE 1 OF 1
 LAW LAWGIBB Group Member	



SOIL 8207509 CPH LAW GIBB GDT 9/28/99

REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER. NO GROUND WATER ENCOUNTERED AT TIME OF EXPLORATION.

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD	
PROJECT: TVA New Johnsonville Site	BORING NO.: B-20
DRILLED: August 24, 1999	PAGE 1 OF 1
PROJ. NO.: 50300-8-2075/09/800	