APPENDIX B – BORING LOGS

APPENDIX B.1 BACKGROUND SOIL BORINGS

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Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
03030303 0000000 0000000	Gravel
8 8 8 8 8 8	Well Graded Gravel (GW)
0 0 0 0	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
$\bar{\Delta}$	First water level reading
Ā	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.



			105	D004AU		
Client Borehole ID _	N/A	Stantec Boring				
ClientTen	nessee Valley Authority	Boring Location	on <u>732,654.</u>	15 N; 2,890,399.54	E NAD27	Plant Local
Project Number 175	568225	Surface Eleva	Datum_r	NGVD29		
, <u> </u>	TDEC Order	Date Started	d 2/5/19	9		
Project Location _	Hawkins Co, Rogersville, Tennessee	Depth to Wate	er N/A	Date/Time	N/A	
Inspector M. Edmund		Depth to Wate		Date/Time	N/A	
_	Stantec Consulting Services Inc.	Drill Rig Type		robe 7730DT		
_	and Sampling Tools (Type and Size	<i>,</i>	ual Tube			
ŭ	mpling Tools (Type and Size) N/A	4		0 1:11.5		
Overdrill Tooling (Typ		Duan A	1/A	Overdrill D	. –	N/A
Sampler Hammer Ty Borehole Azimuth	pe N/A Weight N/A	5.56 _		Efficiency _	N/A I/A	
_	Carey	Borehole Incli Approved By	•	vertical)N	<i>I</i> /A	
	Carcy					
Lithology		Overburden:	•	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³ Elevation Grap	<u>'</u>	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0.0 1132.1 0.1 1132.0 1132.0	Top of Hole		₹ HA01	0.0 - 0.5	0.5	-
	Gravel pad material		Λ ⁴ 0.5/2	0.0 - 0.3	0.5	_
	SANDY FAT CLAY WITH SILT, CH, 7 (brown) to 7.5YR 5/8 (strong brown), I		.5-201		/(()	
- 2	plasticity, soft, moist	mediam	DP01	0.0 - 5.0	2.6	N/A
- 3				0.0 - 3.0	2.0	-
- 4)))	
5.0 1127.1))	
5 3.0 1127.1	FAT CLAY WITH SILT, CH, 7.5YR 5/	1 (grav) to			₩	
- 6	7.5YR 5/6 (strong brown), medium to				 	_
- 7	firm, moist, trace gravel throughout				(()	
			® DP02	5.0 - 10.0	4.3	N/A
- 8			201902	0.0	!(()	_
- 9			05)//	_
10.0 1122.1	Saprolitic bedding structure visible fro	m 9 5' to 10 0')))]	
10 10.0 1122.1	LEAN CLAY WITH SILT, CL, 7.5YR 4		10.0/1	ے	\mathbb{N}	
- 11	7.5YR 4/6 (strong brown), non-plastic		DP03	10.0 - 12.4	2.9	N/A
- ¹² 12.4 1119.7	to moist		190205	2.4)))	_
12.4 1110.7 /	Recovery greater than run length due Trace gravel from 12.1' to 12.4'	to swell	6	1	111	
	Bedrock Refusal /					
	Bottom of Hole at 12.4 Ft.					_
						_
						_
						_
	E = Environmental Sample Custody (two Spi	lit Spoons may be r	equired to obta	in sufficient sample	e)	
	G = Geotechnical Sample Custody a,b,c denote Split Spoon divided between Er	nvironmental and G	eotechnical Sai	mples		
3:	Depths are reported in feet below ground su Grab sample (0.0/0.5-20190205) sampled us	rface		-		_
4. '	Grab sample (0.0/0.0-20 180200) Sampled us	oning maniu augei				



C	lient E	Borehole	ID N/A	1	_ St	antec Borin	g١	10. <u>JSF</u> -	BG02Alt			
C	lient		Tennes	see Valley Authority	_ Bo	oring Location	on	732,179.9	98 N; 2,889,116	.93	E NAD27	Plant Local
F	roject	Number	175568	225	_ Sı	ırface Eleva	itio	n <u>1137.5</u> ft	Elevatio	n C	atum_n	NGVD29
F	Project Name JSF TDEC Order					Date Started 2/4/19 Completed 2/			2/4/19)		
	•	Location		wkins Co, Rogersville, Tennessee	_ De	epth to Wate	er _	N/A	Date/Ti	me	N/A	
	•	or M. E		Logger M. Edmunds		epth to Wate	_		Date/Ti	me	N/A	
	_			ntec Consulting Services Inc.		ill Rig Type			probe 7730DT			
			-	Sampling Tools (Type and Si	· —	irect Push - D	ual	Tube				
		_		g (.) p	N/A				O -	D-	4l- N	1/^
				and Size) N/A	I/A	Dron M	.Ι/Δ		Overdrill		∙ptn <u>'</u> √A	N/A
		r namm le Azimu						-	Efficiency Vertical)	N/		
		ed By				proved By		P. Dunne	vertical)	1 1/7		
1			11. Oal	· <i>,</i>			_				<u> </u>	
		_ithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1137.5		Top of Hole			Ŧ	HA01	0.0 - 0.5	+	0.5	
	0.5	1137.0		Topsoil, roots			<i>P</i> ₄	TIAOT	0.0 - 0.3	((0.5	
- 1				SANDY LEAN CLAY WITH SILT, (brown), medium plasticity, very so			0.9/2			K((_
- 2				moderately fat, medium-graded sa		,,	.9-201			1_ ((_
				organics/roots throughout layer			90204	DP01	0.0 - 5.0	0.0 - 5.	3.7	N/A
- 3										0		-
))		
- 4												_
- 5	5.0	1132.5								1 #		_
				GRAVELLY CLAYEY SAND, SC, 10YR 6/6 (brownish yellow), fine to						<u> </u>		
- 6				dense, moist, subrounded, with gra			5.9/			1 ((-
- 7							7.9-201			1 110		_
-	7.5	1130.0					90204	DP02	5.0 - 10.0	5.0 - 10	3.7	N/A
- 8				FAT CLAY, CH, 5YR 3/1 (very dar (reddish brown), medium to high p						ŏ		-
				to firm, moist, iron oxide staining, s)))		
- 9				bedding structure visible						1 1		_
- 10										1 1	1	_
										1 ((
- 11										1 1/1		=
- 12							11.5			1 11/1		_
- 12							/13.5-2	DP03	10.0 - 15.0	10.0-	5.0	N/A
- 13							019020			15.0		_
							¥					
- 14												_
- 15	15.0	1122.5								1 [[_
- 16										1 11		_
47												



Client	Borehole ID	N/A		Stantec Borin	g No. JSF-	BG02Alt		
Client		Tenness	ee Valley Authority	Boring Location		98 N; 2,889,116.93	BE NAD27	Plant Local
Project	Number	1755682	225	Surface Eleva	ation <u>1137.5 ft</u>	Elevation	Datum <u>r</u>	NGVD29
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation G	raphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 17 - 18 - 19 19.5	1118.0		FAT CLAY WITH SILT, CH, 5YR 4/1 5YR 3/2 (dark reddish brown), medium plasticity, soft to firm, moist, with som non-plastic intervals, saprolitic bedding shale gravel, and inclined bedding (~4 (Continued) Bedrock Refusal / Bottom of Hole at 19.5 Ft.	m to high e lean, g structure,	16.5/18.5-20190204	15.0 - 19.5 15.0 - 19.5	4.5	N/A -
		G = 0 2: a,b,c 3: Dept	Environmental Sample Custody (two Sp Geotechnical Sample Custody denote Split Spoon divided between E hs are reported in feet below ground su sample (0.0/0.5-20190204) sampled u	nvironmental and G rface			∌)	- - - -
								-
								_
								_
								_
								_
								_
								_
								-
								-



	lient F	Borehole	ID N/A		Star	ntec Borin	a Nc	JSF-	BG03 (JS	F-E	3G03A	Alt)
Client Tennessee Valley Authority					ing Location			96 N; 2,888,268				
		Number				face Eleva						
	-	Name							-			
	-	Location		vkins Co, Rogersville, Tennessee					N/A	<u> </u>		
	•	or M. E		Logger M. Edmunds	•	oth to Wate		N/A	Date/Ti		N/A	
	•			ntec Consulting Services Inc.	•			ID Geop	probe 7730DT			
Overburden Drilling and Sampling Tools (Type and Size) Direct Pus												
Rock Drilling and Sampling Tools (Type and Size) N/A												
	Overdri	II Tooling	(Type a	and Size)N/A					Overdrill	De	pth _	N/A
S	Sample	er Hamme	er Type	N/A Weight N/A	4	_ Drop _	I/A		Efficiency	_!	N/A	
		le Azimu		N/A	_			•	Vertical) _	N/	A	
F	Review	ed By _	K. Ca	rey	App	roved By	P	P. Dunne				
	l	_ithology			C	Overburden:	Sa	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description		Rock Core:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1132.5		Top of Hole			I	11404	0.0 - 0.5		1 0.5	
- 1	0.5	1132.0		Topsoil			P ₄	HA01	0.0 - 0.5	1 ((0.5	_
- 2				SILTY LEAN CLAY WITH SAND, CL			1.5/3			1 ()		
				(reddish yellow) to 7.5YR 6/1 (gray), medium plasticity, dense, moist, with	-		.5-201	DP01	0.0 - 5.0	0.0 - 5.	5.0	N/A
- 3				, , , , , , , , , , , , , , , , , , , ,			90129			0		_
- 4				Occasional vegetation roots from 4.0	n' to 5 0'))		-
- 5	5.0	1127.5		Increased sand from 4.5' to 5.0'	0.00.0		5.0/6.			1 #		_
- 6	6.5	1126.0		POORLY GRADED SAND WITH SIL	LT WITH	HCLAY,	5-2019					-
- 7	0.0	1120.0		SP-SM, 7.5YR 5/8 (strong brown), m		,	0129 7			5.0		-
- 8				medium dense, moist, subrounded, s			2/9.2-	DP02	5.0 - 10.0) - 10.0	5.0	N/A _
- 9				LEAN CLAY TRACE SILT, CL, 7.5YI gray), non-plastic, stiff, moist	K //2 (p	inkisn	201901			1 ((
	10.0	1122.5		Sand lens from 7.9' to 8.4'			29			1 ()		_
- 10				LEAN CLAY WITH SILT, CL, 7.5YR	5/6 (stro	ong				1 1	1	_
- 11				brown), medium plasticity, firm, mois			<u> </u>					_
- 12				some saprolitic bedding structure, tra inclusions throughout	ace orga	anic	.5/13.5	DP03	10.0 - 14.4	0.0 - 1	5.0	N/A -
- 13				J			20190			4.4		-
- 14	14.4	1118.1		Recovery greater than run length due	e to swe	ell	129			((_
				Bedrock Refusal /						1 111	Д	_
				Bottom of Hole at 14.4 Ft.								_
												_
												_
												-
												_
			1. ⊏ –	Environmental Sample Custody (two Sp	inlit Sno	one may be r	-earrie	ed to obto	in sufficient con	anla'	١	-
			G =	Geotechnical Sample Custody		-				ipie	,	-
			3: Dep	c denote Split Spoon divided between E ths are reported in feet below ground si	surface		eoted	chnical Sa	mples			_
				b sample (0.0/0.5-20190129) sampled t		and auger						



C	lient E	Borehole	ID N/A	1	St	antec Borin	g١	lo. JSF-	BG04Alt			
C	lient		Tennes	see Valley Authority	_ Bc	oring Location	on	731,221.	53 N; 2,888,415	.22	E NAD27	Plant Local
P	roject	Number	175568	225	_ Sı	ırface Eleva	itio	n <u>1164.9 ft</u>	Elevation	n C	atum_n	NGVD29
F	roject	Name		EC Order	_ Da	ate Started	_	1/30/19	Comple	ted	1/30/1	9
	•	Location		wkins Co, Rogersville, Tennessee	_	epth to Wate	_		Date/Tii		N/A	
	•	or M.E		Logger M. Edmunds	_	epth to Wate	_		Date/Tii	me	N/A	
	-			ntec Consulting Services Inc.	_	ill Rig Type		•	probe 7730DT			
			•	Sampling Tools (Type and Siz	· —	Direct Push - D	ual	Tube				
		_		9 (.) p	N/A				Overdrill		nth N	
		_		and Size) <u> N/A </u>	Δ	Drop N	Δ		Overdrill Efficiency		ημη <u>'</u> Ν/Α	N/A
	-	le Azimu		N1/A					Vertical)	N//		
		ed By			_	proved By		P. Dunne	vertical)		•	
•							_		3			
		_ithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1164.9	777	Top of Hole			동	HA01	0.0 - 0.5		0.5	_
		<u></u>		Topsoil, grass, and roots			4		0.0 - 0.0	((0.5	
- 1				SILTY LEAN CLAY SOME GRAVE (yellowish red) to 5YR 5/8 (yellowish			0.9/2			 ((_
- 2				plasticity, soft to firm, moist, fine to	mediun		.9-201					-
				occasional gravel clasts throughout			90130	DP01	0.0 - 5.0	0.0 - 5.	3.3	N/A
- 3												-
- 4)))		_
4)))		
- 5	5.0	1159.9		000000000000000000000000000000000000000						1 #		_
				GRAVELLY WELL GRADED SAND SW-SC, 5YR 5/8 (yellowish red), m						((
- 6				medium dense, moist, well graded,	subang	gular to				 ((_
- 7				subrounded cobble-sized gravel thr	oughou	ut						_
							7.2/	DP02	5.0 - 10.0	5.0 - 10	3.6	N/A
- 8							9.2-201			Ö		-
– 9							190130)))		_
9			·`.[//)))		
- 10	10.0	1154.9										_
			\ /	No sample, malfunction in sample to	ube					((
- 11			$ \setminus / $							1 ((-
- 12			$ \setminus / $							1_10		_
			X					DP03	10.0 - 15.0	0.0 - 1	0.0	N/A
- 13			$ \ / \ $							5.0		-
44			/)))		
- 14			/ \									_
- 15	15.0	1149.9										_
				LEAN CLAY WITH SILT, CL, 10YR non-plastic, stiff, moist, organic incli						((
- 16				p.acac, can, moiot, organic mon		griout				((_
47										1		



Client Borehole ID N/A Client Tennessee Valley Authority				Stantec Boring No. JSF-BG04Alt Boring Location 731,221.53 N; 2,888,415.22 E NAD27 Plant Local						
Project Number 175568225				Surface Elevation 1164.9 ft Elevation Datum NGVD29						
	Lithology			Overburden:	Sample	Depth Ft ³		Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	% Run Ft		Rec. Ft	Rec. %	
- 17 - 18 18.9	1146.0		LEAN CLAY WITH SILT, CL, 10YR 7/6 (y non-plastic, stiff, moist, organic inclusions (Continued) Recovery greater than run length due to s	rellow), s throughout	DP0	15.0 - 18.9	15.0 - 18.9	4.0	N/A -	
			Bedrock Refusal / Bottom of Hole at 18.9 Ft.						_	

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 (0.0/0.5-20190130) sampled using hand auger



	lient F	Borehole	ID N/A		Stantec Borin	a N	JSF-	BG05Alt			
	lient	orenoie		see Valley Authority	Boring Location			74 N; 2,886,883.	01 [= NAD27	Plant Local
		Number			Surface Eleva						
	-	Number					-				
	-	Name			Date Started	_	1/31/19	Complet			19
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wat			Date/Tin		N/A	
	•	or M. E		Logger M. Edmunds	Depth to Wat	_			ne	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type			orobe 7730D1			
			_	Sampling Tools (Type and Size) ling Tools (Type and Size) N/A	-	uai i	ube				
		_	-	g 10010 (1)po ana 0120/	\			Overdrill	Da	nth N	N/A
		_		and Size) <u>N/A</u> N/A Weight N/A	Drop ¹	\Ι/Δ		Efficiency		Рит <u>'</u> VA	<u> </u>
	-	н панни le Azimu		N/A	Borehole Incl			•	N/A		
l		ed By			Approved By		Off (ITOTT) P. Dunne	vertical)	1 11/1	1	
	eview	eu by _	IX. Ca								
		_ithology			Overburden:	8	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1087.7		Top of Hole		- T	11404	0.0.05	h	0.5	_
	0.1/	1087.6		Parking lot material, dirt, roots, gravel		P ₄	HA01	0.0 - 0.5	(((0.5	
- 1				SANDY LEAN CLAY, CL, 7.5YR 6/1 (<u>.</u> Ξ			l		_
- 2				6/6 (reddish yellow), medium plasticity trace subround gravel, silty	/, firm, moist,	3/3.3-2			0.0		_
- 3				trace subround graver, sitty		019013	DP01	0.0 - 5.0	-5.0	4.7	N/A _
						34			$\langle \langle \rangle \rangle$		
- 4									((_
- 5	5.0	1082.7				$ \cdot $			Щ		_
6				CLAYEY SAND TRACE GRAVEL, SC (gray) to 7.5YR 6/6 (reddish yellow), n					((
- 6				moist, subrounded, poorly graded	nedium dense,	6.0/8.			\mathcal{U}		_
- 7						-2019	DDOO	50.400	5.0	4.0	- N//A
- 8						0131	DP02	5.0 - 10.0	10.0	4.0	N/A -
١.									$\rangle\rangle\rangle$		
- 9									(()		_
- 10	10.0	1077.7		Chala dark growto brown highly wood	tharad ratton	-			_\		_
- 11		4070.0		Shale, dark gray to brown, highly wear saprolitic	inerea, rollen,		DP03	10.0 - 11.8	10.0-1	1.4	N/A _
	11.4	1076.3 1075.9		Shale, dark gray to black, very soft, lar	/				.8 (()		_
				Bedrock Refusal / Bottom of Hole at 11.8 Ft.							_
											=
				Top of Rock = 10.0 Ft. Top of Rock Elevation = 1077.7 Ft.							_
				TOP OF NOCK Elevation - 1077.7 1 t.							_
											_
			1: E =	Environmental Sample Custody (two Spl	lit Spoons may be	requi	red to obta	in sufficient sam	ple)		-
			G =	Geotechnical Sample Custody c denote Split Spoon divided between Er							
			3: Dep	ths are reported in feet below ground sur	rface	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	orninoai Oai				
			4: Gra	b sample (0.0/0.5-20190131) sampled us	sing hand auger						_



С	lient E	Borehole	ID N/A	·	Sta	antec Borin	a No	JSF-	BG06Alt			
l	lient			see Valley Authority		ring Location			08 N; 2,887,093	3.42	E NAD27	Plant Local
		Number				ırface Eleva						
		Name				ate Started		2/1/19	— Comple			
	-	Location		vkins Co, Rogersville, Tennessee		epth to Wate			Oampio Date/Tii		N/A	·
	•	or M. E		Logger M. Edmunds		epth to Wate			Date/Tii		N/A	
	•			ntec Consulting Services Inc.		ill Rig Type						
	-			Sampling Tools (Type and Size								
Rock Drilling and Sampling Tools (Type and Size) N/A												
С	verdri	II Tooling	(Type a	and Size) N/A					Overdrill	De	pth _	N/A
			• •	N/A Weight N/A		Drop _h			Efficiency	I	N/A	
l		le Azimu		N/A	-			•	Vertical)	N/	A	
R	eview	ed By _	K. Ca	rey	Ap	proved By	F	P. Dunne				
	l	_ithology				Overburden:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1120.8		Top of Hole			I	HA01	0.0 - 0.5	\perp	0.5	
- 1	0.5	1120.3		Topsoil and grass			A	HAUT	0.0 - 0.5	1 ((0.5	_
				LEAN CLAY WITH SILT, CL, 7.5YR			1.5/3			1 (
- 2				brown), non-plastic, soft to firm, mois material	st, trac	e organic	3.5-201	DP01	0.0 - 5.0	0.0 - 5.	5.0	N/A
- 3							90201			0		-
- 4												-
- 5				In annual of the second	4- 44	01						_
- 6				Increased organic material from 5.0'	10 11.0	U						_
- 7							6.5/8.5			5		_
- 8							5-2019	DP02	5.0 - 10.0	0 - 10.0	5.0	N/A
				Commelite with headeled atmost one frame	0.514	40.01	0201					
- 9				Saprolite with bedded structure from	8.5 10	0 10.0				$ \rangle \rangle$		_
- 10	44.0	4400.0										_
- 11	11.0	1109.8		LEAN CLAY TRACE SILT, CL, 7.5YI	R 4/6	(strong	11.2/					-
- 12				brown), non-plastic, firm to stiff, dam			13.2-20	DP03	10.0 - 14.5	10.0 -	5.0	N/A
- 13				Recovery greater than run length due	e to sv	vell	19020			14.5		-
- 14	14.5	1106.3		Saprolite with bedded structure, som ¬ chunks/gravel from 13.5' to 14.5'	ne shal	le	_					_
				Bedrock Refusal /								_
				Bottom of Hole at 14.5 Ft.								-
												_
												-
												_
				Environmental Sample Custody (two Sp	plit Sp	oons may be r	equir	ed to obta	in sufficient san	nple))	
				Geotechnical Sample Custody c denote Split Spoon divided between E	Enviror	nmental and G	eote	chnical Sai	mples			-
			3: Dep	ths are reported in feet below ground so b sample (0.0/0.5-20190201) sampled u	urface							-
			4. Gia	o sample (0.0/0.5-20 18020 1) sampled t	usiniy i	ianu augei						



С	lient F	Borehole	ID N/A		Sta	ntec Borin	a No	JSF-	BG07			
	lient			see Valley Authority		ring Location			73 N; 2,887,903	3.64	E NAD27	Plant Local
		Number		<u> </u>		rface Eleva						
	-	Name				te Started		1/29/19	— Comple		-	
	-	Location		vkins Co, Rogersville, Tennessee		pth to Wate			Date/Ti		N/A	
	•	or M. E		Logger M. Edmunds		pth to Wate			Date/Ti		N/A	
	•			ntec Consulting Services Inc.					probe 7730DT			
	_			Sampling Tools (Type and Size								
R	ock D	rilling an	d Sampl	ing Tools (Type and Size)N/	Α							
0	verdri	II Tooling	g (Type a	and Size) N/A					Overdrill	De	pth _	N/A
S	ample	r Hamm	er Type	N/A Weight N/A		_ Drop _			Efficiency		V/A	
В	oreho	le Azimu	th	N/A				on (from	Vertical) _	N/	A	
R	eview	ed By	K. Car	rey	Ap	proved By	F	P. Dunne				
	l	_ithology				Overburden:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1134.8		Top of Hole			_	11004	0.0.05	\perp	0.5	_
- 1	4.4	4400.4		Gravel fill from 0.0' to 1.4'			Ā.	HA01	0.0 - 0.5	((0.5	_
	1.4	1133.4		FAT CLAY WITH SILT, CH, 7.5YR 6/	// (ligh	t brown)	÷			1 8		
- 2				to 7.5YR 4/6 (strong brown), medium			4/4.1-2	DP01	0.0 - 5.0	0.0 - 5	4.1	N/A
- 3				plasticity, firm, moist			019012			Ö		_
- 4							9					_
- 5											H	_
- 6										((_
- 7							3.2/8.2-			[]		
							20190	DP02	5.0 - 10.0	0-10	4.8	N/A
- 8	8.5	1126.3					129			0		_
- 9				CLAYEY SAND WITH GRAVEL, SC, (reddish yellow) to 7.5YR 4/2 (brown)))		_
- 10	10.5	1124.3		coarse, medium dense, moist, poorly						1 🕅		_
- 11				is subangular to subrounded, gravel of	cobble	count	_					_
- 12				increases with depth			1.0/14.	DP03	10.0 - 14.2	10.0-	5.0	N/A -
– 13				LEAN CLAY WITH SILT, CL, 10YR 4 yellowish brown), non-plastic, firm to			0-20			14.2		_
- 14	14.2	1120.6		sand and trace organic inclusions three			190129			1 ((
14	17.2	1120.0		Shale rock from 14.0' to 14.2'						1 111	II .	
				Bedrock Refusal / Bottom of Hole at 14.2 Ft.								
ĺ				Bottom of Flore at 14.21 t.								_
ĺ												-
												_
												_
												_
				Environmental Sample Custody (two Sp Geotechnical Sample Custody	olit Spo	oons may be r	equir	ed to obta	in sufficient san	nple))	
			2: a,b,c	c denote Split Spoon divided between E ths are reported in feet below ground su	nviron	mental and G	eote	chnical Sai	mples			_
				ths are reported in feet below ground su o sample (0.0/0.5-20190129) sampled u		and auger						-



	Client E	Borehole	ID N/A	1	Stantec Borin	ıg N	lo. JSF-	BG08			
	Client		Tennes	see Valley Authority	Boring Locati				.11	E NAD27	Plant Local
F	Project	Number	175568	225	Surface Eleva	atio	n 1143.9 ft	Elevatio	n C	atum_r	NGVD29
F	Project	Name	JSF TD	EC Order	Date Started	_	1/28/19	Comple	ted	1/28/	19
F	Project	Location	n Hav	wkins Co, Rogersville, Tennessee	Depth to Wat	er _	N/A	Date/Tir	me	N/A	
I	nspect	or M.E	dmunds	Logger M. Edmunds	Depth to Wat	er _	N/A	Date/Tir	ne	N/A	
	•			ntec Consulting Services Inc.	Drill Rig Type			robe 7730DT			
			•	Sampling Tools (Type and Size)		ual	Tube				
		_		ling Tools (Type and Size) <u>N/A</u>	\						
		-		and Size) N/A				Overdrill			N/A
				N/A Weight N/A				Efficiency		N/A	
		le Azimu		N/A	Borehole Incl		•	Vertical)	N/	Α	
F	Review	ed By _	K. Ca	rey	Approved By	_	P. Dunne				
		ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description	Rock Core:	<u> </u>	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1143.9		Top of Hole							_
	0.1/	1143.8		\Topsoil, roots, and gravel	/	Þ	HA01	0.0 - 0.5	((0.5	
- 1				LEAN CLAY WITH SILT, CL, 7.5YR 6					1 11		_
				yellow), non-plastic, soft to firm, moist	, lean						
- 2						2.0/	DP01	0.0 - 5.0	0.0 -	4.0	N/A
- 3						1.0-201	2. 0.	0.0 0.0	5.0		-
						190128					
- 4									((-
- 5	5.0	1138.9									_
3				LEAN CLAY WITH SILT, CL, 7.5YR 5					1 11		
- 6				7.5YR 7/4 (pink), non-plastic, firm to s some sand	tiff, moist,))		-
				Some Sand		6))		
- 7						.5/8.5-2	D D o o	50 400	5.0	5.0	-
- 8						01901	DP02	5.0 - 10.0	10.0	5.0	N/A _
				Lens of gravel (limestone) from 7.9' to	8.4'	28			((
- 9									((_
	10.0	1133.9							1 11		
– 10	10.0			SILTY LEAN CLAY WITH SAND, CL-I	ML, 7.5YR 5/3	1			1 1	j	_
- 11				(brown) to 7.5YR 5/8 (strong brown), r							_
				plasticity, firm to hard, moist, medium- lens mixed well with clay, organic inclu		_					
- 12				throughout interval		1.5/13.			10.0		-
40						5-2019	DP03	10.0 - 15.0) - 15.0	5.0	N/A
- 13						0128					_
- 14									111		_
	15.0	1128.9									
- 15	15.0	1120.9				1					_
– 16											_
4-	1		ファイ						1 1///	1	



Clie	nt Borehole	ID N/A		Stantec Borin	a No	o. JSF-	BG08			
Clie			see Valley Authority	Boring Locati			27 N; 2,892,122.	11 E	NAD27	Plant Local
Proj	ect Numbe	r_175568	225	Surface Eleva	ation	1143.9 ft	Elevation	n Da	atum_ ı	NGVD29
	Lithology			Overburden:	S	Sample ^{1,2}	Depth Ft ³	F	Rec. Ft	Blows/PSI
Depth F	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	ı	Rec. Ft	Rec. %
- 17 - 18 - 19 19	9.3 1124.6		CLAYEY SAND WITH GRAVEL, SC, (brown) to 7.5YR 5/8 (strong brown), r coarse, soft to medium dense, moist, subround to subangular gravel strains increases with depth (Continued)	medium to poorly graded,	16.5/18.5-20190128	DP04	15.0 - 19.3	15.0 - 19.3	3.7	N/A -
			Bedrock Refusal / Bottom of Hole at 19.3 Ft.							_
										- - -
		G = 2: a,b,o 3: Dep	Environmental Sample Custody (two Spl Geotechnical Sample Custody c denote Split Spoon divided between Er ths are reported in feet below ground sur c sample (0.0/0.5-20190128) sampled us	nvironmental and G				ple)		- -
										_
										_
										_
										-
										_
										_
										-
										-
										-



	Client E	Borehole	ID N/A	<u> </u>	Stantec Borin	g N	lo. JSF-	BG09			
	Client		Tennes	see Valley Authority	Boring Location	on	733,250.	92 N; 2,892,599	.19	E NAD27	Plant Local
F	roject	Number	175568	225	Surface Eleva	atio	n <u>1141.4 ft</u>	Elevation	on C	oatum_r	NGVD29
F	roject	Name		EC Order	Date Started	_	1/25/19	Comple	ted	1/25/1	19
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Water	er _	N/A	Date/Ti	me	N/A	
	•	or M.E		Logger M. Edmunds	Depth to Wat	_		Date/Ti	me	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type			probe 7730DT			
			•	Sampling Tools (Type and Size)		ual	Tube				
		_		ling Tools (Type and Size) N/A				O -	D-	4l. N	.1/^
		_		and Size) <u>N/A</u> N/A Weight N/A	Drop 1	.Ι/Δ		Overdrill		:ptn <u>'</u> N/A	N/A
		r натт le Azimu			Drop <u> </u> Borehole Incl			Efficiency	N/		
		ed By			Approved By		P. Dunne	vertical)	1 1//		
			11. 04					2			
		_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core:	Н	RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1141.4		Top of Hole		Ŧ	HA01	0.0 - 0.5	1 1	0.5	
	0.5	1140.9		Topsoil, roots, clay, and gravel		14	IIAOI	0.0 - 0.3	((0.5	
- 1				SILTY LEAN CLAY TRACE GRAVEL, (brownish yellow) to 7.5YR 4/6 (strong					((_
- 2				non-plastic, firm to stiff	,,	1.0/4			1_ ((_
						.0-201	DP01	0.0 - 5.0	0.0 - 5.	4.5	N/A
- 3						90125					-
- 4))		
- 4)))		_
- 5	5.0	1136.4		Soft from 4.5' to 5.0'		-			#		_
				CLAYEY SAND WITH SILT, SC, 7.5YI					((
- 6				yellow) to 7.5YR 5/8 (strong brown), fir low to medium plasticity, loose, moist	ne to mealum,	6.			((_
- 7				• • • • •		1/8.1-2			1.10		_
						019012	DP02	5.0 - 10.0	5.0 - 10	4.2	N/A
- 8						25			io)		-
))		
- 9											_
- 10	10.0	1131.4		Organic material in gravel at base of d	eposit at 10.0'	10.					_
				WELL GRADED GRAVEL WITH SANI		.0/11.7-			((
- 11	11.6	1129.8		medium to coarse, non-plastic, loose to dense, moist, with sand, silt, and clay	o medium	20190			1 ((_
- 12	11.0	1129.0		SILTY LEAN CLAY TRACE SAND, CL	_MI 7.5VP	125			1.10		_
12				6/8 (reddish yellow), non-plastic, stiff, r			DP03	10.0 - 15.0	10.0 - 1	5.0	N/A
- 13				organic inclusions throughout layer, tra	ice gravel,	12.7/			5.0		-
				saprolitic bedding structure visible		14.7-20)))		
- 14						19012					_
- 15	15.0	1126.4	////			5	1				_
				LEAN CLAY WITH SILT, CL, 7.5YR 5/ non-plastic, stiff to hard, moist, trace si					((
- 16				organic inclusions in places	anu, sume						-
47									1)	



Client E	Borehole ID	N/A		Stantec Borin	g No. JSF-	BG09		
Client		Tenness	see Valley Authority	Boring Location		92 N; 2,892,599.19	E NAD27	Plant Local
Project	Number	1755682	225	Surface Eleva	ation 1141.4 ft	Elevation	Datum_	NGVD29
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation G	raphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 17 - 18 - 19 19.1	1122.3		LEAN CLAY WITH SILT, CL, 7.5YR 5. non-plastic, stiff to hard, moist, trace s organic inclusions in places (Continu Shale gravel with bedding from 17.1' to saprolitic bedding visible	eand, some (red) (o 19.1',	DP04	15.0 - 19.1 15.0 - 19.1	5.0	N/A - -
			Recovery greater than run length due Bedrock Refusal / Bottom of Hole at 19.1 Ft.	to swell				_
			Bottom of Flore at 15.11 t.					-
		G = 0 2: a,b,c 3: Dept	Environmental Sample Custody (two Spl Geotechnical Sample Custody denote Split Spoon divided between Er hs are reported in feet below ground sur sample (0.0/0.5-20190125) sampled us	rivironmental and G	•	·	e)	- - - -
								-
								_
								_
								_
								_
								-
								_
								_



С	lient E	Borehole	ID N/A		Stantec Bo	rino	a No	JSF-	BG10			
	lient			see Valley Authority	Boring Loc				59 N; 2,894,284	1.42	E NAD27	Plant Local
		Number			Surface El			-				
	-	Name			Date Start			1/24/19	— Comple		-	
	-	Location		vkins Co, Rogersville, Tennessee	Depth to V				Date/Ti		N/A	
	•	or M. E		Logger M. Edmunds	Depth to V				Date/Ti		N/A	
	•			ntec Consulting Services Inc.	•				probe 7730DT			
	_			Sampling Tools (Type and Size		-						
R	ock D	rilling an	d Sampl	ling Tools (Type and Size) N/	A							
0	verdri	II Tooling	g (Type a	and Size) <u>N/A</u>					Overdrill	De	pth _	N/A
S	ample	er Hamme	er Type	N/A Weight N/A	Drop	N	N/A		Efficiency	_!	V/A	
В	oreho	le Azimu	th	N/A	Borehole I	ncli	natio	on (from	Vertical) _	N/	A	
R	eview	ed By	K. Ca	rey	Approved	Зу	F	P. Dunne				
	l	_ithology			Overburd	en:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Co	re:	F	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1130.6		Top of Hole			_	11404	0.0.05	\perp	0.5	
– 1	0.5	1130.1		Topsoil, grass, roots, and gravel		\nearrow	Ā ₄	HA01	0.0 - 0.5	1 ((0.5	
				SILTY LEAN CLAY, CL, 10YR 6/8 (b			1.4/3			1 1/		
- 2				to 10YR 5/8 (yellowish brown), non-p plasticity, soft to firm, moist	DIASTIC TO IOW		.4-2019	DP01	0.0 - 5.0	0.0 - 5	4.8	N/A
- 3				,			90124			Ö		_
- 4												_
- 5	5.0	1125.6								1 #	1	_
- 6				SILTY LEAN CLAY TRACE SAND, C (brownish yellow), non-plastic, firm to						1 ((_
- 7				some manganese concretions through			6.5/8.			5		_
							5-2019	DP02	5.0 - 10.0	.0-10	5.0	N/A
- 8							00124			0		_
- 9										$ \rangle \rangle$		_
- 10				Color change to 10YR 5/6 (yellowish	brown) to 10VB		10			1 1		_
- 11				5/8 (yellowish brown) at 10.0'	blowing to ToTT		.5/12.5	DDOO	400 400	10.0	5.0	
- 12							-20190124	DP03	10.0 - 12.9	- 12.9	5.0	N/A -
	12.9	1117.7		Saprolitic bedding structure visible from	om 11.9' to 12.9)124					_
				Bedrock Refusal / Bottom of Hole at 12.9 Ft.								_
				Bottom of Flore at 12.51 t.								
												_
												_
												_
												_
			1: E =	Environmental Sample Custody (two Sp	olit Spoons mav	be r	eauir	red to obta	in sufficient san	nple')	_
			G =	Geotechnical Sample Custody ` c denote Split Spoon divided between E			·			•	'	
			3: Dep	ths are reported in feet below ground su	urface		-CUIE	orninoal Sal	πρισο			_
			4: Gra	b sample (0.0/0.5-20190124) sampled ι	using hand auge	r						_
												-



	N: 4 F	l l .	ID N/A		Otanita Dani	NI	ISE	BC11			
		Borehole			Stantec Borin						
	Client	—		see Valley Authority	Boring Locat						
	-	Number			Surface Elev					-	
	-	Name			Date Started	_		Complet		-	9
	-	Location		wkins Co, Rogersville, Tennessee	Depth to War					N/A	
	•	or M.E		Logger M. Edmunds	Depth to Wa			Date/Tir	ne	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type			probe 7/30DT			
			•	Sampling Tools (Type and Size)		Juai i	upe				
		_		ling Tools (Type and Size) N/A				Overdrill	D-0	nth N	
		_		and Size) N/A Weight N/A	Drop	NI/A		Overdrill Efficiency		:рит <u>'</u> N/A	N/A
		н панни le Azimu			blob _ Borehole Inc			•	N/A		
		ed By	K. Ca		Approved By		P. Dunne	vertical)	,,	•	
								2			
		_ithology			Overburden	+	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1106.8 1106.7	777	Top of Hole		- 본	HA01	0.0 - 0.5	133	0.5	
- 1	0.1	1100.7		Topsoil	/	-		0.0 0.0	((_
- 2				SILTY LEAN CLAY WITH SAND, CL, (strong brown) to 7.5YR 4/1 (dark gray		1/3.1-2					_
				firm, dry to moist	y, non plastic,	01901	DP01	0.0 - 5.0).0 - 5.0	4.3	N/A
- 3				Trace gravel inclusions from 0.1' to 1.1		24					_
- 4		4404.0		Red sand and clay interval from 2.1' to	0.2.3))		-
- 5	5.0	1101.8		LEAN CLAY WITH SILT, CL, 7.5YR 6/	/8 (reddish	1			1	\	_
- 6				yellow) to 7.5YR 4/6 (strong brown), m		5.5/			(((_
- 7				plasticity, soft to stiff, moist to wet		8.5-20			5.0	(-
- 8						190124	DP02	5.0 - 10.0	10.0	4.1	N/A -
- 9									1		
	10.0	1096.8							111		
- 10	10.0			SILTY LEAN CLAY TRACE SAND, CL	., 7.5YR 5/4	7			1	1	_
- 11				(brown) to 7.5YR 4/4 (brown), non-plas	stic to low	11.3)))		_
- 12				plasticity, firm to stiff, moist		/13.3-2	DP03	10.0 - 14.6	10.0-	4.6	N/A
- 13						01901			14.6		-
- 14						24			((-
	14.6	1092.2		Bedrock Refusal /					- W		_
				Bottom of Hole at 14.6 Ft.							
											_
											-
											-
											-
											_
											_
				Environmental Sample Custody (two Spli	t Spoons may be	requi	red to obta	in sufficient sam	ple))	_
			2: a,b,	Geotechnical Sample Custody c denote Split Spoon divided between En	vironmental and	Geote	chnical Sa	mples			
			3: Dep	ths are reported in feet below ground sur b sample (0.0/0.5-20190124) sampled us	face						_
			O .a		g nana aagoi						



	Client E	Borehole	ID N/A	A	Stantec Borin	g N	o. JSF-	BG12			
	Client		Tennes	see Valley Authority	Boring Location				.86 I	E NAD27	Plant Local
F	Project	Number	175568	225	Surface Eleva	ation	1086.8 ft	Elevatio	n D	atum_ı	NGVD29
F	Project	Name	JSF TD	DEC Order	Date Started		1/23/19	Comple	ted	1/23/	19
F	Project	Location	n Hav	wkins Co, Rogersville, Tennessee	Depth to Wate	er _	N/A	Date/Tii	me	N/A	
	•	or M. E		Logger M. Edmunds	Depth to Wate	er _	N/A	Date/Tii	me	N/A	
	Orilling	Contract	or Sta	ntec Consulting Services Inc.	Drill Rig Type	and	ID Geop	robe 7300DT			
			-	Sampling Tools (Type and Size)		ual T	ube				
		•	•	ling Tools (Type and Size) <u>N/A</u>							
		-		and Size) N/A				Overdrill			N/A
				N/A Weight N/A				Efficiency	_	N/A	
		le Azimu			Borehole Incli		•	Vertical)	N/A	4	
-	Review	ed By _	K. Ca	rey	Approved By		P. Dunne				
		Lithology			Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core:	<u> </u>	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1086.8		Top of Hole					1		
	0.5	1086.3		Topsoil, grass, roots, some gravel, page	d material	A ₄	HA01	0.0 - 0.5	1 (((0.5	
- 1				(anthropogenic)	/	0.			1 1111		_
				SILTY LEAN CLAY WITH SAND, CL, (strong brown) to 7.5YR 5/8 (strong brown)		8/2.8-2			1 1///		
- 2				non-plastic to low plasticity, stiff to hard		201901			0		_
						23	DP01	0.0 - 5.0	0 - 5.0	3.6	N/A
- 3											_
									1 888		
- 4									1 (((_
- 5	5.0	1081.8] [1 (((_
				CLAYEY SAND, SC, 7.5YR 6/1 (gray)	to 7.5YR 6/3				1 1111		
- 6				(light brown), medium dense, moist					1 }}}		
									$ \rangle \rangle \rangle$		
- 7						5.0/10			5		-
						.0-201	DP02	5.0 - 10.0	0-10.	1.0	N/A
- 8						90123			0		_
									(((
- 9									 (((_
10									1 (((
- 10				Color change to 7.5YR 5/6 (strong bro	wn), fine, loose				1 00		
- 11				to medium dense, moderately graded	at 10.0'	10)))		_
						75/12.					
- 12						75-201			1_\		
						90123	DP03	10.0 - 15.0	0.0 - 1.	5.0	N/A
- 13				0	01 +- 40 5'				5.0		-
	13.5	1073.3		Some manganese inclusions from 13.0		13.5/			(
- 14				POORLY GRADED SAND, SP, 10YR yellow) to 10YR 5/3 (brown), medium t		15.0-20			1 111		-
	15.0	1071.8		loose, wet, oxidation banding in sand t)19012			1 ())		

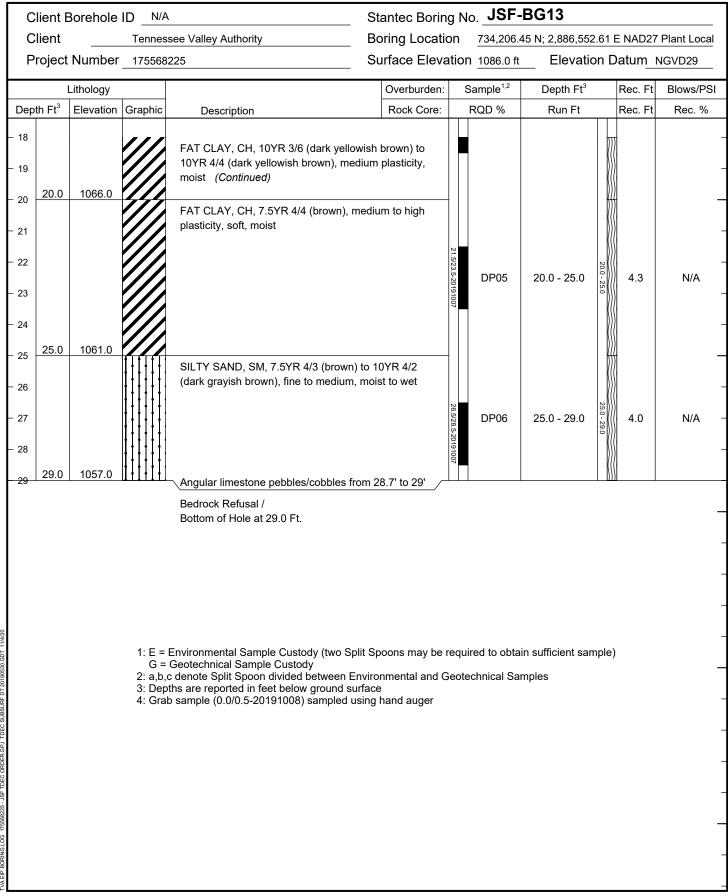


С	lient E	Borehole	ID N/A		St	antec Boring	g N	lo. JSF-	BG12		
С	lient		Tennes	see Valley Authority		oring Locatio			11 N; 2,895,501.86	E NAD27	Plant Local
Р	roject	Number	175568	225	Sı	ırface Elevat	tio	n <u>1086.8 ft</u>	Elevation [)atum_r	NGVD29
	ı	_ithology				Overburden:		Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft	Rec. Ft	Rec. %
– 15											_
10	15.9	1070.9		No recovery				DP04	15.0 - 15.9 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	0.0	N/A
				Bedrock Refusal / Bottom of Hole at 15.9 Ft.					9		_
											_
											_
											_
											_
			1: E =	Environmental Sample Custody (two S	Split Sp	oons may be re	equ	uired to obtai	in sufficient sample)	
			2: a,b,c	Geotechnical Sample Custody denote Split Spoon divided between l	Enviro	nmental and Ge	eot	echnical Sar	mples		_
			3: Dep 4: Gral	ths are reported in feet below ground so sample (0.0/0.5-20190123) sampled	surface using l	hand auger					-
											-
											_
											_
											_
											-
											_
											-
											_
											_
											_
											_
											-



(Client E	Borehole	ID N/A	1	Stantec Bo	oring 1	No. JSF-	BG13			
(Client		Tennes	see Valley Authority	Boring Loc	ation	734,206.	45 N; 2,886,552	2.61	E NAD27	Plant Local
F	Project	Number	175568	225	Surface El	evatio	n 1086.0 ft	Elevation	on C	atum_r	NGVD29
F	Project	Name	JSF TD	EC Order	Date Starte	ed	10/7/19	Comple	ted	10/7/1	19
F	Project	Locatio	n Hav	wkins Co, Rogersville, Tennessee	Depth to V	Vater _.	N/A	Date/Ti	me	N/A	
				Logger K. Carey		Vater_	N/A	Date/Ti	me	N/A	
	_			vkston (Subcontractor)		•	nd ID Geor	probe 3230DT			
			_	Sampling Tools (Type and Size		ner					
		_		ling Tools (Type and Size) N/A	4				_		
		-		and Size) N/A		NI/A		Overdrill			N/A
		er Hamm de Azimu		N/A Weight N/A		N/A		Efficiency Vertical)		N/A Δ	
		red By			Approved		•	vertical)	1 1/7		
			1.54					2			
		Lithology			Overburd		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description	Rock Co	re:	RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1086.0	11111	Top of Hole SILTY GRAVEL, GM, 10YR 4/3 (brow	(n) dn/	Ŧ	HA01	0.0 - 0.5	1	0.5	_
- 1	0.8	1085.2		·			11/101	0.0 0.0	((0.0	_
_ '	1.6	1084.4		SILT, ML, 7.5YR 4/6 (strong brown), s	soft, dry				((
- 2				LEAN CLAY, CL, 7.5YR 5/6 (strong b	rown),	1.5/3.5			00		-
- 3				non-plastic, soft, dry		20191	DP01	0.0 - 5.0)- 5.0	3.7	N/A _
3	3.7	1082.3				007			1 111		
- 4				FAT CLAY, CH, 10YR 4/4 (dark yello					1 11/1		-
- 5				7.5YR 5/4 (brown), low plasticity, firm	, moist						_
_ 3									1 177		
- 6))		-
- 7						6.5/)))		_
,						8.5-201	DP02	5.0 - 10.0	5.0 - 10	5.0	N/A
- 8						91007			0.0		-
- 9											_
									((
- 10	10.0	1076.0		FAT CLAY, CH, 7.5YR 3/2 (dark brow	(n) to 10VR 3/3				1 #		_
- 11				(dark brown), medium plasticity, firm,							_
						=			((
- 12						1.5/13.5			10.0		-
- 13						-20191	DP03	10.0 - 15.0	- 15.0	5.0	N/A _
10						1007			1 ((
- 14									1 11		-
- 15	15.0	1071.0									_
13				FAT CLAY, CH, 10YR 3/6 (dark yello							
- 16				10YR 4/4 (dark yellowish brown), med moist	lium plasticity,	16.					-
– 17						5/18.5-					_
''						2019100	DP04	15.0 - 20.0	5.0 - 20	5.0	N/A
	1	I .				19			1:- 1111		







	Client E	Borehole	ID N/A	\	_ St	tantec Borin	g N	o. JSF-	BG14			
	Client		Tennes	ssee Valley Authority	_ Bo	oring Location	on	734,503.	56 N; 2,886,376	5.22	E NAD27	Plant Local
	•	Number			_ Sı	urface Eleva	atior	1079.2 ft	Elevation	on E	Datum_ N	IGVD29
	-	Name			_ Da	ate Started	_	10/8/19	Comple	eted	10/8/1	9
	-	Location		wkins Co, Rogersville, Tennessee		epth to Wate		N/A	Date/Ti		N/A	
	-			Logger <u>K. Carey</u>		epth to Wate	_		Date/Ti	me	N/A	
	_			wkston (Subcontractor)		rill Rig Type	and	ID Geor	probe 3230DT			
			•	Sampling Tools (Type and Size		DPT 2.0" liner						
		-		9	N/A				Overdril	. Do	nth N	
		_		and Size) <u>N/A</u> N/A Weight N	I/A	Drop 1	Δ		Overain Efficiency		:рш <u>'</u> N/A	N/A
		le Azimu							Vertical)	N/		
		ed By				oproved By		•	vertical) _			
									D (1 5/3		D 51	
_		Lithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description Top of Hole		Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1079.2	111	Top of Hole CLAYEY GRAVEL, GC, 10YR 4/4	(dark v	ollowich	H	HA01	0.0 - 0.5	1	0.5	
- 1				brown) to 10YR 4/3 (brown), dry	(uark ye	eliowisii	4		0.0 0.0	((_
'				Fill from 0.0' to 2.0'						((
- 2				Angular, gray gravel zone from 1.4	' to 2.0'					0.0		-
_	2.8	1076.4					.	DP01	0.0 - 5.0	0 - 5.0	2.8	N/A
- 3				FAT CLAY, CH, 10YR 3/3 (dark bro (dark yellowish brown), low to medi			3.0/5			1 11		
- 4				dry to moist	iuiii pia	Sucity, IIIII,	.0-201))/		-
_							91008)))		
- 5										1 177		_
- 6)))		-
7							6.5)))		
- 7							/8.5-20	DP02	5.0 - 10.0	5.0 - 1	5.0	N/A
- 8							191008			0.0		-
										((
- 9										((_
- 10	10.0	1069.2					$\left\{ \ \right\}$			1 (4		_
				FAT CLAY, CH, 10YR 4/4 (dark ye medium plasticity, moist	llowish	brown),				((
- 11				, ,,						((_
- 12							1.5/13			<u>.</u>		-
							.5-2019	DP03	10.0 - 15.0	0 - 15.	5.0	N/A
- 13	13.3	1065.9					91008					_
- 14				SILTY SAND, SM, 10YR 4/4 (dark fine to medium, moist	yellowis	sh brown),)))		_
	15.0	1064.2		Transitions to a sandy material at 1	13.3')))		
– 15	10.0	. 50 1.2		POORLY GRADED SAND, SP, 7.5	 5YR 4/4	l (brown),	1				1	_
- 16				fine to medium, moist								-
							3.5/18.5					
- 17							5-2019	DP04	15.0 - 20.0	15.0-	3.4	N/A
40			· • • • • • • • • • • • • • • • • • • •				1008	DF 04	15.0 - 20.0	20.0	3.4	IN/A



Client Borehole ID N/A		Stantec Boring	g No. JSF-	BG14		
	see Valley Authority	Boring Location		56 N; 2,886,376.22	2 E NAD27	Plant Local
Project Number 175568	225	Surface Eleva	tion 1079.2 ft	Elevation	Datum_t	NGVD29
Lithology		Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³ Elevation Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
Depth Ft ³ Elevation Graphic - 18	POORLY GRADED SAND, SP, 7.5YF fine to medium, moist (Continued) Grades to a poorly graded, medium sato 20.0' WELL GRADED GRAVEL WITH SAN 4/6 (dark yellowish brown), coarse, mount was also seen to see the same seen to see the same see to sample Custody and see to sample Custody and see to sample Custody and see to sample (0.0/0.5-20191008) sampled us to sample (0.0/0.5-20191008) sampled us to sample (0.0/0.5-20191008)	Rock Core: R 4/4 (brown), and from 19.7' D, GW, 10YR bist to wet D, GW, 10YR ht gray s and cobbles d boring at 25.0' it Spoons may be revironmental and Grace	RQD % 21.5/23.5-20191008 DP05	Run Ft 20.0 - 25.0	Rec. Ft	
						_



	Client E	Borehole	ID N/A	1	Stantec Boring No. JSF-BG15							
	Client		Tennes	see Valley Authority	₋ Bo							
F	Project	Number	175568	225	Sı	Surface Elevation 1078.7 ft Elevation Datum NGVD				NGVD29		
F	Project Name					Date Started10/8/19 Completed10/8/19				9		
	Project Location Hawkins Co, Rogersville, Tennessee					epth to Wate	er _	23.5 ft	Date/Ti	me	10/8/1	9
	Inspector K. Carey Logger K. Carey					epth to Wate				me	N/A	
	Drilling Contractor Hawkston (Subcontractor)					ill Rig Type	and	ID Geor	probe 3230DT			
			-	Sampling Tools (Type and Siz	-	PT 2.0" liner						
		•		g (.) p	I/A				0		41. N	1/A
		_		and Size) <u> N/A </u>		Dran N	.1/Λ		Overdrill			N/A
		ir натт le Azimu	• •	1119.11				on (from	Efficiency Vertical)	N/	N/A Δ	
		ed By				proved By		P. Dunne	vertical)	1 1//		
'			0.10									
		Lithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1078.7	8 8 8 6	Top of Hole			工	HA01	0.0 - 0.5	11	0.5	_
			8. 8. 8.	SILTY GRAVEL, GW, 10YR 2/1 (bla	ack), dr	ry, [FILL]	P4	ПАОТ	0.0 - 0.5	((0.5	
- 1			8.8.8.	Color change to 10YR 6/1 (gray) at	0.9'					((_
- 2	2.0	1076.7	8.8.8.				1.5/3.					_
				LEAN CLAY, CL, 7.5YR 4/3 (brown) plasticity, dry), non t	to low	5-2019	DP01	0.0 - 5.0	0.0 - 5.0	3.9	N/A
- 3				plasticity, dry			1008					-
- 4												_
				Color change to 7.5YR 4/4 (brown)	at 3.9'							
- 5										1 8		_
- 6												_
0										((
- 7							5.5/8.5			5.0		-
۰							-20191	DP02	5.0 - 10.0	10.0	4.5	N/A
- 8							800			1 1/1		_
- 9))		-
	10.0	1068.7								())		
- 10				FAT CLAY, CH, 7.5YR 4/4 (brown),	mediu	m to high				1 177		_
- 11				plasticity, moist						())		-
							11.0					
- 12)/14.0-	DP03	10.0 - 15.0	10.0-	5.0	N/A
- 13							201910	DF03	10.0 - 13.0	15.0	3.0	IN/A -
							308			((
- 14										1 ((-
- 15										1 14		_
				Color change to 7.5YR 4/6 (strong b	rown)	at 15.0'						
- 16							16.5/					-
- 17							/18.5-2			<u> </u>		_
	17.5	1061.2					019100	DP04	15.0 - 20.0	5.0 - 20.	NR	N/A



Client	Client Borehole ID N/A				Stantec Boring No. JSF-BG15							
Client		Tennes	see Valley Authority	Boring Location 734,653.36 N; 2,886,121.92 E NAD27 Plant Local								
Projec	Project Number 175568225				Surface Elevation 1078.7 ft Elevation Datum NGVD29							
	Lithology			Overburden: Sample ^{1,2}		Depth Ft ³	Rec. Ft	Blows/PSI				
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %				
- 18 - 19 - 20 - 21 - 22	1058.7		SILTY SAND, SM, 7.5YR 4/4 (brown), v medium, moist to wet <i>(Continued)</i> POORLY GRADED SAND, SP, 7.5YR 4 fine to medium, moist to wet, subangula subrounded pebbles/cobbles within sand material.	1/4 (brown), r and	21.5/23.5	20.0 - 24.5	2.7	- - - N/A				
- 23 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1054.2		Encountered water from 23.5' to 24.5'		-20191008	2.5		-				
			Bedrock Refusal / Bottom of Hole at 24.5 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 (0.0/0.5-20191008) sampled using hand auger



Project Nu	175565262		Location	N	36°22'42.1	5 W82°57'1	0.84 (NAD83)		
Project Na	ame	TVA - JSF Well Ins	tallation		Boring No.	J	ISF-101	Total Dept	h 24.6 ft
County	_	Hawkins, TN			Surface Ele	vation	 110	06.6 ft	
Project Type		Well Installations			Date Started	_ d 1	0/7/15	Completed	10/19/15
Supervisor		B. Bryant Dri	ller G. Tho	mpson	Depth to Wa	ater 1	7.9 ft -bgs	Date/Time	10/7/15
Logged By	· /	C. Skees/ J. Andre				6.0 f -bgs	Date/Time	10/21/15	
Lithology	,		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation [Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
	0.0'	Top of Hole							4 in ab dia DVO
	0.4'	Topsoil		_					4-inch dia. PVC well installed.
1105.1'	1.5'	Fill: Gravelly Lean brown, moist	Clay,						
_		Lean Clay, brown brown, moist, med - Gray mottling be	lium stiff slow 5.0'	SPT-1	2.5' - 4.0'	1.3'	3-5-6		
-		- Becomes light b with gray and red mottling, and Mn concretions below	brown 10.0'	SPT-2	5.0' - 6.5'	1.5'	4-5-9		-
-		- Fine sand, slight increasing below 1		SPT-3	7.5' - 9.0'	1.5'	4-6-10		
-				SPT-4	10.0' - 11.5'	1.4'	3-6-10		Analytical Samples Composite 1: SPT-5, SPT-6,
-				SPT-5	12.5' - 14.0'	1.4'	3-4-6		SPT-7 Composite 2: SPT-8, SPT-9
1091.0' 1	15.6'	Silty Sand, wet to saturated, loose, li	iaht	SPT-6	15.0' - 16.5'	1.3'	4-6-10		-
-		brown with dark br intermixed, zones (sand is very fine) - Becomes gray to	rown of clayey o dark	SPT-7	17.5' - 19.0'	1.3'	3-4-6		
4421/16		gray, fine to mediu coarse grained be		SPT-8	20.0' - 21.5'	1.0'	WOR-1-3		-
	24.6'			SPT-9	22.5' - 24.0'	1.1'	1-2-3		
ALL OF THE		Auger Refusal / Bottom of Hole							_
NATEOFINSALLEGACY ISE_INS		Top of Rock = 24. Elevation (1082.0'							
O IANIECT			<u> </u>		tina Services				4/21/16

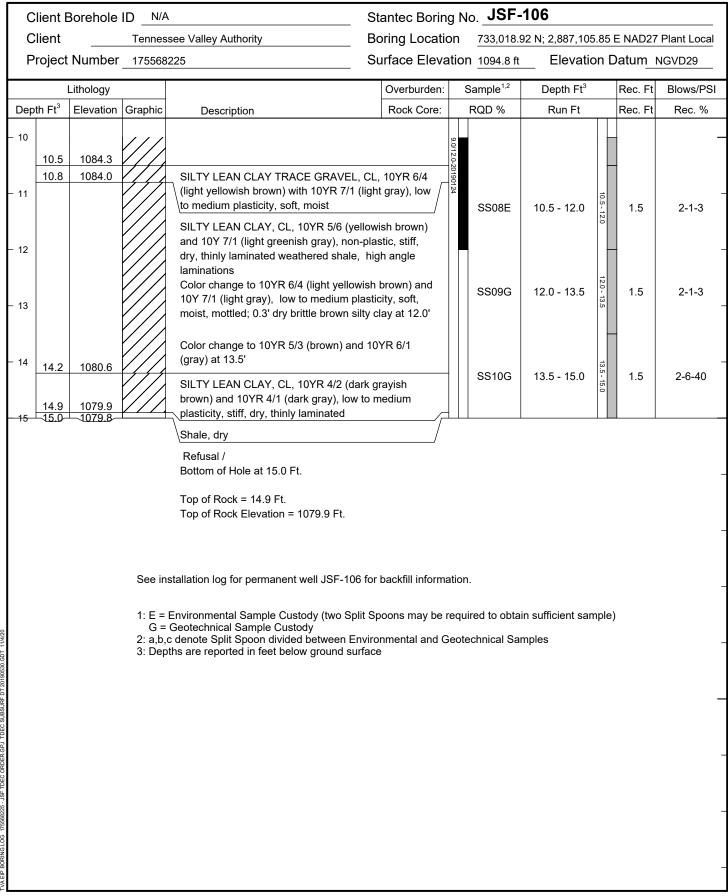


Project Number 175565262				Location	N	36°22'47.42	2 W82°57'2	7.04 (NAD83)	
Project I	Name	TVA - JSF Well Ins	tallation		Boring No.		JSF-102	Total Dept	h 18.2 ft
County	-	Hawkins, TN			Surface Elev	vation	108	37.6 ft	
Project ⁻	Туре	Well Installations	Date Started	d -	10/15/15	Completed	10/15/15		
Supervis	sor	B. Bryant Dri	mpson	Depth to Water		7.5 ft -bgs	Date/Time	10/15/15	
Logged	Ву	J. Andrew		Depth to Wa	ater	7.3 ft -bgs	Date/Time	10/19/15	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft	t. Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft	. Rec. %	Run Depth	Remarks
1087.6'	0.0'	Top of Hole							4-inch dia. PVC
1087.1'	0.5'	Topsoil		-					well installed.
-		Fill: Lean Clay with brown, moist, med							-
_				SPT-1	2.5' - 4.0'	1.1'	2-2-3		-
-				01 1-1	2.5 - 4.0	1.1	2-2-3		-
_1082.6'	5.0'			_					_
-		Lean Clay, brown brown, moist to we		SPT-2	5.0' - 6.5'	1.0'	1-1-3		-
-		very soft	.,						<u>Analytical</u>
-				SPT-3	7.5' - 9.0'	0.2'	WOH-		Samples Composite 1:
-				31 1-3	7.5 - 9.0	0.2	WOH-		SPT-1, SPT-2,
_1077.6'	10.0'			-			WOH		SPT-3 Composite 2:
_		Sand, brown, wet, loose to medium of		SPT-4	10.0' - 11.5'	1.1'	WOH-1-2		SPT-4, SPT-5, SPT-6
_		ioooo to modiam o	.000						SP1-0
-				SDT 5	12.5' - 14.0'	1.4'	1-1-3		-
_				31 1-3	12.5 - 14.0	1.4	1-1-3		-
_									_
_				SPT-6	15.0' - 16.5'	1.5'	5-7-9		-
1070.1'	17.5'								-
_ 1069.4'	18.2'	_ Weathered shale,	gray	SPT-7	17.5' - 18.2'	0.2'	20-50+		-
-		Auger Refusal /							-
_		Bottom of Hole							_
-		Top of Rock = 17.	5'						=
T 4/19/16		Elevation (1070.1')						-
- LLOG.GD									-
GRAPHIC —									-
- FMSM-									_
STALL.GF									-
Z _ 180 _									-
									-
STANTECPMSNI, LEGACY, ISF_INSTALL.GR27 FINSM-GRAPHIC, DG.GDT 4/1910									-
STANT					tina Services				4/19/16



(Client E	Borehole	ID N/A	<u> </u>	Stantec Boring No. JSF-106						
(Client		Tennes	see Valley Authority	Boring Location 733,018.92 N; 2,887,105.85 E NAD27 Plant Local						
F	Project	Number	175568	225	Surface Elevation 1094.8 ft Elevation Datum NGVD29					NGVD29	
F	Project NameJSF TDEC Order				Date Started1/23/19 Completed1/24/19					19	
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wate			Date/Ti			19 16:00
				Logger _C. Sexton		_			me	1/24/1	9 08:30
	-			ntec Consulting Services Inc.				55T#2, #711			
Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA, 2" SS w/o liners,											
		•		ling Tools (Type and Size) N/	A						15.0 %
				and Size) 8-1/4" HSA	Jh D	20"		Overdril			15.0 ft
				Automatic Weight 140 N/A			ion /franc	Efficiency		N/A ^	
		le Azimu			Borehole Incli Approved By		P. Dunne	vertical) _	IN/	A	
	review	ed By _	D. LV		Approved by	_					
		_ithology			Overburden:	,	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1094.8		Top of Hole							
	0.5	1094.3		Topsoil							
				SILTY LEAN CLAY, CL, 10YR 5/3 (b	rown) and 10YR		SS01G	0.0 - 1.5	0.0-	1.5	WH-3-4
- 1				6/8 (brownish yellow), low plasticity,	soft to medium				1.5		-
				stiff, dry to moist Trace Mn nodules from 0.5' to 2.5'							
				Color change to 10YR 5/4 (yellowish	brown) at 1.5'						
- 2							SS02G	1.5 - 3.0	1.5	1.5	- 3-5-4
							33020	1.5 - 5.0	3.0	1.5	J-J- 4
- 3	3.0	1091.8									
- 3				SILTY LEAN CLAY, CL, 10YR 6/4 (li	ght yellowish						_
				brown), medium plasticity, soft, dry to	moist, trace Mn				3.0		
- 4				nodules			SS03G	3.0 - 4.5	- 4.5	1.0	2-1-2
				Low to medium plasticity, stiff at 4.5'							
- 5				,,					4		_
	┙						SS04G	4.5 - 6.0	5 - 6.0	1.5	3-5-5
	Y										
- 6	6.0	1088.8	1//	SILTY LEAN CLAY CL. 10VD 6/4 (III	aht vallowish	-				1	-
				SILTY LEAN CLAY, CL, 10YR 6/4 (light brown) and 10YR 7/1 (light gray), me							
				medium stiff, dry to moist, mottled			SS05G	6.0 - 7.5	6.0 - 7.	1.5	3-3-4
- 7									б		-
	abla										
				Color change to 10YR 6/6 (brownish 10YR 7/1 (light gray), low to medium							
- 8				at 7.5'	plasticity, moist		SS06G	7.5 - 9.0	7.5-	1.3	2-3-3
									9.0		
– 9											_
				Color change to 10YR 5/8 (yellowish							
				10YR 7/1 (light gray), trace Mn nodul	es at 9.0'		00075	0.0 40.5	9.0 -	,	2.2.4
40			<i>Y///</i>				SS07E	9.0 - 10.5	10.5	1.5	2-2-4







	liont F	Borehole	ID N/A		Stantec Boring No. JSF-110						
		sorenoie							- 04	E NIA DOZ	Diametria
	Client			see Valley Authority	Boring Location 732,649.53 N; 2,889,835.21 Surface Elevation 1139.0 ft Elevation						
	-	Number					_				
	Project NameJSF TDEC Order				Date Started 1/28/19						
	•	Location		wkins Co, Rogersville, Tennessee	•	Depth to Water Date/Time1/29/19 11:28					19 11:28
				Logger _C. Sexton	Depth to Wat	_			me	N/A	
	-			ntec Consulting Services Inc.	Drill Rig Type						
			•	Sampling Tools (Type and Size)		anu	13 33 W/O II	ileis			
	Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) 8-1/4" HSA Overdrill Depth 17.2 ft										
		_		Automatic Weight 140 I	b Dron	30"		Overding		ν/Α	
		le Azimu			Borehole Incl			•			
		ed By	B. Eva		Approved By		P. Dunne	vortiour, _		· ·	
								3			
_		_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description	Rock Core:	$\frac{1}{1}$	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1139.0		Top of Hole							
	0.8	1138.2		Topsoil			00040	00.45	0.0	,	4.4.4
- 1	0.0	1.00.2		SILTY LEAN CLAY, CL, 10YR 6/4 (lig	ht yellowish	11	SS01G	0.0 - 1.5	-1.5	1.5	1-1-4 -
				brown), low plasticity, soft to medium						-	
- 2				moist Color change to 10Y 6/4 (pale olive) a	nd 10V 7/1				1.5		-
				(light greenish gray) low to medium pla			SS02G	1.5 - 3.0	- 3.0	1.5	4-6-6
- 3				medium stiff to stiff, with trace gravel a							_
				Color change to 10YR 6/6 (brownish y stiff at 3.0'	ellow), medium				3.0		
- 4				Root blocking recovery in SS03			SS03G	3.0 - 4.5	- 4.5	1.0	3-5-8
- 5				Color change to 10YR 6/4 (light yellow 10Y 7/1 (light greenish gray), very stiff					4.5		<u> </u>
				4.5'	, with said at		SS04G	4.5 - 6.0	- 6.0	1.5	4-6-10
- 6				Color change to 10YR 6/6 (brownish y	ellow), soft to						_
				medium stiff, dry at 5.0' Stiff, dry to moist, with trace gravel at	6.0'				6.0		
- 7				, ,			SS05G	6.0 - 7.5	- 7.5	0.5	2-2-7
- 8				With trace gravel at 7.5' 3-inch SS used from 7.5' to refusal					7.5		-
				3-IIICH 33 useu IIOIII 7.5 to reiusai			SS06G	7.5 - 9.0	5-9.0	1.1	6-11-13
- 9											_
				Medium stiff with trace gravel at 9.0'			SS07aG	9.0 - 9.9	9.0		
- 10 ·	9.9	1129.1			40VD 5/0	┨			- 10.5	1.2	4-6-11
-	*			CLAYEY SAND SOME GRAVEL, SC, (yellowish brown), medium, loose, dry		9.9/1	SS07bE	9.9 - 10.5			
- 11				Gravel is coarse to very coarse, round		2.0-20			10.1		_
				Loose to medium dense at 10.5'		190129	SS08E	10.5 - 12.0	5-12.0	0.9	4-7-10
- 12	12.0	1127.0				_ ~					_
				LEAN CLAY, CL, 10YR 6/6 (brownish					12.0		
- 13				plasticity, very stiff, dry to moist, Mn st	airiiriy		SS09G	12.0 - 13.5) - 13.£	1.5	10-7-12
4.4											



Page: 2 of 2

Client E	Client Borehole ID N/A				Stantec Boring No. JSF-110						
Client		Tennes		Boring Location 732,649.53 N; 2,889,835.21 E NAD27 Plant Local							
Project	Project Number 175568225			Surface Eleva	atior	1139.0 ft	Elevation	n D	atum_ ı	NGVD29	
	Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
- 14 - 15 <u>15.0</u>	1124.0		LEAN CLAY, CL, 10YR 6/6 (brownish ye plasticity, very stiff, dry to moist, Mn stair (Continued)	•		SS10G	13.5 - 15.0	13.5 - 15.0	0.0	4-7-10 	
- 16			LEAN CLAY, CL, 10YR 6/4 (light yellowide low plasticity, stiff to very stiff, dry to moist Mn staining	,		SS11G	15.0 - 16.5	15.0 - 16.5	1.5	9-9-18 -	
- 17 17.6	1121.4		Color change to 10G 5/1 (greenish gray) medium plasticity, stiff with gravel at 16.9	•		SS12G	16.5 - 18.0	16.5 - 18.0	0.2	- 6-50+-10	
18.0	1121.0		Shale, dark gray							_	
			Refusal / Bottom of Hole at 18.0 Ft.							_	
			Top of Rock = 17.6 Ft. Top of Rock Elevation = 1121.4 Ft.								
										_	

See well installation log for permanent well JSF-110 for backfill information.

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

APPENDIX B.2 GEOTECHNICAL BORINGS

Table of Contents

Subsurface Boring Legend	1
JSF-B01	2
JSF-B02	4
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JSF-B07	17
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JSF-B12	29
JSF-B13	32
JSF-B14	34
JSF-B15	36
JSF-B16	38
JSF-B17	39
JSF-B18	42

Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
03030303 0000000 0000000	Gravel
8 8 8 8 8 8	Well Graded Gravel (GW)
0 0 0 0	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
$\overline{\Delta}$	First water level reading
Ā	Second water level reading

Common Abbreviations

Abbreviation	Definition
DP	Direct Push
НА	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.



С	lient E	Borehole	ID		N/	4	Stantec Borin	ıg N	10. <u>JSF</u>	-B01			
С	lient		Т	eni	nes	ssee Valley Authority	Boring Locati	on	732,773.	55 N; 2,889,548	3.42 I	E NAD27	' Plant Local
Р	roject	Number	_1	75	568	3225	Surface Eleva	atio	n <u>1141.9</u> ft	Elevation	on D	atum_	NGVD29
Р	roject	Name	J	SF	T	DEC Order	Date Started	_	3/28/19	Comple	ted	3/28/	19
Р	roject	Location	1		На	wkins Co, Rogersville, Tennessee	Depth to Wat	er _	N/A	Date/Ti	me	N/A	
	•	or M. Pi					Depth to Wat	_		Date/Ti	me	N/A	
	_					-	Drill Rig Type						
						d Sampling Tools (Type and Size)_	4-1/4" HSA, 2"	SS	w/o liners, 3	8" Shelby Tubes			
		•			•	oling Tools (Type and Size) N/A							
		_	•	•		and Size) N/A	D	20"		Overdrill		. –	N/A
				I y	эе	Automatic Weight 140 lb	Drop <u>:</u>		tion /fram	Efficiency	r N//	N/A ^	
		le Azimut ed By		_ K	R		Borehole Incl Approved By		uon (irom A. Welshar	· —	IN//	Α	
	eview	eu by _		IX.		aniey	Approved by						
		_ithology					Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Gr	aph	nic	'	Rock Core:	<u> </u>	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1141.9		_	_	Top of Hole							
	0.6	1141.3	/	/	/	SILTY LEAN CLAY LITTLE SAND, CL, (yellowish brown), medium plasticity, me			00010		0.0		0.4.40
- 1			II †	,		moist, [FILL]	Sulum Sum,		SS01G	0.0 - 1.5	- 1.5	1.4	2-4-10
			H.		ŀŢ	SILTY SAND, SM, 2.5YR 2.5/1 (reddish	black),					.	
- 2			Ħ	Ħ.		medium to coarse, very loose to medium	n dense,						-
			H.	H	ŀŢ	moist, [CCR]						-	
- 3			Ħ	∏ .					00000	0.5.40	2.5		-
			H	 	$\left\{ ight\}$				SS02G	2.5 - 4.0	- 4.0	1.1	5-4-4
- 4			Ιţ	∏ .								-	-
				 	$\left\{ ight\}$								
- 5			łţ	╽ .	ŀţ						Н	- 1	_
				 	}				SS03G	5.0 - 6.5	5.0	1.3	2-2-1
- 6				∤					3303G	5.0 - 6.5	- 6.5	1.3	Z-Z-1 _
				!									
- 7				∤								1	-
				!					ST01G	6.5 - 8.5	5.5 - 8.5	1.3	350
- 8			H İ	∤ ‡.	ŀţ							1	-
				!									
- 9				∤ ‡ .	ŀţ								-
				!									
- 10				 									_
	10.6	1131.3	-					$\left \cdot \right $	SS04G	10.0 - 11.5	10.0-	1.5	WH-WH-WH
- 11						SANDY SILT, ML, 2.5YR 2.5/1 (reddish non-plastic, soft to hard, moist to wet, [0]	•		33040	10.0 - 11.5	11.5	1.5	-
						non-pidoto, son to flara, moist to wet, [C	, o, vj						
- 12													_
- 13									SS05G	12.5 - 14.0	12.5-	1.1	3-WH-1
											14.0		!



С	lient E	Borehole	ID N/A	1	Stantec Boring	g N	o. JSF-	B01			
 c	lient		Tennes	see Valley Authority	Boring Location	on	732,773.5	55 N; 2,889,548	3.42 I	E NAD27	Plant Local
Р	roject	Number	175568	225	Surface Eleva	tior	1141.9 ft	Elevatio	on D	atum_	NGVD29
	L	ithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 14				SANDY SILT, ML, 2.5YR 2.5/1 (reddis							-
- 15 - 16				(Continued)			SS06G	15.0 - 16.5	15.0 - 16.1	1.5	WH-3-WH
- 17									6		-
- 18							07000	40.0.40.0	18.0		-
- 19							ST02G	18.0 - 19.3	.19.3	1.3	700 -
- 20 - 21							SS07G	20.0 - 21.5	20.0 - 21.5	1.5	3-4-2
- 22											-
- 23	22.9	1119.0		Shale, gray to dark gray, very fine gra laminated to thin bedded, freshly weat			SS08G	22.5 - 23.8	22.5 - 23.8	1.3	1-21-50+/4"
- 24	24.0	1117.9		moderately weathered, dry to moist, 1 bedding angle, (cobble) SANDY SILT, ML, 2.5YR 2.5/1 (reddis	5° to 30°		SS09G	24.0 - 25.2	24.0 - 2	1.2	- 2-19-50+/2"
- 25	25.7	1116.2	<u> </u>	non-plastic, soft to hard, moist to wet,	[CCR]		SS10G	25.4 - 25.7	5.2 2	0.3	— 50+/4"
				Shale, gray to dark gray, very fine gra laminated to thin bedded, freshly weat moderately weathered, dry to moist, 1 bedding angle	thered to				5.4 - 25.7		
				Refusal / Bottom of Hole at 25.7 Ft.							_
				Top of Rock = 24.9 Ft. Top of Rock Elevation = 1117.0 Ft.							
			Boring	backfilled with 30% solids bentonite group	ut						
			G = 2: a,b,	Environmental Sample Custody (two Spl Geotechnical Sample Custody c denote Split Spoon divided between Er oths are reported in feet below ground sur	nvironmental and G				mple)		_
											-



Project Number 175568225 Surface Elevation 1104.4 ft Elevation Datum NGVI Project Name JSF TDEC Order Date Started 10/26/20 Completed 10/27/20 Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time N/A Inspector C. Sexton Logger C. Sexton 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) 5-7/8" Updraft Bit, 2" SS w/o liners, 3" ST Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1.2 Depth Ft3 Rec. Ft Block)29
Project Name	ws/PSI
Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time N/A Inspector C. Sexton Logger C. Sexton 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) 5-7/8" Updraft Bit, 2" SS w/o liners, 3" ST Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1.2 Depth Ft 3 Rec. Ft Block Overburden: Sample 1.2 Depth Ft 3 Rec. Ft	
Inspector C. Sexton Logger C. Sexton 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) 5-7/8" Updraft Bit, 2" SS w/o liners, 3" ST Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1.2 Depth Ft Rec. Ft Block Overburden: Sample 1.2 Depth Ft Block Overburden: Sample 1.2	
Drilling Contractor Stantec Consulting Services Inc. Overburden Drilling and Sampling Tools (Type and Size) 5-7/8" Updraft Bit, 2" SS w/o liners, 3" ST Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample ^{1,2} Depth Ft ³ Rec. Ft Block Bloc	
Overburden Drilling and Sampling Tools (Type and Size) 5-7/8" Updraft Bit, 2" SS w/o liners, 3" ST Rock Drilling and Sampling Tools (Type and Size) N/A Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1-2 Depth Ft Rec. Ft Block Overburden: Sample 1-2 Depth Ft Block Overburden: Sampl	
Rock Drilling and Sampling Tools (Type and Size) Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight Drop Borehole Azimuth N/A Reviewed By B. Halada N/A Approved By Overburden: N/A Approved By Overburden: Dopth Ft³ Rec. Ft Block Drop Automatic N/A Borehole Inclination (from Vertical) N/A Approved By A. Welshans Overburden: Depth Ft³ Rec. Ft Block Drop Overburden: Overburden: Depth Ft³ Depth Ft³ Rec. Ft Depth Ft³	
Overdrill Tooling (Type and Size) N/A Overdrill Depth N/A Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1.2 Depth Ft 3 Rec. Ft Block	
Sampler Hammer Type Automatic Weight 140 lb Drop 30" Efficiency 92.9% Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample 1.2 Depth Ft 3 Rec. Ft Block	
Borehole Azimuth N/A Borehole Inclination (from Vertical) N/A Reviewed By B. Halada Approved By A. Welshans Lithology Overburden: Sample ^{1,2} Depth Ft ³ Rec. Ft Blo	
Lithology Overburden: Sample ^{1,2} Depth Ft ³ Rec. Ft Blo	
	 c. %
Deput to the least the first that the first th	
0.0 1104.4 Top of Hole	
0.4 1104.0 Tapacil intest roots brown seil [FILL] SS01a 0.0 - 0.4	
- 1 SILTY LEAN CLAY TRACE GRAVEL, CL, 5YR 5/8 SS01bG 0.4 - 1.5	-6-9
(yellowish red) to 10YR 5/6 (yellowish brown),	
medium plasticity, hard, dry to moist, lensed, rounded gravels and coal gravels, woody material, [FILL]	-
Dissected roots to 1.2'	-
ST01G 2.5 - 5.0 0.9	NR
	-
	_
- 6 SS02aG 6.0 - 6.8 P	-
$\frac{1}{2} = \frac{6.8 + 1097.6 + 11111}{111111111111111111111111111111$	6-15
SILT WITH SAND, ML, N 5/ (gray), non-plastic, very SS02bG 6.8 - 7.5 hard, moist, [CCR]	
- 8	-
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	7-10
- 10	-
- 11	
	-6-5
- 12	-0-0
_ 13	
	-
	NR _
- 16	-
_ 17	
Transition in tube	



Clie	ent E	Borehole	ID N/A		Stantec Boring	g N	o. JSF-	B02			
Clie	ent		Tennes	see Valley Authority	Boring Location			22 N; 2,890,418	3.92 E	E NAD27	Plant Local
Pro	ject	Number	175568	225	Surface Eleva	tior	1104.4 ft	Elevatio	on D	atum <u>ı</u>	NGVD29
	I	_ithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth	Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18				Transition in tube (Continued)			ST03G	17.0 - 19.5	17.0 - 19.5	2.1	NR -
- 19 <u>1</u>	19.4	1085.0		SANDY FAT CLAY, CH, 10YR 5/6 (ye	ellowish brown),						
- 21				medium to high plasticity, firm, moist,	[FILL]						_
- 22							ST04G	20.5 - 23.0	20.5 - 23	1.4	NR _
- 23											_
- 24 2	24.4	1080.0					SS05aG	24.0 - 24.4	24		-
- 25				WELL GRADED GRAVEL WITH SILT (very dark gray) to N 6/ (gray), mediur	m to coarse,		SS05bG	24.4 - 25.5	1.0 - 25.5	1.3	7-19-19 _
- 26				very dense, moist, gravel fill, road ma	terial, [CCR]						_
- 27							SS06G	26.5 - 28.0	26.5 - 28.0	1.1	12-18-18
- 28											_
- 29 <u>2</u>	29.1	1075.3		SILT LITTLE SAND, ML, N 5/ (gray), soft, moist, bottom depth approximate			SS07G	29.0 - 30.5	29.0 - 30	1.4	4-1-1 <u> </u>
- 31				in tube, [CCR]					.5		_
- 32									31		-
- 33							ST05G	31.5 - 34.0	5-34.0	2.1	NR _
- 34											-
- 35									35		_
- 36 - 37							ST06G	35.0 - 37.5	5.0 - 37.5	2.4	NR -
- 37 - 38											_
20	39.4	1065.0									-
- 40	JU.T	1000.0		SANDY FAT CLAY TRACE SAND, Cl (brown), high plasticity, firm, moist, gr			ST07G	38.5 - 41.0	38.5 - 41.0	1.8	NR _
- 41				silt-filled fine bioturbation tubes, native quartz cobbles							-
- 42											_



Page: 3 of 3

Client	Borehole ID N/A		Stantec Boring	g No. JSF-	B02		
Client	Tennes	see Valley Authority	Boring Location		22 N; 2,890,418.9	2 E NAD27	Plant Local
Projec	t Number _ 175568	225	Surface Eleva	-	Elevation	Datum_I	NGVD29
	Lithology		Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 43 - 44 44.7	1059.7	SANDY FAT CLAY TRACE SAND, CI (brown), high plasticity, firm, moist, gre silt-filled fine bioturbation tubes, native quartz cobbles (Continued)	ey sandy	ST08G SS08G	42.0 - 44.5 43.2 - 44.7	1.3	NR N/A -
44.9	1059.5	FAT CLAY, CH, N 4/ (dark gray) to 2.9 olive brown), high plasticity, very hard laminated, residuum/highly weathered Refusal /	, moist,	SS09G	44.7 - 44.9	0.2	50/2"
		Bottom of Hole at 44.9 Ft.					_
	Begin ı	mud rotary at 5.0' bgs.					_
		ooon sample SS08G was obtained follow ered intervals may overlap due to slough				o recovery.	_
	Vibratiı	ng Wire Piezometer installed. See install	ation log for backfil	l details.			_
	G = 2: a,b,o	Environmental Sample Custody (two Spl Geotechnical Sample Custody c denote Split Spoon divided between Er ths are reported in feet below ground sui	nvironmental and G			le)	_
							_
							_
							_
							-
							_
							_
							_
							_
							_
							_



ſ											
	Client E	Borehole	ID N/A	·	Stantec Borin	g N	lo. JSF-	B03			
	Client		Tennes	see Valley Authority	Boring Locati			15 N; 2,890,425	5.12 E	E NAD27	Plant Local
	-	Number			Surface Eleva	atio	n 1092.7 ft	Elevation	on D	atum_ r	NGVD29
	-	Name		-	Date Started	_	10/28/20			10/29	/20
	-	Location		vkins Co, Rogersville, Tennessee	Depth to Wat	_		Date/Ti		N/A	
				Logger <u>C. Sexton</u>	Depth to Wat	_		Date/Ti	me	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type					_	
			•	Sampling Tools (Type and Size ing Tools (Type and Size)	·	∃II, ∠	2 55 W/O III	iers, 3 Shelby	Tube	S	
		_		ing Tools (Type and Size) <u>N/A</u> and Size) N/A	٦			Overdrill		nth N	N/A
		-		Automatic Weight 140	lb Drop 3	30"		Gverann		2.9%	
	•	le Azimu	• •	N/A	Borehole Incl			•	N/A		
		ed By		ada	Approved By		A. Welshan	· —			
		_ithology			Overburden:	_	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dor	oth Ft ³	Elevation	Craphia	Description	Rock Core:	'	RQD %	Run Ft		Rec. Ft	Rec. %
Del		1092.7	Grapriic	Description Top of Hole	Rock Core.		RQD %	Kull Ft	\forall	Rec. Ft	Nec. 70
- 0	0.0	1002.7		Crushed stone, road base			SS01aG	0.0 - 0.9			_
- 1	0.9	1091.8		· · · · · · · · · · · · · · · · · · ·					.0 - 1.5	1.3	10-16-8
				SANDY LEAN CLAY, CL, 10YR 6/8 (I and N 7/ (light gray), medium plasticit			SS01bG	0.9 - 1.5			
- 2				oxide staining, lensed, rounded pebbl	•						-
- 3									2.5		_
							SS02G	2.5 - 4.0	4.0	0.8	4-2-4
- 4											-
- 5											_
- 6							ST01G	5.0 - 7.5	5.0 - 7	1.8	NR -
- 7									1.5		_
- 8											-
- 9											_
							ST02G	8.5 - 11.0	8.5-	2.0	NR
- 10				Color change to 5YR 4/6 (yellowish re	ed) at 10.0'		3102G	0.5 - 11.0	11.0	2.0	- NK
- 11				color change to over the (joinement)	, a, at 10.0				10		_
- 12											-
- 13									12.1		_
10							ST03G	12.0 - 14.5	0-14.5	1.8	NR
- 14											-
- 15									Ħ		_
10											
- 16											-
- 17							ST04G	15.5 - 18.0	5.5 - 18	1.3	NR _
''									°		
40	1		1///			1 1	1			1	



С	lient E	Borehole	ID _	N/A		St	tantec Borin	g N	lo. JSF-	B03			
С	lient		Tenr	ess	see Valley Authority		oring Locatio			15 N; 2,890,425	5.12	E NAD27	Plant Local
Р	roject	Number	1755	682	225	Sı	urface Eleva	tio	n <u>1092.7</u> ft	Elevatio	on E	oatum_ ı	NGVD29
		Lithology					Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graph	ic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18			//										_
- 19	19.1	1073.6		4							Ш		-
- 20					CLAYEY SILT WITH SAND, ML, 2.5Y grayish brown) to 2.5Y 2.5/1 (black), r plasticity, firm, moist, moderate organ	nedi	um to high		SS03G	19.0 - 20.5	19.0 - 20.5	1.2	4-5-4 _
- 21					mottled, fragments of woody debris, s horizons								_
- 22									07050	04.5.04.0	21.5		-
- 23									ST05G	21.5 - 24.0	- 24.0	1.8	NR _
- 24 - 25													_
- 25 - 26											25.0		_
- 27									ST06G	25.0 - 27.5)-27.5	2.4	NR -
- 28													_
- 29											28.		_
- 30									ST07G	28.5 - 31.0	5 - 31.0	1.6	NR _
- 31													-
- 32 - 33	33.1	1059.6							SS04G	32.0 - 33.1	32.0 - 33.	1.1	- 35-50/6"
_ 33_	00.1	1000.0			Refusal /						<u> </u> →		_
					Bottom of Hole at 33.1 Ft.								-
													_
													_
			Ве	jin r	nud rotary at 5.0' bgs.								
			Bor	ing	backfilled with 30% solids bentonite gro	ut.							Ī
			() = (Environmental Sample Custody (two Sp Geotechnical Sample Custody		-				nple))	_
			2: a 3: E	,p,c ept	denote Split Spoon divided between Ei hs are reported in feet below ground su	rface	enimental and G	eot	ecnnicai Sai	npies			-



(Client E	Borehole	ID N/A	ι		St	tantec Boring	g No	o. <u>JSF-</u>	B04			
(Client		Tennes	see Valley Authority		Bo	oring Locatio	n	735,285.7	77 N; 2,890,350	6.82	E NAD27	Plant Local
ı	Project	Number	175568	225		Sı	urface Eleva	tion	1081.0 ft	Elevati	on C	atum_n	NGVD29
ı	⊃roject	Name					ate Started	_	10/30/20	Comple	eted	10/30	/20
	•	Location		wkins Co, Rogersville			epth to Wate		N/A	Date/Ti		N/A	
				Logger _C.			epth to Wate				me	N/A	
	-			intec Consulting Serv			rill Rig Type						
			_	Sampling Tools		· · · · · ·	5-7/8" Updraπ B	it, Z	55 W/O III	ers, 3" Sneiby	Tube	es	
		•	•	ling Tools (Type and Size) N/A	ariu Size)	11//				Overdril	l De	nth N	
		-		Automatic	Weight	140 lb	Drop 3	0"		Efficiency		92.9%	
		le Azimu		N/A			orehole Inclir			•			
ı	Review	ed By	B. Ha	lada			oproved By		A. Welshan	· —			
		Lithology					Overburden:	S	ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	pth Ft ³	Elevation	Graphic	Description			Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	0.0	1081.0		Top of Hole							\prod		
- 0	0.5	1080.5		Crushed stone, ro	ad fill				SS01aG	0.0 - 0.5	0.0		
- 1				LEAN CLAY WITH	H SAND, CL,	10YR 4/6 (dark		SS01bG	0.5 - 1.5	1.5	1.2	10-6-5
				yellowish brown) a medium plasticity,								1	
- 2				lensed, [FILL]	iiiiii to very n	iaru, ury to	moist,						_
- 3												1	-
١,									ST01G	2.5 - 5.0		1.1	NR
- 4									SS02G	3.6 - 5.1	3.6 - 5.	1.2	N/A
- 5													_
_ 6													_
- 6													
- 7									ST02G	6.0 - 8.5		1.2	NR -
- 8									SS03G	7.0 - 8.5	7.0 - 8.	1.3	N/A
											6		
- 9													-
- 10													_
									ST03G	9.5 - 12.0	10.	1.0	NR
- 11									SS04G	10.2 - 11.7	2-11.7	1.0	N/A -
- 12													_
- 13													_
- 14										40	13.0] _	
									ST04G	13.0 - 15.5	- 15.5	1.5	NR
- 15												1	_
- 16													_
- 17											16.5-	1	_
			Y///						ST05G	16.5 - 19.0	19.	1.4	NR



						105	D04		
		Borehole			Stantec Boring				
	lient			ssee Valley Authority	Boring Location		77 N; 2,890,356.8		
P	roject	Number	175568	225	Surface Elevat	ion <u>1081.0 ft</u>	Elevation	n Datum <u>r</u>	NGVD29
		Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
Dep - 18 - 19 - 20 - 21 - 22 - 23			Begin Split s	LEAN CLAY WITH SAND, CL, 10YR yellowish brown) and 10YR 6/8 (brow medium plasticity, firm to very hard, d lensed, [FILL] (Continued) FAT CLAY TRACE SAND, CH, 7.5YF brown), medium to high plasticity, har oxide staining, manganese nodules Shale, light gray to dark gray Refusal / Bottom of Hole at 23.2 Ft. mud rotary at 5.0' bgs. poon samples SS02G, SS03G, SS04G,	4/6 (dark mish yellow), lry to moist, R 5/6 (strong ed, moist, iron	SS05aG ST06G SS05bG SS06G	20.5 - 21.0 20.0 - 22.5 21.0 - 22.0 23.1 - 23.2	1.0 1.3 0.1	- NR N/A - 50/1"
				ery or no recovery. Recovered intervals r		loughing and/o	r differing sample	er diameters	
N530.GJT 5/17/z1			G = 2: a,b,	Environmental Sample Custody (two Sp Geotechnical Sample Custody c denote Split Spoon divided between E oths are reported in feet below ground su	nvironmental and Ge			ole)	- - - -
1988229 - JSF 11PEC UKUEKIGYA 11DEC SUBSURF DI 2019									- - - -



	Client E	Borehole	ID _\	/A		Stantec Boring	g N	lo. JSF-	B05			
	Client		Tenn	esse	ee Valley Authority	Boring Location	on	735,477.9	99 N; 2,890,759).14 E	NAD27	Plant Local
F	roject	Number	1755	3822	25	Surface Eleva	tio	n <u>1109.4</u> ft	Elevatio	n D	atum_n	NGVD29
F	roject	Name	JSF	DE	C Order	Date Started	_	10/16/20	Comple	ted	10/17	/20
	•	Location	_	lawk	kins Co, Rogersville, Tennessee	Depth to Wate			Date/Ti		N/A	
	•	or C. Se			Logger <u>C. Sexton</u>	Depth to Wate	_		Date/Ti	me	N/A	
	_				tec Consulting Services Inc.	Drill Rig Type						
			_		Sampling Tools (Type and Size) ng Tools (Type and Size) N/A		sit, 2	2" SS W/o lin	ers, 3" Shelby	lube	S	
		_		•	ng Tools (Type and Size) <u> N/A</u> nd Size) N/A				Overdrill	Dei	oth N	N/A
		_			Automatic Weight 140 II	b Drop 3	0"		OverdimEfficiency		2.9%	
		le Azimu			N/A	Borehole Incli		ion (from	•			
		ed By		lalad	da	Approved By		A. Welshan	· —			
		Lithology		Т		Overburden:	- :	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Der	oth Ft ³	Elevation	Graphi	c	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	0.0	1109.4	J. 1.		Top of Hole	1111111111111						
- 0	0.5	1108.9	030300	2000	Crushed Stone, roadbed with geofabric	c base						
- 1					SILTY FAT CLAY WITH GRAVEL, CH	I, 7.5YR 6/8						-
					(reddish yellow) to 7.5YR 6/2 (pinkish to high plasticity, firm to very hard, mo							
- 2					gravel to cobbles, moderately rounded					Ш		_
- 3										18		-
								ST01G	2.5 - 5.0	2.5 - 5	0.0	NR
- 4										.0 3.5		-
- 5								ST02G	3.5 - 6.0	6.0	0.5	NR _
- 6					Cobble encountered while pushing ST	03G				10		_
0					·			ST03G SS01b	6.0 - 6.4 6.4 - 6.9		0.4	NR
- 7	7.0	1102.4			SILT, ML, N 5/ (gray) to N 2.5/ (black),	non-plastic		SS01aG	6.9 - 7.0	6.4 - 7	1.1	9-13-16
- 8					very soft to firm, moist, sand content in	•		SS01c	7.0 - 7.9	.9		_
					depth, [CCR]							
- 9												-
- 10												_
								ST04G	9.5 - 12.0	9.5 -	2.2	NR
- 11								01040	3.3 - 12.0	12.0	2.2	-
- 12										12		_
- 13												_
- 14								0.7050	100 155	13.0	0.0	ND -
								ST05G	13.0 - 15.5	-15.5	2.2	NR
- 15										12		_
- 16												-
47												
- 17										16.5-		_
40								ST06G	16.5 - 19.0	19.0	2.5	NR



Client E	Borehole ID _	N/A		Stantec Boring	g N	o. JSF-	B05			
Client	Te	nnes	see Valley Authority	Boring Location			99 N; 2,890,759	.14 E	E NAD27	Plant Local
Project	Number 17	55682	225	Surface Eleva	tior	1109.4 ft	Elevatio	n D	atum <u>ı</u>	NGVD29
I	Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation Grap	ohic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18			SILT, ML, N 5/ (gray) to N 2.5/ (black) very soft to firm, moist, sand content is							-
- 19 - 20			depth, [CCR] (Continued)	ncreases with						_
- 21						ST07G	20.0 - 22.5	20.0	2.2	NR -
- 22						S107G	20.0 - 22.5	-22.5	2.2	NK -
- 23										-
- 24						ST08G	23.5 - 26.0	23.5 -	2.5	- NR
- 25						31000	23.3 - 20.0	26.0	2.5	_
- 26 - 27										-
- 28						ST09G	27.0 - 29.5	27.0-	2.5	NR -
- 29							2.10 2010	0-29.5	0	-
- 30										_
- 31						ST10G	30.5 - 33.0	30.5-	2.3	NR
- 32 - 33								33.0		
- 34										-
- 35						ST11G	34.0 - 36.5	34.0 - 36.9	2.4	NR –
- 36								36.5		-
- 37										-
- 38						ST12G	37.5 - 40.0	37.5 - 40.0	2.5	- NR
- 39 - 40								10.0		_
- 41										-
- 42										_



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Clier	nt Borehole	ID N/A		Stantec Boring	g No. JSF-	B05		
Clier	nt	Tennes	see Valley Authority	Boring Location	on <u>735,477.</u>	99 N; 2,890,759.14	E NAD27	7 Plant Local
Proje	ect Number	175568	225	Surface Eleva	ation 1109.4 ft	Elevation	Datum_	NGVD29
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth F	t ³ Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 43					ST13G	41.0 - 43.5	2.5	NR
43	.5 1065.9					បា	4	
- 44 - 45			ORGANIC SILT WITH SAND, OH, 7.5Y gray), high plasticity, firm to hard, moist fragments	,				_
- 46					ST14G	44.5 - 47.0 44.5 - 47.0	2.5	NR _
- 47								-
_ ₄₈ 48	.1 1061.3		Defined /		SS02G	48.0 - 48.1	0.1	50+/1" -
			Refusal / Bottom of Hole at 48.1 Ft.			0 - 48.1		-

Begin mud rotary at 5.0' bgs.

Sample ST02G was obtained following attempted Shelby tube with partial recovery or no recovery. Recovered intervals may overlap due to sloughing.

- 3.34" inclinometer casing installed to facilitate crosshole seismic logging.
- 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



C	Client E	Borehole	IDN/A	4	Stantec Boring	g N	o. JSF-	·B06			
C	Client		Tennes	ssee Valley Authority	Boring Location	n	735,491.4	42 N; 2,890,765	.21 E	NAD27	Plant Local
F	roject	Number	175568	3225	Surface Eleva	tio	1109.2 ft	Elevatio	n D	atum_r	NGVD29
F	roject	Name			Date Started	_	10/18/20	Complet	ted	10/18	/20
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wate	_		Date/Tir		N/A	
				Logger C. Sexton	Depth to Water	_			ne	N/A	
	-			intec Consulting Services Inc.	Drill Rig Type						
			_	l Sampling Tools (Type and Size) ling Tools (Type and Size) N/A		ilt, 2	2" SS w/o IIr	ners, 3" Shelby I	ube	S	
		•	•	ling Tools (Type and Size) <u> N/A</u> and Size) N/A	<u> </u>			Overdrill	DΔI	oth N	√/A
		_		Automatic Weight 140	b Drop 3	0"		Efficiency		2.9%	
		le Azimut	• •	N/A	Borehole Inclin			•	N/A		
		ed By		lada	Approved By		A. Welshan	· —			
		Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Der	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	0.0	1109.2	Стартно	Top of Hole	Tream data.		1102 /	TOTAL		1100.11	1100. 70
- 0	0.0			Drill without sampling							
- 1											-
- 2											_
- 3											-
- 4							ST01G	3.5 - 5.0	3.5 - 5.0	0.0	400
- 5	5.0	1104.2		OUT MI NIS/(www.) www.misstic.com							_
6				SILT, ML, N 5/ (gray), non-plastic, soft	r, moist, [CCR]				5		
- 6							ST02G	5.0 - 7.5	0 - 7.5	2.5	400
- 7	7.5	1101.7									-
- 8	7.0	1101.7		Drill without sampling							_
- 9											-
- 10											_
- 11											-
- 12											_
- 13											-
- 14											_
– 15											_
- 16											-
- 17											_
40											



Clien	t Borehole	ID N/A	1	Stantec Boring No. JSF-B06 Boring Location 735,491.42 N; 2,890,765.21 E NAD27 Plant Loca					_		
Clien											
Proje	ct Number	175568	3225		Surface Eleva	itio	n <u>1109.2 ft</u>	Elevatio	n D	atum <u>ı</u>	NGVD29
	Lithology				Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18			Drill without sampling	(Continued)							-
- 19											-
- 20											_
- 21											_
- 22											-
- 23											_
- 24											-
- 25											_
- 26											-
- 27											-
- 28											_
- 29											-
- 30											_
- 31											-
- 32											-
- 33											-
- 34											-
- 35											_
- 36											-
- 37											-
- 38											=
- 39											_
- 40 <u>40.</u>	0 1069.2		SILTY FAT CLAY, CH,	, medium to high	ı plasticity,						_
- 41			soft, moist	J	-		ST03G	40.0 - 42.5	40.0 - 42	2.2	NR -
- 42									5		_



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Clie	ent E	Borehole	ID N/A	\	Stantec Boring	g No. JSF-	B06		
Clie	ent		Tennes	see Valley Authority	Boring Location	n <u>735,491.</u> 4	42 N; 2,890,765.2	1 E NAD27	Plant Local
Pro	oject	Number	175568	225	Surface Eleva	tion 1109.2 ft	Elevation	Datum_	NGVD29
	L	ithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth	epth Ft ³ Elevation Graphic Description			Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
- 43 - 44 - 45	45.4	1063.8		SILTY FAT CLAY, CH, medium to hig soft, moist (Continued)	h plasticity,	ST04G	43.5 - 46.0 ^{43.5}	2.0	- NR
- 46	46.4	1062.8		SILTY FAT CLAY, CH, 7.5YR 6/6 (rec_high plasticity, firm, moist	ddish yellow),	SS01G	45.5 - 46.4	0.0	N/A –
				No Refusal /			4		_

Begin mud rotary at 5.0 bgs.

Split spoon sample SS01G was obtained following attempted Shelby tube with partial recovery or no recovery. Recovered intervals may overlap due to sloughing and/or differing sampler diameters.

- 3.34" inclinometer casing installed to facilitate crosshole seismic logging.
- 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 N/A	Stantec Boring		B07		
Client Tennessee Valley Authority	Boring Locatio		91 N; 2,890,773.0		
Project Number 175568225	Surface Eleva	•		n Datum <u>r</u>	-
Project Name	Date Started	10/15/20	Complete		/20
Project Location Hawkins Co, Rogersville, Tennessee	Depth to Wate		Date/Tim		
Inspector C. Sexton Logger C. Sexton Drilling Contractor Stantec Consulting Services Inc.	Depth to Wate Drill Rig Type		Date/Tim	ne N/A	
Overburden Drilling and Sampling Tools (Type and Size	• • • •				
	/A	11, 2 33 11/3 111	1010		
Overdrill Tooling (Type and Size) N/A			Overdrill [Depth 1	N/A
Sampler Hammer Type Automatic Weight 140	Drop 30	0"	Efficiency	92.9%	
Borehole AzimuthN/A	Borehole Inclin	nation (from	Vertical)	N/A	
Reviewed ByB. Halada	Approved By	A. Welshan	s		
Lithology	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³ Elevation Graphic Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
0.0 1109.5 Top of Hole					_
0.8 1108.7 Crushed stone, road bed with geofat	oric base	SS01aG	0.0 - 0.8	1.1	11-10-8
- 1 SILTY LEAN CLAY SOME GRAVEL		SS01bG	0.8 - 1.5	л Л	11-10-0
5/4 (yellowish brown) with 7.5YR 6/8 medium plasticity, hard, moist, iron of					-
Lensed, gravels of weathered shale,					
- 3		SS02G	2.5 - 4.0	1.5	4-6-9
- 4					-
- 5			,	л	_
- 6		SS03G	5.0 - 6.5	0.2	2-3-6
				H	
7 7.6 1101.9		SS04aG	7.5 - 7.6		=
- 8 SANDY SILT, ML, N 5/ (gray) to N 2			76.00	1.1	3-6-8
non-plastic, very soft to hard, moist t	o wet, [CCR]	SS04bG	7.6 - 9.0		-
- 10					_
- 11		SS05G	10.0 - 11.5	1.2	2-2-4
			i	^	
- 12					-
- 13				30 10	_
		SS06G	12.5 - 14.0	1.1	1-2-4
- 14					-
- 15					_
		SS07G	15.0 - 16.5	1.2	1-1-1
- 16				ה ה ה	
- 17					_



Client F	Borehole	ID N/A	<u> </u>	Stantec Bori	na N	Jo JSF-	B07			
Client	Joichole		ssee Valley Authority	Boring Local			91 N; 2,890,773	3 03	F NAD27	Plant Local
	Number			Surface Elev						
Depth Ft ³	Lithology Elevation	Craphia	Description	Overburder Rock Core	_	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft	Elevation	Grapnic	Description	Rock Core		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 18 - 19			SANDY SILT, ML, N 5/ (gray) to N 2.5, non-plastic, very soft to hard, moist to (Continued)			SS08G	17.5 - 19.0	17.5 - 19.0	1.3	WH-1-1
- 20			(Continued)					20	ĺ	_
- 21						SS09G	20.0 - 21.5).0 - 21.5	1.3	WH-1-1 _
- 22								2:		_
- 23 - 24			Gypsum laminae at 23.4'			SS10G	22.5 - 24.0	2.5 - 24.0	1.5	1-1-2
- 25										_
- 26						SS11G	25.0 - 26.5	5.0 - 26.5	1.5	WH-WH-WH_
- 27										_
- 28 - 29						SS12G	27.5 - 29.0	27.5 - 29.0	1.5	1-WH-WH
- 30								30	l	_
- 31						SS13G	30.0 - 31.5	0-31.5	0.0	WR-WR-WR_
- 32 - 33								32.5		_
- 34						SS14G	32.5 - 34.0	34.0	1.5	WR-WR-WR
- 35								35.0		_
- 36						SS15G	35.0 - 36.5) - 36.5	1.5	WR-WR-WR_
- 37								37	l	_
- 38 - 39						SS16G	37.5 - 39.0	5-39.0	1.5	WR-WR-WR
- 40								40.		_
- 41 <u>41.4</u>	1068.1				-	SS17aG SS17bG	40.0 - 41.4 41.4 - 41.5	0-41.5	1.5	WH-WH-WH_
- 42		I/I								



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Clien	t Borehole	ID N/A	S S	Stantec Boring No. JSF-B07							
Clien	t	Tennes	see Valley Authority Box	oring Locatio	on	735,476.9	91 N; 2,890,773	3.03 I	E NAD27	Plant Local	
Proje	ct Number	175568	225 S	urface Eleva	tion	1109.5 ft	Elevatio	on D	atum_ı	NGVD29	
	Lithology		Overburden:	S	Sample ^{1,2}	Depth Ft ³	Depth Ft ³		Blows/PSI		
Depth Ft	Depth Ft ³ Elevation Graphic Description					RQD %	Run Ft		Rec. Ft	Rec. %	
- 43 - 44 - 45			SANDY LEAN CLAY WITH GRAVEL, CL, (yellowish brown) to 10YR 7/1 (light gray) plasticity, hard to very hard, moist, iron ox staining, weak cementation, Manganese r quartz pebbles, (Continued)	, medium ide		SS18G	42.5 - 44.0	42.5 - 44.0 44.7	0.9	WR-5-9 –	
- 46 46.	2 1063.3					SS19G	44.7 - 46.2	7 - 46.2	1.1	13-48-41 -	
		Refusal / Bottom of Hole at 46.2 Ft.		•					_		

Begin mud rotary at 5.0' bgs.

3.34" inclinometer casing installed to facilitate crosshole seismic logging.

- 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 N/A	Stantec Borin	g No. JSF-	B08		
Client Tennessee Valley Authority	Boring Location	on <u>733,316.</u> 6	63 N; 2,886,400.9	6 E NAD27	Plant Local
Project Number 175568225	Surface Eleva	ation 1104.9 ft	Elevation	Datum_r	NGVD29
Project NameJSF TDEC Order	Date Started	10/12/20	Complete	ed 10/13	/20
Project Location Hawkins Co, Rogersville, Tennessee	Depth to Wate	·	Date/Tim		
Inspector <u>C. Sexton</u> Logger <u>C. Sexton</u>				e N/A	
Drilling Contractor Stantec Consulting Services Inc.					
Overburden Drilling and Sampling Tools (Type and S	·———	Bit, 2" SS w/o lir	iers, 3" ST		
Rock Drilling and Sampling Tools (Type and Size)	N/A		Overdrill F)onth	 \/A
Overdrill Tooling (Type and Size) N/A Sampler Hammer Type Automatic Weight	140 lb Drop 3	RO"	Overdrill [Efficiency	92.9%	N/A
Borehole Azimuth N/A	Borehole Incli		•	N/A	
Reviewed By B. Halada	Approved By	•	· —		
Lithology	Overburden:	'	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft³ Elevation Graphic Description 0.0 1104.9 Top of Hole	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
OBOOOOOO Crushed stone road groupl		SS01aG	0.0 - 0.7		
0.7 1104.2 Crustied stotle, road graves	1 (vallowish brown)	-	c	1.1	6-5-4
and N 7/ (light gray), medium to	,	SS01bG	0.7 - 1.5		
- 2 moist, no odor, laminated, [FILL]	1				=
_ 3				,	
		SS02G	2.5 - 4.0	1.2	8-4-5
4 4.0 1100.9	OVD 6/4 /light			H	-
LEAN CLAY WITH SAND, CL, 1 yellowish brown), medium plastic					
moist, [FILL]		ST01G	5.0 - 5.2	0.2	NR -
6			0.2		-
L 7 //		SS03G	6.0 - 7.5	0.0	10-11-10
- 8					-
9		ОТООО	ا م		ND
		ST02G	8.5 - 9.6	1.1	NR -
- 10					_
_ 11			Ī		
		ST03G	10.5 - 12.1	1.6	NR
12			-	A I	_
- 14		ST04G	13.0 - 15.5	2.5	NR _
- 15			500		
- 16					-
		ST05G	16.5 - 17.5		NR -
17		31000	10.3 - 17.3	1.0	INIT.
<u> </u>				<u> </u>	



Clien	Borehole ID N	Α	Stantec Boring	g No	o. JSF-	B08			
Clien	Tenne	ssee Valley Authority	Boring Location			3 N; 2,886,400).96 I	E NAD27	Plant Local
Proje	ct Number17556	8225	Surface Eleva	ition	1104.9 ft	Elevatio	on D	atum <u>ı</u>	NGVD29
	Lithology		Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft	Elevation Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18		LEAN CLAY WITH SAND, CL, 10YR yellowish brown), medium plasticity, s							_
- 19 - 20		moist, [FILL] (Continued)	soft to very mard,		SS04G	19.0 - 20.5	19.0 - 20.5	1.2	7-11-12 <u> </u>
- 21									_
- 22					SS05aG	21.5 - 22.8	21.5 - 2	0.8	1-4-10
- 23 -23.	3 1082.1 0 1081.9	SILTY LEAN CLAY SOME SAND, CI high plasticity, firm, moist, laminated,	1 1		SS05bG	22.8 - 23.0	3.0		_
- 24 - 25 25.	0 1079.9	LEAN CLAY, CL, unknown lithology			ST06G	24.0 - 25.0	24.0 - 25.0	1.0	NR _
- 26		LEAN CLAY WITH SAND, CL, 7.5YF medium plasticity, very hard, moist, kellaminated at top			SS06G	25.0 - 26.5	25.0 - 26.5	1.1	5-13-18
- 27									_
- 28 - 29					SS07G	27.5 - 29.0	27.5 - 29.0	1.5	10-20-25 _
- 30 - 31					SS08G	30.0 - 31.5	30.0 - 31.5	1.2	 10-10-13 _
- 32								1	_
- 33					ST07G	32.5 - 35.0	32.5-	2.0	- NR
- 34 - 35		Bioturbated from 34.5' to 42.0'					35.0		_
- 36									_
- 37					ST08G	36.0 - 38.5	36.0 - 3	2.3	NR -
- 38							8.5		=
- 39									_
- 40 - 41					ST09G	39.5 - 42.0	39.5 - 42.0	2.3	NR _
- 42									_



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C	lient l	Borehole	ID N/A	A	Sta	ntec Boring	gΝ	lo. JSF-	B08			
C	lient		Tennes	see Valley Authority	Bor	ing Locatio	n	733,316.6	33 N; 2,886,400).96 I	E NAD27	Plant Local
Р	roject	Number	175568	225	Sur	face Eleva	tio	n <u>1104.9 ft</u>	Elevatio	on D	atum_ ı	NGVD29
		Lithology			(Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 43 - 44 - 45	45.5	1059.4		LEAN CLAY WITH SAND, CL, 7.5YR medium plasticity, very hard, moist, le laminated at top <i>(Continued)</i>		rown),		ST10G	43.0 - 45.5	43.0 - 45.5	2.4	- NR -
- 46 - 47 - 48	SILTY LEAN CLAY TRACE GRAVEL, CL, (dark greenish gray) with 10Y 6/1 (greenish gray) with 10Y 6/1 (greenish gray) with 10Y 6/2, thin layering Manganese nodules mica and fine sand at					gray), de sand		SS09G SS10G	46.5 - 48.0 48.0 - 48.7	46.5 - 48.0 48.0	0.6	2-7-17 - - - 13-50/2"
	48.7	1056.2		Refusal /						48.7		-
				Bottom of Hole at 48.7 Ft.								
												_
												-
												-
			Begin	mud rotary at 5.0' gs.								-
	Vibrating Wire Piezometer installed. See Ins				llation l	og for backfill	l de	tails.				-
	 E = Environmental Sample Custody (two S G = Geotechnical Sample Custody a,b,c denote Split Spoon divided between Depths are reported in feet below ground 					•				nple)		<u>-</u> -

Stantec Consulting Services Inc.



_ c	lient E	Borehole	ID N/A	١		s	tantec Boring	g N	No. JSF-	B09			
C	lient		Tennes	see Valley Authority			oring Locatio				.23	E NAD27	Plant Local
F	roject	Number	175568	225		S	urface Eleva	tio	n 1081.5 ft	Elevatio	n D	atum 1	NGVD29
F	roject	Name	JSF TD	EC Order		D	ate Started		10/2/20	Comple	ted	10/3/2	20
P	roject	Location	າ Hav	wkins Co, Rogersville	e, Tennessee	D	epth to Wate	er _	N/A	 Date/Tir	ne	N/A	
lr	nspect	or M. E	dmunds	Logger M.	Edmunds	D	epth to Wate	er _	N/A	Date/Tir	ne	N/A	
	rilling	Contract	or Sta	ntec Consulting Serv	vices Inc.	D	rill Rig Type	an	nd ID CME	55T#1, #709			
C	verbu	rden Dril	ling and	Sampling Tools	(Type and	Size)	4-1/4" HSA, 2" 8	& 3'	" SS w/o line	ers, 3" ST			
F	lock D	rilling an	d Samp	ling Tools (Type	and Size)	N/A							
		_		and Size) <u>N/A</u>						Overdrill	De	pth _^	N/A
				Automatic	_Weight	140 lb	Drop <u>_</u> 3			Efficiency		92.9%	
		le Azimu		N/A			orehole Incli		•	· —	N/A	4	
F	Review	ed By _	B. Ha	lada		Α	pproved By	_	A. Welshan	<u>S</u>			
	l	Lithology					Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description			Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1081.5		Top of Hole									_
ľ				Riprap									
- 1													_
_ ا													
- 2													_
- 3													_
- 4													-
- 5													_
- 6													_
- 7													
- <i>'</i>													
- 8													_
- 9													_
- 10													_
- 11			000										_
- 12													_
.=													
- 13													_
_ 44													
- 14													_
- 15	15.3	1066.2											_
				LEAN CLAY SOM	IE SAND, CL,	10YR 4/4	(dark						
- 16				yellowish brown),	medium plast	ticity, firm,	moist		SS01	15.5 - 17.0	5.5 - 17.0	1.5	3-4-4
- 17											7.0		-



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С	lient E	Borehole	ID N/A	\	Stantec B	oring N	No. JSF-	B09			
C	lient		Tennes	see Valley Authority	Boring Lo	cation	733,399.8	33 N; 2,886,363	.23	E NAD27	Plant Local
P	roject	Number	175568	225	Surface E	levatio	n <u>1081.5</u> ft	Elevatio	n C	atum_	NGVD29
		Lithology			Overbur	den:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Co	ore:	RQD %	Run Ft		Rec. Ft	Rec. %
- 18 - 19				LEAN CLAY SOME SAND, CL, 10YR 4 yellowish brown), medium plasticity, firn	,		ST01G	17.0 - 19.5	17.0 - 19.5	2.3	400
- 20	(Continued)			(Continued)			ST02G	19.5 - 20.5	19.5 - 20.5	1.2	500 —
- 21	21.5	1060.0					SS02G	20.5 - 22.0	20.5 - 22.	1.5	6-6-9
- 22				LEAN CLAY SOME SAND, CL, 10YR 4 yellowish brown), medium plasticity, ha	,				2.0		-
- 23	23.0	1058.5					SS03aG	22.5 - 23.0	22.5		
- 24	POORLY GRADED SAND LITTLE			POORLY GRADED SAND LITTLE CLA 4/2 (brown), medium, medium dense, v transitions to grey in color		R	SS03bG SS04G	23.0 - 24.0 24.5 - 24.6	- 24.0	1.5	7-5-7 - 50+/1"
- 25	Top of rock like resistance. Dark g				weathered		3304G	24.5 - 24.0	24.5 - 24.6	0.1	50+/ I -
I											

Refusal /

Bottom of Hole at 25.5 Ft.

For SS01 a 3" Split Spoon was used to collect samples for geochemical testing.

Vibrating Wire Piezometer installed. See installation log 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



		Borehole	ID N/A	1	Stantec Boring		o. JSF-	B10			
	lient			ssee Valley Authority	Boring Locatio			45 N; 2,887,642			
	-	Number			Surface Eleva	tior	-			-	-
	-	Name			Date Started	_	10/4/20	Comple			20
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Wate		N/A	Date/Ti		N/A	
	•	or <u>M. E</u>		Logger M. Edmunds	Depth to Wate	_		Date/Ti	me	N/A	
	_			intec Consulting Services Inc. I Sampling Tools (Type and Size)	Drill Rig Type						
			_	ling Tools (Type and Size) N/A		'IL, Z	. 33 W/O III	1013, 0 01			
		•		and Size) N/A	-			Overdrill	De	pth 1	N/A
		-		Automatic Weight 140 l	b Drop 30	0"		Efficiency		92.9%	
		le Azimu	• •	N/A	Borehole Inclir		ion (from	•	N/A	A	
F	Review	ed By	B. Ha	lada	Approved By		A. Welshar	is			
		Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³		Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1105.5		Top of Hole							
- 0				SILTY LEAN CLAY LITTLE SAND, CL	·		00040	0.0 4.5	0.0	0.0	0.4.4
- 1				(brownish yellow), low plasticity, firm to dry, [FILL]	o very hard,		SS01G	0.0 - 1.5	0.0 - 1.5	0.6	2-4-4
- 2				ary, [· · · ː ː ː ː							_
									Н		
- 3							SS02G	2.5 - 4.0	2.5 - 4.0	1.5	7-8-10
- 4											-
- 5	5.0	1100.5									
- 5				SILT WITH SAND, ML, 10YR 5/6 (yell	,		ST01G	5.0 - 6.0	5.0-	1.0	500
- 6				medium plasticity, hard to very hard, n	noist, [FILL]				6.0	1	-
- 7							SS03G	6.0 - 7.5	6.0 - 7.5	1.0	3-7-7
										-	
- 8											=
- 9							ST02G	8.5 - 9.5	8.5-9	1.0	550 -
- 10									.5 9.5		_
10							SS04G	9.5 - 11.0	9.5 - 11.0	1.1	7-9-11
- 11									H		-
- 12									Ш		_
	13.0	1092.5					SS05aG	12.0 - 13.0	12.0-	1.2	5-12-12
- 13	10.0	1002.0		SANDY LEAN CLAY SOME GRAVEL	, CL, 10YR 6/6		SS05bG	13.0 - 13.5	13.5		
- 14				(brownish yellow), non-plastic to low p	lasticity, very						-
45				hard, moist, [FILL]			ST03G	14.5 - 14.7		0.2	600
- 15							SS06G	14.7 - 16.2	14.7 - 1	1.0	8-8-12
- 16									6.2		-
- 17											_
- 18	18.4	1087.1					SS07aG	18.0 - 19.0	18.0 - 19		-
40	18.7	1086.8		¬ FAT CLAY, CH, 10YR 5/1 (gray), med	lium to high /		JJUTAG	10.0 - 19.0	19.5	1.0	6-10-13



С	lient E	Borehole	ID N/A		St	antec Boring	g N	o. JSF-	B10			
С	lient		Tennes	see Valley Authority		oring Locatio			15 N; 2,887,642	2.17 I	E NAD27	Plant Local
Р	roject	Number	175568	225	Sι	urface Eleva	tior	1105.5 ft	Elevatio	on D	atum <u>ı</u>	NGVD29
		_ithology				Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 19				plasticity, firm to hard, moist, [FILL]				SS07bG	19.0 - 19.5			-
- 20 - 21				LEAN CLAY, CL, 10YR 3/4 (dark yello non-plastic to low plasticity, very hard, (Continued)		,.		ST04G	20.5 - 21.0		0.5	600 _
21	21.4	1084.1		LEAN CLAY WITH SAND, CL, 10YR	5/1 (/	urav)		SS08G	21.0 - 22.5	21.0-	1.1	7-12-18
- 22 - 23				medium plasticity, very hard, moist	J/ 1 (<u>(</u>	gray <i>)</i> ,		33000	21.0 - 22.0	22.5	'.'	7-12-10 _
- 24								ST05G	24.0 - 25.0	24.0 - 2	1.0	- 600
- 25										5.0 25.0		_
- 26								SS09G	25.0 - 26.5) - 26.5	1.0	4-9-13 _
- 27 - 28												-
- 29								ST06G	27.5 - 29.5	7.5 - 29.5	0.0	1200 -
- 30	30.1	1075.4						SS10aG	29.5 - 30.0	29.5		_
- 31 - 32	22.2	4072.2		CLAYEY POORLY GRADED SAND V SP, 10YR 4/6 (dark yellowish brown), coarse, dense, moist		,		SS10bG	30.0 - 31.0	5-31.0	1.5	9-15-25 - -
- 33	32.3	1073.2		CLAYEY SAND WITH GRAVEL, SC, to 10YR 4/4 (dark yellowish brown), fil medium plasticity, very dense, moist				SS11G	32.0 - 33.5	32.0 - 33.5	1.2	45-55-21 _
- 34 35	34.8	1070.7								34.5	l	_
- 35 	35.7	1069.8		SILTY LEAN CLAY, CL, 10YR 4/2 (da brown), non-plastic, very hard, moist, saprolite/residuum	ırk gı	rayish		SS12G	34.5 - 35.7	4.5 - 35.7	1.2	6-45-50+/2"
				No Refusal /								-
				Bottom of Hole at 35.7 Ft.								-
												-
			Vibrati	ng Wire Piezometer installed. See install	ation	log for backfill	det	tails.				_
			ST06 v	was advanced as a Shelby tube versus a	n Os	sterberg tube.						-
			G = 2: a,b,	Environmental Sample Custody (two Spl Geotechnical Sample Custody c denote Split Spoon divided between Er ths are reported in feet below ground sur	viro	nmental and Ge				nple)		- -



C	lient E	Borehole	ID N/A	\	Stantec Boring	gΝ	lo. JSF-	B11			
C	lient		Tennes	ssee Valley Authority	Boring Location	n	733,733.	32 N; 2,887,585	5.83 E	NAD27	Plant Local
F	roject	Number	175568	3225	Surface Eleva	tio	n <u>1087.1 ft</u>	Elevation	on D	atum_n	NGVD29
P	roject	Name	JSF TD	DEC Order	Date Started	_	10/1/20	Comple	eted	10/1/2	20
F	roject	Location	n <u>Ha</u>	wkins Co, Rogersville, Tennessee	Depth to Wate	er _	N/A	Date/Ti	me	N/A	
Ir	rspect	or M. E	dmunds	Logger M. Edmunds	Depth to Wate	er _	N/A	Date/Ti	me	N/A	
	-			ntec Consulting Services Inc.	Drill Rig Type						
			-	Sampling Tools (Type and Size)		Sit, 2	2" SS w/o lir	ers, 3" ST			
		_	•	ling Tools (Type and Size) N/A							
		_		and Size) N/A				Overdrill			N/A
			• •	Automatic Weight 140 lb			· / C	Efficiency	-	2.9%	
		le Azimu		N/A	Borehole Inclin		•		N/A	١	
	eview	ed By _	B. Ha	lada	Approved By		A. Welshar	is			
		Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1087.1		Top of Hole							_
				SANDY FAT CLAY, CH, 10YR 6/6 (broto 10YR 5/1 (gray), medium to high pla	, ,		00040	00.45	0.0	4.0	0.00
- 1				moist	isticity, iiiii,		SS01G	0.0 - 1.5	- 1.5	1.0	2-2-3
- 2											_
- 3											_
							ST01G	2.5 - 5.0	2.5 - 5	1.8	550
- 4											_
_											
- 5											_
– 6											_
	6.6	1080.5					ST02G	6.0 - 7.0	6.0	1.0	600
- 7				LEAN CLAY WITH SAND, CL, 10YR 6					7.0		_
				yellow) and 10YR 6/1 (gray), low to me plasticity, very hard, dry to moist	edium				7.0		
- 8				plasticity, very flard, dry to moist			SS02G	7.0 - 8.5	- 8.5	0.7	9-9-9
- 9											-
- 10											_
							ST03G	9.5 - 12.0	9.5 - 1	2.3	600
- 11									12/2		_
40											
- 12											_
- 13	13.1	1074.0									_
10				POORLY GRADED SAND, SP, 10YR	7/1 (light gray)		SS03aG	13.0 - 14.0	13.		
- 14	13.9	1073.2	••••	$_{ackslash}$ to 10YR 4/6 (dark yellowish brown), m					0 - 14.5	1.2	12-19-30
				\medium dense, moist	/		SS03bG	14.0 - 14.5	5		
45											



Client Borehole ID N/A Stantec Boring No. JSF-B11 Client Tennessee Valley Authority Boring Location 733,733.32 N; 2,887,585.83 E NAD27 Plant Local Project Number 175568225 Surface Elevation 1087.1 ft Elevation Datum NGVD29											
c	lient		Tennes	see Valley Authority					.83 E	E NAD27	' Plant Local
Р	roject	Number	175568	225	Surface Eleva	ition	1087.1 ft	Elevatio	n D	atum_	NGVD29
	ı	₋ithology			Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 15 - 16	15.8	1071.3		POORLY GRADED SAND WITH GRAND TO SAND WITH GRAND WITH GRAND WITH GRAND TO SAND WITH GRAND	rk yellowish pap graded, le sized		SS04aG SS04bG	15.5 - 15.8 15.8 - 16.7	15.5 - 16.7	1.2	5-13-50+/2"
				LEAN CLAY, CL, 10YR 3/4 (dark yello and 10YR 7/1 (light gray), non-plastic saprolitic/residual clay/rock, bedding Refusal / Bottom of Hole at 16.7 Ft.	, very hard, dry,						-
			Vibrati	ng Wire Piezometer installed. See instal	lation log for backfill	l deta	ails.				_
			G = 2: a,b,	Environmental Sample Custody (two Sp Geotechnical Sample Custody c denote Split Spoon divided between E ths are reported in feet below ground su	nvironmental and G				ple)		
											=
											=



					_									
	Client E	Borehole	ID		N/A	4	St	tantec Boring	jΝ	lo. JSF-	B12			
	Client		Т	enr	nes	ssee Valley Authority	В	oring Locatio	n	733,584.6	67 N; 2,887,6	83.87	E NAD	27 Plant Local
F	Project	Number	_1	755	568	3225	S	urface Eleva	tio	n <u>1108.6 ft</u>	Eleva	tion	Datum	NGVD29
	•					DEC Order		ate Started	_	10/6/20	Com			6/20
	•	Location		_		wkins Co, Rogersville, Tennessee		epth to Wate			Date/			
	•	or M. E				Logger M. Edmunds		epth to Wate	_		Date/		N/A	<u> </u>
	-					antec Consulting Services Inc.		rill Rig Type				 		
						d Sampling Tools (Type and Size	· —	5-7/8 Updrail B	II, z	2 55 W/O III	iers, 3 ST			
		-			•	oling Tools (Type and Size) <u>N//</u> and Size) N/A					Overd	rill D	enth	N/A
		_	•	• •		Automatic Weight 140	lb	Drop 30)"		Cveru Efficienc		92.9%	
		le Azimu				N/A		orehole Inclir				_	/A	
		ed By				alada		pproved By		A. Welshan	•			
	1	Lithology						Overburden:		Sample ^{1,2}	Depth F	.3	Rec. F	Ft Blows/PSI
Dei	oth Ft ³	Elevation	Gra	aph	nic	Description		Rock Core:		RQD %	Run Ft		Rec. F	
	0.0	1108.6		•	\exists	Top of Hole								
- 0	0.2	1108.4		罗	月	Topsoil						0.		
- 1				//		SANDY LEAN CLAY, CL, 10YR 5/6 (SS01G	0.0 - 1.5	0 - 1.5	1.0	3-1-1
				//		brown), medium to high plasticity, sof	t, mo	oist, [FILL]						
- 2				//										_
				//						SS02aG	2.5 - 3.0			
- 3	3.2	1105.4	K	m	A	SHITTBACE SAND MI 10VD 2/1/6	,on,	dork grov)		SS02bG	3.0 - 4.0	2.5 - 4.	1.2	4-5-8
- 4						SILT TRACE SAND, ML, 10YR 3/1 (v very fine to fine, non-plastic, very soft	-			33020G	3.0 - 4.0	0		_
						wet, poorly graded, [CCR]								
- 5														_
										SS03G	5.0 - 6.5	5.0 - 6	0.3	7-9-14
- 6												3.5		_
- 7														_
- 8														_
										ST01G	7.5 - 10.0	7.5 - 1	2.5	600
- 9												0.0		_
- 10													4	_
- 11														_
- 12										ST02G	11.0 - 13.	5 1.0-1.0	2.2	600
- 13												3.5		_
													4	
- 14														_
– 15												14.5	1	_
				Ш	Ш					ST03G	14.5 - 17.0) 17.	2.5	600



Client	Borehole	ID N/A	<u> </u>	Stantec Boring	a N	o JSF-	B12			
Client	Dorenole		ssee Valley Authority	Boring Location			57 N; 2,887,683	8 87 F	NAD27	Plant Local
	 Number		<u> </u>	Surface Eleva						
	Lithology	0	D	Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	\Box	Rec. Ft	Rec. %
- 16 - 17			SILT TRACE SAND, ML, 10YR 3/1 (very fine to fine, non-plastic, very soft twet, poorly graded, [CCR] (Continued)	o hard, dry to						_
- 18 - 19			Saturated at 18.0'			SS04G	18.0 - 19.5	18.0 - 19.5	1.5	WH-WH-WH_
- 20 - 21						ST04G	20.5 - 23.0	20.5	1.5	300
- 22 - 23								23.0		_
- 24										_
- 25 - 26						ST05G	24.0 - 26.5	24.0 - 26.5	NR	250
- 27 - 28								27.5		-
- 29 - 30						ST06G	27.5 - 30.0	5-30.0	2.3	300 _
- 31								31		_
- 32 - 33						ST07G	31.0 - 33.5	.0-33.5	2.5	250 – _
- 34 34.5	1074.1									_
- 35	10/4.1		SILTY GRAVEL WITH SAND, GM, 10' to 10YR 4/6 (dark yellowish brown), m	edium to		SS05G	34.5 - 35.1	34.5 - 35.8	0.4	36-50+/1"
- 36			coarse, non-plastic, very dense, moist Suspecting clay layer between CCR ar			SS06G	35.2 - 36.7	35.2 - 36.7	1.0	49-47-48 –
- 37 <u>37.1</u>	1071.5									_



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С	Client Borehole ID N/A Stantec Boring No. JSF-B12 Client Tennessee Valley Authority Boring Location 733,584.67 N; 2,887,683.87 E NAD27 Plant Local											
										E NAD27	Plant Local	
		Number				ırface Eleva					_	
<u> </u>								Sample ^{1,2}	Depth Ft ³	_		
Don	th Ft ³	_ithology Elevation	Graphic	Description		Overburden: Rock Core:		RQD %	Run Ft	Rec. Ft	Blows/PSI Rec. %	
Бер	וורנ	Elevation	Grapriic	Description		ROCK COIE.	П	RQD %	Kuii Ft	Rec. Ft	Rec. 70	
- 38	38.2	1070.4		Saprolite transitions to refusal (Con	tinued	1)		SS07G	37.0 - 38.2	1.0	8-26-50+/2" -	
				Refusal / Bottom of Hole at 38.2 Ft.					ю		_	
											_	
											_	
				G fell out bottom of tube. Material was reing wire piezometers installed. See insta								
											_	
	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											
	3: Depths are reported in feet below ground surface											
											_	
											-	
											-	
											-	
											_	
											-	
											_	
											_	
											_	
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											_	
											_	
											_	



		Borehole	IDN/A	<u>+</u>	Stantec Boring	g N	o. <u>JSF</u> -	B13			
	Client		Tennes	ssee Valley Authority	Boring Location	on	732,667.	18 N; 2,889,512	.21 F	E NAD27	Plant Local
F	roject	Number	175568	3225	Surface Eleva	tior	1139.3 ft	Elevation	n D	atum_ı	NGVD29
F	roject	Name		DEC Order	Date Started	_	9/16/20	Comple	ted	9/21/2	20
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Wate	_	N/A	Date/Ti		N/A	
				Logger _C. Sexton	-	_		Date/Ti	me	N/A	
	-			antec Consulting Services Inc.	Drill Rig Type						
			•	d Sampling Tools (Type and Size	·	3it, 2	" SS w/o lin	ers, 3" ST			
		_	•	oling Tools (Type and Size) N/A	Α			0		41	
		_		and Size) N/A Automatic Weight 140	lb Drop 3	n"		Overdrill		. –	V/A
		r Hamme le Azimu		Automatic Weight 140 N/A	Borehole Incli			Efficiency	 N/A	92.9% _A	
		ed By			Approved By		A. Welshan	· —	-14//		
'			D. 110							1 1	
		_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	'	Rock Core:		RQD %	Run Ft	\top	Rec. Ft	Rec. %
- 0	0.0	1139.3		Top of Hole	OL MI. 40VD		SS01aG	0.0 - 0.6			_
- 1	0.6	1138.7		SILTY LEAN CLAY TRACE GRAVEL 4/4 (dark yellowish brown), low to me			SS01aG	0.6 - 1.5	0.0 - 1.	1.2	3-8-12
'				hard, dry, [FILL]			530103	0.0 - 1.5	5		
- 2				SILT, ML, N 4/ (dark gray), very soft,	[CCR]						-
- 3							SS02G	2.5 - 4.0	2.5	1.5	2-1-1 –
,							3302G	2.5 - 4.0	4.0	1.5	2-1-1
- 4											_
- 5											_
- 6							07040	50.75	5.0		-
_							ST01G	5.0 - 7.5	-7.5	2.4	500
- 7	7.5	1131.8							12		_
- 8				SILTY POORLY GRADED GRAVEL, and black, fine to coarse, very loose to							-
- 9			0 0 0	and black, line to coarse, very loose	to loose, [CCIN]						_
			0 0 0				ST02G	8.5 - 11.0	8.5 - 1	1.1	350
- 10			0 0 0				SS03G	9.3 - 10.8	1.0	0.9	N/A
- 11			0 0 0								-
- 12			0 0 0								_
			0 0 0								
- 13	40.0	1105.5	0 0 0						13		_
- 14	13.8	1125.5		SANDY POORLY GRADED GRAVE	LUTTLE CLAV		SS04G	13.0 - 14.5	0 - 14.	0.7	9-21-19
45	14.5	1124.8		GP-GC, 10YR 6/8 (brownish yellow),					01		
– 15				\coarse, dense, cobbles							_
- 16				No sample recovery			SS05G	15.5 - 17.0	15.5 -	0.0	WH-WH-WH
– 17									17.0		_
	18.0	1121.3	/ \								
- 18	10.0			GRAVELLY LEAN CLAY, CL, 10YR	6/6 (brownish						_
- 19				yellow) to 10YR 6/8 (brownish yellow			ST03G	18.0 - 20.5	18.0-	2.5	300
-00				high plasticity, firm, moist			0.000	10.0 20.0	20.5]	000



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Client Borehole ID N/A Stantec Boring No. JSF-B13

Client Tennessee Valley Authority Boring Location 732,667.18 N; 2,889,512.21 E NAD27 Plant Local

Project Number 175568225 Surface Elevation 1139.3 ft Elevation Datum NGVD29

		Lithology			Overburden:	Sample	Depth Ft ³	Re	c. Ft	Blows/PSI
Dept	epth Ft ³ Elevation Grap		Graphic	Description	Rock Core:	RQD 9	% Run Ft	Re	c. Ft	Rec. %
- 20 - 21 - 22	22.1	1117.2		GRAVELLY LEAN CLAY, CL, 10YR 6/6 (In yellow) to 10YR 6/8 (brownish yellow), mention high plasticity, firm, moist (Continued)						_
- 23 - 24				SILT TRACE SAND, ML, 10YR 7/6 (yellow 10YR 4/3 (brown), medium plasticity, firm, Laminated, residuum, intact parent rock si	moist,	ST04	4G 21.5 - 24.0	21.5 - 24.0	2.4	325 <u> </u>
- 25 - 26 - 27						ST0	5G 25.0 - 27.5	25.0 - 27.5	2.4	 350
- 28 - 29 - 30 - 31						ST06	6G 28.5 - 31.0	28.5-31.0	2.5	- 385 -
- 32 - 33 - 34	32.6	1106.7		Shale, gray, very fine grained, hard, thin, l weathered to moderately weathered, mois oxide staining, 30° to 45° bedding angle		SS06 SS06	bG 32.5 - 33.5	190	1.0).9	N/A = NR =
- 35	35.6	1103.7		Pofusal /		SS0	7G 34.7 - 35.6	34.7 - 35.6	0.9	24-50/5"

Refusal /

Bottom of Hole at 35.6 Ft.

Auger to 5.0', begin mud rotary at 5.0'.

Split spoon samples SS03G and SS06G were obtained following attempted Shelby tube with partial recovery or no recovery. Recovered intervals may overlap due to sloughing and/or differing sampler diameters.

Vibrating wire piezometer installed. See installation log for backfill details.

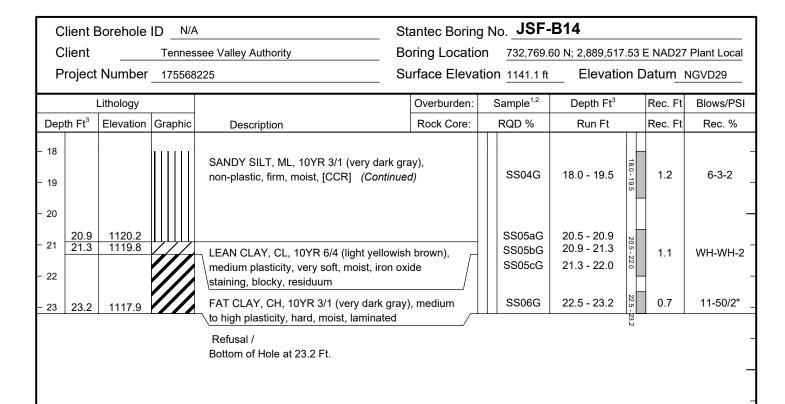
- 1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient sample)
 G = Geotechnical Sample Custody
- 2: a,b,c denote Split Spoon divided between Environmental and Geotechnical Samples
- 3: Depths are reported in feet below ground surface



Cli	ient E	Borehole	ID _	N/A	Α	S	tantec Borin	g N	lo. JSF-	B14				
Cli	ient		Te	nnes	ssee Valley Authority	В	oring Location	n	732,769.	60 N; 2	2,889,517	.53	E NAD27	Plant Local
Pr	oject	Number	17	5568	8225	S	urface Eleva	tio	n <u>1141.1 ft</u>		Elevatio	n C	atum_r	NGVD29
Pr	oject	Name	JS	F T	DEC Order	D	ate Started	_	9/23/20		Comple	ted	9/23/2	20
Pr	oject	Location	n _	На	wkins Co, Rogersville, Tennessee	D	epth to Wate	er _	N/A		Date/Ti	me	N/A	
	•				Logger C. Sexton		epth to Wate	_			Date/Ti	me	N/A	
	_		_		antec Consulting Services Inc.		rill Rig Type							
			-		d Sampling Tools (Type and Siz	· —	5-7/8" Updraft B	Sit, 2	2" SS w/o lir	ners, 3	" ST			
		•			g . 55.5 (1) po ana 5.25/	/A						_		1/4
		-		•	and Size) N/A	2 II-	D	0"			Overdrill			N/A
				ype	Automatic Weight 140	O lb	Drop <u>3</u>				ciency		92.9%	
		le Azimu ∕ed By	-	. На	alada	-	orehole Incli pproved By		ion (irom A. Welshar		cai) _	IN//	н.	
110				, i ic										
		Lithology T					Overburden:		Sample ^{1,2}		epth Ft ³		Rec. Ft	Blows/PSI
Depth	h Ft ³	Elevation	Gra	ohic	•		Rock Core:	_	RQD %	F	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1141.1		111	Top of Hole				SS01aG	0.0	0 - 0.5	Н		
	0.5	1140.6		Н	SILTY LEAN CLAY, CL-ML, 10YR 4 brown), medium plasticity, firm, mois							0.0 - 1.5	1.1	2-5-3
- 1					SANDY SILT, ML, 10YR 3/1 (very d				SS01bG	0.5	5 - 1.5	1.5		
- 2					non-plastic, firm, moist, [CCR]	ark gi	ay),							
												Н		
- 3									SS02G	2.5	5 - 4.0	2.5 - 4.	1.5	4-4-3
- 4												0		
- 5														
- 6									SS03G	5.0	0 - 6.5	5.0 - 6.5	1.0	3-2-2
												01		
- 7														
. ο													1	
8									07040		40.0	7.5		
- 9									ST01G	7.5	- 10.0	10.0	2.2	NR
40													1	
- 10													1	•
- 11														
- 12									ST02G	11.0	0 - 13.5	1.0-13	1.7	NR
- 13												3.5		
												F	1	
- 14														
- 15]	
									ST03G	111	5 - 17.0	14.5-	2.4	NR
		I	11 1 1	111	1			- 1			1/ 1/	10.17	1 4.4	INT



Page: 2 of 2



Auger to 5.0', begin mud rotary at 5.0'.

Vibrating wire piezometer installed. See installation log 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

ING EOG TRANSEZZA - JOH TDEC ONDERLOPA TDEC SUBSOINT DI ZOTBUSSOLGDI OLITZI



	lient F	Borehole	ID N/A	Δ	Stantec Boring	a No	JSF-I	B15			
	Client	JOI GI IOIG		Ssee Valley Authority	Boring Location				01 [= NAD27	Plant Local
		Number			Surface Eleva	_					
	-	Name		DEC Order	Date Started	_	/24/20	Comple		9/24/2	
	-	Location		wkins Co, Rogersville, Tennessee	Date Started Depth to Wate		/A	Comple Date/Tir		N/A	
	-	or C Se		Logger C. Sexton	Depth to Wate		/A	Date/Til Date/Tir		N/A	
	•			antec Consulting Services Inc.	Drill Rig Type				116		
	_			Sampling Tools (Type and Size	.						
			•	oling Tools (Type and Size) N/A	<i>,</i>	, L 0	J 11/0 III10	0.0, 0 0.			
		_		and Size) N/A				Overdrill	De	nth N	√/A
		_		Automatic Weight 140	lb Drop 3	0"		Cvoraniii Efficiency)2.9%	
		le Azimut		N/A	Borehole Incli		 (from \	•	N/A		
		ed By			Approved By		Velshans	· —			
										5 5	
_		ithology			Overburden:		ple ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³		Graphic	'	Rock Core:	RQ	D %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1143.2	///	Top of Hole		00	S01aG	0.0 - 0.5			_
	0.5	1142.7	KKKK	LEAN CLAY WITH SAND, CL, 10YR yellow), medium plasticity, hard, mois					0.0 - 1.5	1.3	2-6-10
- 1				SANDY SILT, ML, 10YR 3/1 (very dar		SS	801bG	0.5 - 1.5	1.5		-
- 2				non-plastic, firm to soft, moist, [CCR]	k gray),						-
- 3							S02G	2.5 - 4.0	2.5 - 4.0	1.5	4-3-3
									4.0		
- 4											-
- 5											_
							S03G	5.0 - 6.5	5.0 - 6.5	1.5	8-3-4
- 6									6.5		-
- 7											-
- 8											-
- 9						s	T01G	7.5 - 10.0	5-10	2.2	NR
9											
- 10											_
- 11									11.1		-
- 12						s	S04G	11.0 - 12.5	0 - 12.	0.7	1-1-1
									5		
- 13			$\ \ \ \ \ \ $								-
- 14											_
14								10 = 10 0	13.5		
- 15							T02G	13.5 - 16.0	16.0	2.3	NR _
4.0			$\ \ \ \ \ \ $								
- 16			$\ \ \ \ \ \ $						\prod		-
- 17			$\ \ \ \ \ \ $								-



С	lient E	Borehole	ID N/A	\	Stantec Bori	ng No	o. JSF-	B15			
С	lient		Tennes	see Valley Authority	Boring Locat			11 N; 2,889,562	2.01 E	NAD27	Plant Local
Р	roject	Number	175568	225	Surface Elev	ation	1143.2 ft	Elevatio	n D	atum <u>ı</u>	NGVD29
	L	_ithology			Overburden	: S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18 - 10				SANDY SILT, ML, 10YR 3/1 (very darl non-plastic, firm to soft, moist, [CCR]			ST03G	17.0 - 19.5	17.0 - 19.5	1.3	NR _
- 19 - 20					,						_
- 21							SS05G	20.5 - 22.0	20.5 - 22.0	0.8	3-5-5
- 22 - 23											-
- 24							ST04G	23.0 - 25.5	23.0 - 25.5	1.6	NR -
- 25 - 26							SS06G	25.0 - 26.5	25.0 - 26	1.4	N/A
- 27									5		-
- 28							ST05G	27.5 - 30.0	27.5-	1.5	- NR
- 29 - 30	29.9	1113.3					01000	27.0 00.0	30.0	1.0	
	30.7 -30.9	1112.5 1112.3		SILTY LEAN CLAY, CL-ML, 10YR 4/4 brown) and N 3/ (very dark gray), med firm, moist, iron oxide staining, residuc	ium plasticity,		SS07G	30.5 - 30.9	30.5-	0.4	50/5"
				Shale, light gray to dark gray, soft					30.9		_
				Refusal / Bottom of Hole at 30.9 Ft.							_
											_
			Auger	to 5.0', begin mud rotary at 5.0'.							_
				poon sample SS06G was obtained follow ered intervals may overlap due to slough					r no r	ecovery.	_
			Vibrati	ng wire piezometers installed. See install	ation log for back	fill det	ails.				_
			G = 2: a,b,	Environmental Sample Custody (two Spli Geotechnical Sample Custody c denote Split Spoon divided between En oths are reported in feet below ground sur	vironmental and				nple)		-
			5. Dop	and the reported in 1991 bolow ground our							_
											-



	Client F	Borehole	ID N/A		Stantec Bori	na N	No. JSF-	B16				
ı	Client			see Valley Authority	Boring Local				5 N; 2,889,621.99 E NAD27 Plant Local			
ı		Number			Surface Elev							
	•	Name			Date Started 9/29/20			Completed 9/29/20				
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Water N/A Date/Time N/A							
l.	nspect	or M. E	dmunds	Logger M. Edmunds	Depth to Wa	ter _	N/A	Date/Ti	me	N/A		
	Prilling	Contract	or Sta	ntec Consulting Services Inc.	Drill Rig Type and ID_CME 55T#1, #709							
	Overbu	rden Dril	ling and	Sampling Tools (Type and Size)	4-1/4" HSA, 2	" SS	w/o liners, 3"	'ST				
F	Rock D	rilling an	d Sampl	ling Tools (Type and Size) <u>N/A</u>	\							
		_		and Size) N/A				Overdrill		. –	N/A	
	•		• •	Automatic Weight 140 I				Efficiency		92.9%		
ı		le Azimu		N/A	Borehole Ind		•	· —	N//	4		
	keview	ed By _	B. Ha	lada	Approved By		A. Welshan	S				
		_ithology			Overburder	:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
De	oth Ft ³	Elevation	Graphic	Description	Rock Core	-	RQD %	Run Ft		Rec. Ft	Rec. %	
- 0	0.0	1115.8		Top of Hole					₩		_	
				LEAN CLAY, CL, 10YR 5/6 (yellowish medium plasticity, very hard, moist, so	•		07040	0.0.00	0.0		550	
- 1				modum plasticity, very flara, moist, se	onio ouna		ST01G	0.0 - 2.0	2.0	1.1	550 –	
- 2											-	
							SS01G	2.0 - 3.5	2.0 - 3	0.0	5-7-9	
- 3									.55		_	
- 4				Note: auger charged with water throug	shout boring				4		-	
- 5	4.8	1111.0	///	Note: auger charged with water throug		41	ST02G	4.0 - 5.0	0 - 5.0	1.0	600	
				SILTY LEAN CLAY, CL, 7.5YR 5/2 (br plasticity, very hard, dry, saprolitic rock	,		SS02aG	5.0 - 6.0	5.0	1.5	11-32-35	
- 6				p.ac.ac.y, 10. ya. a, a. y, cap. cac 100	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		SS02bG	6.0 - 6.5	5.0 - 6.5	1.5	11-32-33	
- 7							SS03aG	6.5 - 7.5	6.5 - 7	1.0	33-42-50+/2"	
							SS03bG	7.5 - 7.7	7.7	'	00 12 00 12	
- 8											_	
- 9											-	
40												
- 10							SS04G	10.0 - 10.6	10.0-	0.6	13-50+/1"	
- 11	11.3	1104.5		¬		Ш			10.6		_	
				Auger refusal at 11.3'	/							
				Refusal / Bottom of Hole at 11.3 Ft.								
				Bottom of Flore at 11.5 Ft.							-	
											-	
											_	
			Vibrati	ng wire piezometers installed. See install	lation log for back	fill de	etails.				_	
			. –									
				Environmental Sample Custody (two Spl Geotechnical Sample Custody	lit Spoons may be	requ	uired to obtai	n sufficient san	nple)		_	
			2: a,b,	c denote Split Spoon divided between Er ths are reported in feet below ground sui		Geot	technical San	nples			-	
			J. 20p	reported in root below ground sui								



C	Client E	Borehole	ID N/A	1	Stantec Boring	g No	JSF-	B17			
C	Client		Tennes	see Valley Authority	Boring Locatio	n	735,647.	11 N; 2,891,033	.53 E	E NAD27	Plant Local
	-	Number			Surface Elevation 1111.9 ft Elevation Datum NG						NGVD29
Ρ	roject	Name		-	Date Started10/19/20 Completed10/20/20						/20
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Wate		N/A	Date/Tii		N/A	
	•	or C. S		Logger <u>C. Sexton</u>	Depth to Water N/A Date/TimeN/A						
	_			ntec Consulting Services Inc.	Drill Rig Type						
			-	Sampling Tools (Type and Size)		it, 2"	' & 3" SS w	//o liners, 3" ST			
		_	•	ling Tools (Type and Size) <u>N/A</u> and Size) N/A	·			Overdrill	Do	nth N	N/A
				Automatic Weight 140 l	b Drop 30	n"		Overdriii Efficiency		рит <u> </u>	N/A
		le Azimu		N/A	Borehole Inclir		on (from	•	N/A		
		ed By			Approved By		۱. Welshan	· —			
										D	
		Lithology	0		Overburden:		ample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Бер	oth Ft ³	Elevation 1111.9	Graphic	Description Top of Hole	Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1111.9		LEAN CLAY WITH SAND, CL, 10YR (5/6 (vellowish						
- 1				brown) to 5YR 4/6 (yellowish red), me	dium to high		SS01G	0.0 - 1.5	0.0 - 1.5	1.3	2-6-8
·				plasticity, hard to very hard, dry to moi black organic material, [FILL]	st, gravels of						
- 2				Roots to 0.5'							-
- 3				Some quartz cobbles between 2.5' and	d 4.0' bgs				2.		_
Ü							SS02G	2.5 - 4.0	5-4.0	1.4	5-5-8
- 4									H		-
- 5									ΙL		_
Ü							SS03G	5.0 - 6.5	5.0	1.1	6-8-11
- 6							3303G	5.0 - 6.5	5.0 - 6.5	1.1	0-0-11
- 7									ΙГ		_
•											
- 8											-
- 9							ST01G	7.5 - 10.0	·.5 - 10.	1.0	NR _
- 10									ľ		_
- 11											_
	11.6	1100.3									
- 12				SANDY SILT, ML, N 5/ (gray), non-pla to soft, moist, [CCR]	istic, very hard		ST02G	11.0 - 13.5	11.5 - 13.0	0.5	NR -
- 13				to soit, moist, [CON]			SS04G	11.5 - 13.0	3.0	1.2	N/A -
- 14											=
- 15											_
							ST03G	14.5 - 17.0	14.5-	2.1	NR
- 16							31000	14.5 - 17.0	17.0	2.1	INIX -
- 17			$\ \ \ \ \ \ \ $								_
40	1		<u> </u>							1	



Client l	Borehole	ID N/A	l.	Stantec Boring No. JSF-B17					
Client			see Valley Authority	Boring Location		11 N; 2,891,033.5			
Project	t Number	175568	225	Surface Elevat	ion <u>1111.9 ft</u>	Elevation	Datum_r	NGVD29	
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	
- 18 - 19			SANDY SILT, ML, N 5/ (gray), non-pla to soft, moist, [CCR] (Continued)	stic, very hard	SS05G	18.0 - 19.5	0.9	7-8-2	
- 20						o		_	
- 21					SS06G	20.0 - 21.5	1.1	4-7-9	
- 22						12		_	
- 23 - 24					ST04G	22.0 - 24.5	1.5	NR -	
- 25								_	
- 26						25.5		_	
- 27					ST05G	25.5 - 28.0	1.5	NR _	
- 28								_	
- 29								_	
- 30 - 31					SS07G	29.0 - 32.3	1.5	1-WR-WR	
- 32						ω u		_	
- 33			Bottom contact approximated					_	
- 34 34.0	1077.9		SILTY FAT CLAY WITH SAND, CH, 7	.5YR 5/4	ST06G	33.0 - 35.5	2.3	NR -	
- 35			(brown), firm to very hard, bioturbation stringers, lenses, trace quartz cobble a	, organic and fine		56		_	
- 36			gravels Manganese nodules in lower h	nalf				-	
- 37					SS08	36.5 - 38.5	2.0	7-12-14	
- 38 - 39			Sampler was driven an additional 6" to additional geochemical sample volume	e. Blow count		o o		_	
- 40			recorded for interval between 38.0-38. considered invalid.	5 feet is				_	
- 41					ST07G	39.5 - 42.0	2.3	NR _	
- 42								_	



Page: 3 of 3

Client	Borehole	ID N/A		Stantec Boring	g No. JSF	-B17					
Client		Tennes	see Valley Authority	Boring Location 735,647.11 N; 2,891,033.53 E NAD27 Plant Local							
Projec	t Number	175568	225	Surface Elevation 1111.9 ft Elevation Datum NGVD29							
	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI			
Depth Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %			
- 43 - 44 - 45 - 46	1065.2		SILTY FAT CLAY WITH SAND, CH, (brown), firm to very hard, bioturbatic stringers, lenses, trace quartz cobble gravels Manganese nodules in lower (Continued)	on, organic e and fine	SS09	43.0 - 44.5	1.5	2-4-4 - -			
- 47 - 48 - 49	1003.2		WELL GRADED GRAVEL WITH SIL GW-GM, 10YR 5/4 (yellowish brown) coarse, dense, moist	,	ST08G SS10G	45.5 - 48.0 48.0 - 49.5	1.2	NR 28-28-27			
- 50 49.5 - 50 51.2			GRAVELLY FAT CLAY, CH, 10YR 6 yellow) to N 4/ (dark gray), medium to very hard, laminated, residuum	`	SS11G	50.5 - 51.2	0.7	6-50/2"			
	•		Refusal / Bottom of Hole at 51.2 Ft.			, <u> </u>		-			

Begin mud rotary at 5' bgs

Split spoon sample SS04G was obtained following attempted Shelby tube with partial recovery or no recovery. Recovered intervals may overlap due to sloughing and/or differing sampler diameters.

For SS08 and SS09 a 3" Split Spoon was used to collect samples for geochemical testing.

Vibrating Wire Piezometer Installed. See installation log 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

EIP BORING LOG 175568225 - JSF TDEC ORDER.GPJ TDEC SUBSURF DT 20190530.GDT 8/17/21

8/17/21



	Client F	Borehole	ID N/A				Stantec Boring	n N	ດ JSF-	B18		
	Client	001011010		see Valley Authority						66 N; 2,886,367.62	F NAD27	Plant Local
		Number				-	Surface Eleva					
		Name				-					_	
	•	Location		wkins Co, Rogersville	e, Tennessee	-						
	-	or C. Se		Logger C.		-	Depth to Wate			Date/Time		
	•			ntec Consulting Serv		-	rill Rig Type	_				
	Overbu	rden Dril	ling and	Sampling Tools	(Type and Siz	:e)	4-1/4" HSA		-			
F	Rock D	rilling and	d Samp	ling Tools (Type	and Size)^	I/A						
	Overdri	II Tooling	(Type	and Size) N/A						Overdrill De	epth _!	N/A
		er Hamme		N/A	Weight N/		Drop <u></u>				N/A	
		le Azimu		N/A		_	Borehole Incli		•	· —	/A	
F	Review	ed By _	B. Ha	lada		P	Approved By	_	A. Welshan	S		
	ı	Lithology					Overburden:	5	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description			Rock Core:		RQD %	Run Ft	Rec. Ft	Rec. %
- o	0.0	1071.0	റക്കുറക്ക	Top of Hole								_
				Riprap								
⊢ 1			0303030									_
- 2												_
- 3												_
			0000000 000000 000000									
- 4												_
- 5												_
- 6												_
- 7												_
- 8												_
- 9												_
40												
− 10												
- 11												_
- 12			0000000									_
12	13.0	1058.0										
-13	•			Refusal /								
				Bottom of Hole at	13.0 Ft.							_
												_
												_
			Boring	backfilled with Ripra	р							-
												_
	1: E = Environmental Sample Custody (two Sp G = Geotechnical Sample Custody						Spoons may be r	equ	ired to obtai	in sufficient sample	!)	
			2: a,b,	c denote Split Spoon	divided between	Envir	ronmental and G	eote	echnical Sar	mples		_
			ა: ⊔ep	ths are reported in fe	er below ground	suria	L C					

APPENDIX B.3

TEMPORARY WELLS

Table of Contents

Subsurface Boring Legend	1
JSF-TW01	2
JSF-TW02	6
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JSF-TW05b	16
JSF-TW06	
JSF-TW07	22
JSF-TW08	25
JSF-TW09	27
JSF-TW10	30
JSF-TW11	33
JSF-TW12	35

Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
03030303 0000000 0000000	Gravel
8 8 8 8 8 8	Well Graded Gravel (GW)
0 0 0 0	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
$\bar{\Delta}$	First water level reading
Ā	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.



							105	TMO4			
		Borehole			Stantec Borin						
	lient			ssee Valley Authority	Boring Locati			11 N; 2,890,013			
	-	Number			Surface Elevation 1154.8 ft Elevation Datum						
	-	Name		DEC Order wkins Co, Rogersville, Tennessee	Date Started4/16/19 Completed4/17/1 Depth to Water N/A Date/Time N/A					19	
	-	Location or M. P			Depth to Wat			Date/Ti			 I9 12:19
	•	Contract		LoggerC. Sexton untec Consulting Services Inc.	Depth to wat	_			IIIC		15 12.15
				Sampling Tools (Type and Size	0 7.						
			-	ling Tools (Type and Size)							
		_		and Size) 8-1/4" HSA				Overdrill	De	pth _7	71.0 ft
S	ample	r Hamm	er Type	Automatic Weight 140	lb Drop _3	30"		Efficiency		N/A	
В	oreho	le Azimu	th	N/A	Borehole Incl	inat	ion (from	Vertical)	N/	A	
R	eview	ed By _	K. Ca	rey	Approved By	_	P. Dunne				
	[_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1154.8	0303030	Top of Hole							
-				Gravel, [FILL]							
- 1			0303030 00000 000000 000000								-
- 2											-
- 3	3.1	1151.7		CULTVI FANICI AV CL. 10VD FIG (v.	allawiah brawa)	$\{ \ \cdot \ $	SS01a	3.0 - 3.8	(a)	1	-
- 4	3.8	1151.0		SILTY LEAN CLAY, CL, 10YR 5/6 (yomedium plasticity, hard, dry, [FILL]	ellowish brown),	3.8/5.	SS01bE		3.0 - 4.5	1.5	8-21-32
				SILT, ML, 10YR 3/1 (very dark gray),	non-plastic, firm	0-2019	SS01bE SS02aE	3.8 - 4.5 4.5 - 5.0		-	
- 5				to hard, dry to wet, [CCR]	•	0416			4.5 - 6.0	1.4	10-19-16
- 6							SS02bG	5.0 - 6.0	.0		-
						6	SS03aG	6.0 - 6.5	6.0 - 7.5	1.5	17-26-30
- 7						.5/8.5-2	SS03bE	6.5 - 7.5	7.5	1.5	17-20-30
- 8						01904	SS04aE	7.5 - 8.5	7.5		
						16	SS04bG	8.5 - 9.0	- 9.0	1.5	7-17-22
- 9							000100	0.0 0.0	9.		-
- 10							SS05G	9.0 - 10.5	9.0 - 10.5	1.5	14-21-24 _
										-	
- 11							SS06aG	10.5 - 11.5	10.5 - 1:	1.5	12-23-30
- 12						11.5/1	SS06bE	11.5 - 12.0	12.0		_
						3.5-20	SS07E	12.0 - 13.5	12.0-	1.5	12-22-26
- 13						190416	3307L	12.0 - 13.3	.0 - 13.5	1.5	12-22-20 _
- 14						0.			13.5		-
							SS08G	13.5 - 15.0	.5 - 15.0	1.5	10-18-19
- 15			$\ \ \ \ \ \ $						_		_
- 16			$\ \ \ \ \ \ $				SS09G	15.0 - 16.5	5.0 - 16.5	1.5	7-12-18
. •			$\ \ \ \ \ \ $			16.5/18			55		
- 17			$\ \ \ \ \ \ $			3.5-201904	SS10E	16.5 - 18.0	16.5 - 18.	1.4	10-18-25
40						90416			8.0		



Client E	Borehole	ID N	/A	Stantec Borin	a N	lo. JSF-	TW01			
Client			essee Valley Authority	Boring Location			11 N; 2,890,013	3.24	E NAD27	Plant Local
	Number			Surface Elevation 1154.8 ft Elevation Datu						
	Lithology			Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft			Rec. %
- 18										
- 19			SILT, ML, 10YR 3/1 (very dark gray), to hard, dry to wet, [CCR] (Continued			SS11aE SS11bG	18.0 - 18.5 18.5 - 19.5	18.0 - 19.5	1.5	9-14-14
- 20			Clay from 19.5' to 21.0'			SS12G	19.5 - 21.0	19.5 - 2	1.5	
- 21						SS13aG	21.0 - 21.5	1.0 21		-
- 22					21.5/23.5	SS13bE	21.5 - 22.5	1.0 - 22.5	1.5	9-12-13
- 23					-20190416	SS14aE	22.5 - 23.5	22.5 - 2	1.5	9-18-13
- 24						SS14bG	23.5 - 24.0	4.0		_
- 25						SS15G	24.0 - 25.5	24.0 - 25.5	1.5	4-5-5 _
- 26						SS16aG	25.5 - 26.5	25.5 - 2	1.5	5-13-18
- 27					26.5/2	SS16bE	26.5 - 27.0	7.0		_
- 28					8.5-2019041	SS17E	27.0 - 28.5	27.0 - 28.5	1.5	3-4-7
- 29					6	SS18G	28.5 - 30.0	28.5 - 30.0	1.5	8-10-11
- 30 - 31						SS19G	30.0 - 31.5	30.0 - 31.5	1.3	11-16-17
- 32					31.5/33.5	SS20E	31.5 - 33.0	31.5 - 3	1.5	_ 14-17-14
- 33					-20190416	SS21aE	33.0 - 33.5	33.0		=
- 34						SS21bG	33.5 - 34.5	.0 - 34.5	1.5	10-26-32
- 35						SS22G	34.5 - 36.0	34.5 - 36	1.5	11-17-17
- 36					(2)	SS23aG	36.0 - 36.5	.0 36.0		_
- 37					36.5/38.5-2	SS23bE	36.5 - 37.5)-37.5	1.5	7-14-23
- 38					0190416	SS24aE	37.5 - 38.5	37.5 - 39.0	1.4	9-18-19
- 39						SS24bG	38.5 - 39.0	39.0	1.5	6 11 12
- 40						SS25G	39.0 - 40.5	- 40.5	1.5	6-11-13 _
- 41 - 42						SS26aG SS26bE	40.5 - 41.5 41.5 - 42.0	40.5 - 42.0	1.5	6-8-12



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Client E	Borehole	ID N/A		Stantec Borin	g N	o. JSF-	TW01				
Client		Tennes	see Valley Authority	Boring Location			11 N; 2,890,013	3.24	E NAD27	Plant Local	
Project	Number	175568	225	Surface Eleva	atio	1154.8 ft	Elevatio	Elevation Datum_ NGVD29			
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	Run Ft		Rec. %	
- 43 ¥			SILT, ML, 10YR 3/1 (very dark gray), to hard, dry to wet, [CCR] (Continued		41.5/43.5-201	SS27E	42.0 - 43.5	42.0 - 43.5	1.5	7-9-13	
- 44					90416	SS28G	43.5 - 45.0	43.5 - 45.0	1.5	10-15-16	
- 45 - 46						SS29G	45.0 - 46.5	45.0 - 46.5	1.5	13-31-36	
- 47			Interlayered CCR and clay from 46.3'	to 47.5'	46.5/48.5-20	SS30E	46.5 - 48.0	46.5 - 48.0	1.5	17-24-52	
- 48 - 49)190416	SS31aE SS31bG	48.0 - 48.5 48.5 - 48.9) 48.0 - 48.9	0.9	22-50/5" _	
- 50						SS32G	49.5 - 50.3	49.5 - 50.	0.8	24-50+/4"	
- 51 - 52					51.5/	SS33aG SS33bE	51.0 - 51.5 51.5 - 52.5	3 51.0 - 52	1.5	_ 26-39-46 _	
- 53					53.5-20190417	SS34aE	52.5 - 53.5	2.5 52.5 - 53.1	1.3	27-48-50+/4"	
- 54 - 55						SS34bG SS35G	53.5 - 53.8 54.0 - 55.5	3 54.0 - 55	1.5	_ 32-43-47	
- 56						SS36aG	55.5 - 56.5	55.5 - 5	1.5	15-32-33	
- 57					56.5/58.5-2019	SS36bE SS37E	56.5 - 57.0 57.0 - 58.5	7.0 57.0 - 5	1.5	- 12-10-8	
- 58 - 59					00417	SS38G	58.5 - 60.0	8.5 58.5-6	1.5	1-1-5	
- 60						SS39G	60.0 - 61.5	30.0 60.0-	1.3	 5-6-9	
- 61 - 62	1093.3		SILT, ML, 10YR 3/1 (very dark gray),	non-plastic,	61.5/	3333		61.5 61.	1.0		
- 62 - 63			very soft, moist to wet, [CCR]	, ,	63.5-201904	SS40E SS41aE	61.5 - 63.0 63.0 - 63.5	5-63.0	1.4	WR-WR-WR	
- 64					17	SS41aE SS41bG	63.5 - 64.5	63.0 - 64.5	1.5	WR-WR-WR_	
- 65 - 66						SS42G	64.5 - 66.0	64.5 - 66.0	1.5	WR-WR-3 -	



Page: 4 of 4

Client	Borehole	ID N/A		Stantec Borin	g N	o. JSF-	TW01			
Client		Tennes	see Valley Authority	Boring Location	on	734,480.	11 N; 2,890,013	3.24 I	E NAD27	Plant Local
Project	Number	175568	225	Surface Eleva	atio	1154.8 ft	Elevatio	n D	atum <u>r</u>	NGVD29
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 67 - 68 - 69 - 70	1083.8		SILT, ML, 10YR 3/1 (very dark gray), n very soft, moist to wet, [CCR] (Continu		66.5/68.5-20190417	SS43aG SS43bE SS44aE SS44bG ST01G	66.0 - 66.5 66.5 - 67.5 67.5 - 68.5 68.5 - 69.0 69.0 - 71.0	66.0 - 67.5 67.5 - 69.0 69.0 - 71.0	1.5	1-WH-WH _ WR-WR-3 - - 500 -
- 71 71.0 - 72 72.8	1083.8		SANDY LEAN CLAY, CL, 10YR 5/4 (yewith 7.5YR 5/6 (strong brown), medium firm, moist, organic inclusions	,		SS45G ST02G	71.0 - 72.5 72.5 - 72.8	71.0 - 72.5 72	1.5	11-16-19 1000
			No Refusal / Bottom of Hole at 72.8 Ft.					.5 - 72.8		-

Temporary well JSF-TW01 installed. See well installation log for backfill details.

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 E	Borehole	ID N/A	4	S	tantec Borin	g N	o. JSF-	TW02			
(Client		Tennes	see Valley Authority		oring Location			51 N; 2,890,671	.16	E NAD27	Plant Local
F	Project	Number	175568	3225	S	urface Eleva	atio	1 1170.0 ft	Elevatio	on E	Datum_ı	NGVD29
F	Project	Name	JSF TE	DEC Order	D	ate Started	_	4/22/19	Comple	ted	4/24/	19
F	Project	Location	າ <u>Ha</u>	wkins Co, Rogersville, Tennesse		epth to Wate	er _	72.0 ft	Date/Ti	me	4/23/	19 15:52
	•	or M. P		Logger C. Sexton		epth to Wate	_		Date/Ti	me	N/A	
	-			intec Consulting Services Inc.		rill Rig Type						
			•	Sampling Tools (Type an		4-1/4" HSA, 3"	SS \	v/o liners, 3	" Shelby Tubes			
		_		ling Tools (Type and Size) and Size) 8-1/4" HSA) <u>N/A</u>				Overdrill	Do	nth .	77.0 ft
		_		Automatic Weight	140 lb	Drop 3	30"		Overdilli Efficiency		:pui N/A	77.010
		le Azimu		N/A vveignt		orehole Incli		ion (from	•	N/		
		ed By	K. Ca	rey		pproved By		P. Dunne				
	I	Lithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	0.0	1170.0	, , , , , , , , , , , , , , , , , , ,	Top of Hole								
- 0			0303030	Gravel, [FILL]								
- 1												-
0												
- 2			0000000 000000 0000000									-
- 3	3.0	1167.0			D = (0 / II		-			Н		-
	4.0	1166.0		SILTY LEAN CLAY, CL, 10YI medium plasticity, hard, dry, [/ISh brown),	4.0	SS01aG	3.0 - 4.0	3.0 - 4.5	1.5	6-13-23
- 4				SILT, ML, 10YR 3/1 (very dar		-plastic, soft	/5.0-20	SS01bE	4.0 - 4.5	5		-
- 5				to hard, dry to moist, [CCR]	g j ,,	piaciic, con	190422	SS02aE	4.5 - 5.0	4.5-	1.5	9-17-17
0								SS02bG	5.0 - 6.0	1.5 - 6.0	1.5	9-17-17
- 6								SS03aG	6.0 - 6.5	6.0		-
- 7							6.5/8.5	SS03bE	6.5 - 7.5	6.0 - 7.5	1.5	6-8-10
- 8							20190	SS04aE	7.5 - 8.5	7.		_
Ü							122			.5 - 9.0	1.5	5-9-13
- 9								SS04bG	8.5 - 9.0	<u></u>	1	-
- 10								SS05G	9.0 - 10.5	9.0 - 10.5	1.5	6-9-10
10										5		
- 11								SS06aG	10.5 - 11.5	10.5 - 1	1.5	7-10-14
- 12							11.5/1	SS06bE	11.5 - 12.0	12.0		-
							3.5-20	SS07E	12.0 - 13.5	12.0-	1.5	12-30-44
- 13							190422	3307E	12.0 - 13.3	13.5	1.5	12-00-44
- 14										13.5		-
								SS08G	13.5 - 15.0	.5 - 15.0	1.5	16-40-43
- 15										15.0		_
- 16								SS09G	15.0 - 16.2	0 - 16.2	1.2	25-50-50/2"
							6.5/18.			16.		
- 17							.5-2019	SS10E	16.5 - 17.6	5-17	1.1	24-50-50/1"
40							042			0	1	



Client E	Client Borehole ID N/A Client Tennessee Valley Authority Project Number 175568225					Star	ntec Borin	g N	o. JSF-	TW02			_
Client		T	en	nes	see Valley Authority		ng Locatio			51 N; 2,890,671			
Project	Number	_1	75	568	225	Surf	ace Eleva	atio	1170.0 ft	Elevatio	on D	oatum_r	NGVD29
	Lithology					С	verburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Gr	apł	nic	Description	F	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18			11	 					SS11aE	18.0 - 18.5			_
- 19					SILT, ML, 10YR 3/1 (very dark gray), not to hard, dry to moist, [CCR] (Continue		astic, soft		SS11bG	18.5 - 19.5	18.0 - 19.5	1.5	8-17-23
- 20									SS12G	19.5 - 21.0	19.5 - 21	1.5	11-13-26
- 21								2	SS13aG	21.0 - 21.5	1.0 21.0		-
- 22								1.5/23.5-20	SS13bE	21.5 - 22.5	- 22.5	1.5	14-24-27
- 23								190423	SS14aE SS14bG	22.5 - 23.5 23.5 - 24.0	22.5 - 24.0	1.5	11-22-27
- 24 - 25									SS15G	24.0 - 25.5	24.0 - 25	1.5	10-22-23 _
- 26									SS16aG	25.5 - 26.5	5.5 25.5		
- 27								26.5/28	SS16bE	26.5 - 27.0	- 27.0	1.5	13-21-25 -
- 28								.5-20190423	SS17E	27.0 - 28.5	27.0 - 28.5	1.5	9-16-23
- 29									SS18G	28.5 - 30.0	28.5 - 30.0	1.5	13-17-17
- 30 - 31									SS19G	30.0 - 31.5	30.0 - 31.5	1.5	5-7-6
- 32								31.5/33.5-2	SS20E	31.5 - 33.0	31.5 - 33	1.5	14-31-42
- 33								0190423	SS21aE	33.0 - 33.5	0 33.0-	1.5	- 18-26-23
- 34					Clay lenses from 33.8' to 34.4' Cobbles at 35.0'				SS21bG	33.5 - 34.5	34.5	- "."	10 20 20 _
- 35 - 36					Cobbics at 55.5				SS22G	34.5 - 36.0	4.5 - 36.0	1.5	9-13-14
- 37								36.5/3	SS23aG SS23bE	36.0 - 36.5 36.5 - 37.5	36.0 - 37.	1.5	9-12-8
- 38								3.5-2019042	SS24aE	37.5 - 38.5	5 37.5-	1.5	_ 10-8-8
- 39 39.0	1131.0		H		SILT WITH SAND, ML, 10YR 3/1 (very	dark (arav)	ಚ	SS24bG	38.5 - 39.0	39.0 38		-
- 40					non-plastic, soft to hard, dry to moist, [0		y, a <i>y </i>		SS25G	39.0 - 40.5	9.0 - 40.5	1.5	17-12-16 _
- 41									SS26aG SS26bE	40.5 - 41.5 41.5 - 42.0	40.5 - 42.0	1.5	11-14-15
- 42		Ш		Ш						12.0			_



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Client I	Borehole	ID	_ ^	I/A		Sta	antec Borin	g N	o. JSF-	TW02			
Client	ent Tennessee Valley Authority pject Number 175568225 Lithology				see Valley Authority		ring Location			51 N; 2,890,671	.16	E NAD27	Plant Local
Project	Number	17	755	68	225	Su	rface Eleva	atio	1170.0 ft	Elevatio	on D	oatum <u>r</u>	NGVD29
	Lithology						Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Gra	aph	ic	Description		Rock Core:	_	RQD %	Run Ft		Rec. Ft	Rec. %
- 43				Ī	SILT WITH SAND, ML, 10YR 3/1 (ver non-plastic, soft to hard, dry to moist,			41.5/43.5-20	SS27E	42.0 - 43.5	42.0 - 43.5	1.5	17-28-34
- 44					(Continued)			190423	SS28G	43.5 - 45.0	43.5 - 45.0	1.5	15-26-30
- 45 - 46									SS29G	45.0 - 46.5	45.0 - 46.5	1.5	22-25-23
- 47								46.5/48.5-201	SS30E	46.5 - 48.0	46.5 - 48.0	1.5	9-18-27
- 48								190423	SS31aE	48.0 - 48.5	48.0		_
- 49									SS31bG	48.5 - 49.5	- 49.5	1.5	16-22-27
- 50									SS32G	49.5 - 51.0	49.5 - 51.0	1.5	14-21-20
- 51 - 52								51.0/54.	SS33E	51.0 - 52.5	51.0 - 52.5	1.5	12-21-27
- 53								0-20190423	SS34E	52.5 - 54.0	52.5 - 54.0	1.5	14-18-19
- 54 - 55									SS35G	54.0 - 55.5	54.0 - 55.5	1.5	13-17-16 _
- 56								56	SS36aG	55.5 - 56.5	55.5 - 57.0	1.5	16-32-33
- 57 - 58								5.5/58.5-20190	SS36bE SS37E	56.5 - 57.0 57.0 - 58.5	57.0 - 58	1.5	13-22-40
- 59								423	SS38G	58.5 - 60.0	.5 58.5 - 60	1.5	14-29-38
- 60 - 61									SS39G	60.0 - 61.5	.0 60.0 - 61	1.5	 27-31-34 _
- 62								61.5/63	SS40E	61.5 - 63.0	1.5 61.5-	1.5	17-29-32 [–]
- 63 63.2	1106.8				CHT WITH CAND ME 40VD 2/4 /	ــ ام ب	de arou)	5-20190423	SS41aE	63.0 - 63.5	63.0 63.	1.5	- 11 - 20-J2
- 64					SILT WITH SAND, ML, 10YR 3/1 (ver non-plastic, soft to hard, moist, [CCR]	y dar	к gray),		SS41bG	63.5 - 64.5	.0-64.5	1.5	16-25-32
- 65 - 66									SS42G	64.5 - 66.0	64.5 - 66.0	1.5	17-21-20 -



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Client Borel	hole ID <u>N/A</u>	Stantec Boring No. JSF-TW02
Client	Tennessee Valley Authority	Boring Location 734,797.51 N; 2,890,671.16 E NAD27 Plant Local
Project Nun	nber 175568225	Surface Elevation 1170.0 ft Elevation Datum NGVD29
Lithal	0.001	Overhunden, Complet? Death Ft3 Dea Ft Plays/PSI

	ļ	_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dept	h Ft³	Elevation	Graphi	c Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 67				SILT WITH SAND, ML, 10YR 3/1 (very non-plastic, soft to hard, moist, [CCR]	• • •	66.5/68.5-2	SS43aG SS43bE	66.0 - 66.5 66.5 - 67.5	66.0 - 67.5	1.5	12-16-29
- 68						0190423	SS44aE SS44bG	67.5 - 68.5 68.5 - 69.0	67.5 - 69.0	1.5	19-25-33
- 69 - 70							SS45G	69.0 - 70.3	69.0 - 70.3	1.4	28-50-50+/4"
- 71				Sandy clay lens, 7.5YR 5/6 (strong brow	vn) at 70.2'	7	SS46aG	70.5 - 71.5	70.5 - 72.	1.5	12-20-20
- 72 - 73	7_					1.5/73.5-20190	SS46bE SS47E	71.5 - 72.0 72.0 - 73.5	0 72.0 - 73.	1.5	1-1-2
- 74 - 75						423	ST01G	73.5 - 75.5	5 73.5 - 75.5	1.5	1100
- 76						76.5/77.	SS48aG SS48bE	75.5 - 76.5 76.5 - 77.0	75.5 - 77.0	1.5	8-4-11 [–]
- 77 - 78	77.4	1092.6		SILT WITH SAND, ML, 10YR 7/3 (very non-plastic, firm, moist	pale brown),	4-20190423	SS49aE SS49b SS49cG	77.0 - 77.4 77.4 - 77.5 77.5 - 78.5	77.0 - 78.5	1.5	1-5-8 _
- 79							ST02G	78.5 - 80.5	78.5 - 80.5	0.9	850
- 80	80.5	1089.5		No Potugal /							

No Refusal / Bottom of Hole at 80.5 Ft.

Temporary well JSF-TW02 installed. See well installation log for backfill details.

1/14/21

^{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 E	Borehole	ID N/A	1	_ Stantec Borin	g N	o. JSF-	TW03			
(Client		Tennes	ssee Valley Authority	_ Boring Locati	on	735,435.3	38 N; 2,891,690	.51 I	E NAD27	Plant Local
F	Project	Number	175568	3225	Surface Eleva	atio	1179.4 ft	Elevatio	n D	atum_r	NGVD29
I	Project	Name	JSF TD	DEC Order	_ Date Started	_	5/13/19	Comple	ted	5/13/	19
I	Project	Location	n Hav	wkins Co, Rogersville, Tennessee	_ Depth to Wat	er _	N/A	Date/Tir	ne	N/A	
	•	or M. P		Logger C. Sexton	_ Depth to Wat	er _	N/A	Date/Tir	ne	N/A	
I	Orilling	Contract	or Sta	intec Consulting Services Inc.	_ Drill Rig Type	an	d ID CME	850XR, #953			
			•	Sampling Tools (Type and Siz	ze) 4-1/4" HSA, 3"	SS v	v/o liners				
		_		9	N/A						
		_		and Size) N/A				Overdrill		. –	N/A
					Olb Drop 3		· · · · · · · · · · · · · · · · · · ·	Efficiency	_	N/A	
		le Azimu		N/A	Borehole Incli		•	vertical)	N/A	4	
, i	Review	ed By _	K. Ca	rey	Approved By	_	P. Dunne				
		Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	pth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1179.4	0808080	Top of Hole		Ш					
				Gravel, [FILL]							
- 1											-
- 2											-
	20	4470.4									
- 3	3.0	1176.4	0909090	SILT WITH SAND, ML, 10YR 3/1 (v	very dark gray)	3.0					-
- 4				non-plastic, hard, dry, [CCR]	rery dark gray),	0/5.0-2	SS01E	3.0 - 4.5	3.0 - 4.5	1.2	8-14-46
7						019051	2222 =		5		
- 5						ω	SS02aE SS02b	4.5 - 5.0 5.0 - 5.4	4.5 - 5.4	0.5	43-50/5" —
0									4		
- 6							SS03aG	6.0 - 6.5	6.0		-
- 7						6.5/8.5	SS03bE	6.5 - 7.5	6.0 - 7.5	1.5	8-13-12
•						-20190	0004 5	75.05	_		
- 8						513	SS04aE	7.5 - 8.5	.5-9.0	1.5	6-12-16
- 9							SS04bG	8.5 - 9.0	_		-
							SS05G	9.0 - 10.5	9.0 - 10.5	1.5	9-16-15
- 10									0.5		_
- 11			$\ \ \ \ \ \ $				SS06aG	10.5 - 11.5	10.5-		0.16.10
			$\ \ \ \ \ \ $			11.5	SS06bE	11.5 - 12.0	- 12.0	1.5	9-16-19
- 12			$\ \ \ \ \ \ \ $			5/13.5-			12.		-
- 13						201905	SS07E	12.0 - 13.5	0 - 13.	1.5	9-15-24
						513			5	-	
- 14							SS08G	13.5 - 15.0	13.5 - 15.0	1.5	7-11-16
- 15			$\ \ \ \ \ \ $						5.0		_
.0			$\ \ \ \ \ \ \ $				SS09G	15.0 - 16.4	15.0 - 16.	1.4	13-38-50/5"
- 16			$\ \ \ \ \ \ \ $			16.5	55090	10.0 - 10.4	16.4	'	10-30 - 30/3 -
- 17			$\ \ \ \ \ \ \ $			5/18.5-			16.	1	_
17			$\ \ \ \ \ \ \ $			201905	SS10E	16.5 - 18.0	5 - 18.0	1.5	10-24-19
	1	I				, U,			اادا	1	



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Client Borehole ID N/A	Stantec Boring No. JSF-TW03
Client Tennessee Valley Authority	Boring Location 735,435.38 N; 2,891,690.51 E NAD27 Plant Local
Project Number 175568225	Surface Elevation 1179.4 ft Elevation Datum NGVD29

		Lithology			Overburden:	,	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18 - 19				SILT WITH SAND, ML, 10YR 3/1 (very da non-plastic, hard, dry, [CCR] (Continued)			SS11aE SS11bG		18.0 - 19.5	1.5	5-9-15 _
- 20							SS12G	19.5 - 21.0	19.5 - 21.0	1.5	9-15-22
- 21 - 22						21.5/23.5-2	SS13aG SS13bE	21.0 - 21.5 21.5 - 22.5	21.0 - 22.5	1.5	16-27-32
- 23 - 24	24.0	1155.4				20190513	SS14aE SS14bG	22.5 - 23.5 23.5 - 24.0	22.5 - 24.0	1.5	27-42-41
- 25				SILTY SAND, SM, 10YR 3/1 (very dark gr non-plastic, dense, dry, [CCR]	ay),		SS15G	24.0 - 25.5	24.0 - 25.5	1.5	7-10-13 _
- 26	26.0	1153.4	<u> </u>								

No Refusal / Bottom of Hole at 26.0 Ft.

Boring was 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



С	lient E	Borehole	ID N/A	4	St	tantec Borin	a N	o. JSF-	TW04			
	lient			ssee Valley Authority		oring Location			92 N; 2,892,021	.39	E NAD27	Plant Local
		Number				urface Eleva						
	-	Name				ate Started		-	— Comple		-	-
	•	Location		wkins Co, Rogersville, Tennessee		epth to Wate	_		Date/Ti		N/A	
	•	or M. Pr		Logger C. Sexton		epth to Wate	_		Date/Ti		N/A	
	-			antec Consulting Services Inc.		· rill Rig Type	_					
	-			I Sampling Tools (Type and Siz		0 ,.						
R	ock D	rilling and	d Samp	ling Tools (Type and Size) N	/A							
С	verdri	II Tooling	ј (Туре	and Size) N/A					Overdrill	De	pth _	N/A
S	ample	er Hamme	er Type	Automatic Weight 140		Drop _3			Efficiency	_!	V/A	
В	oreho	le Azimut	th	N/A	_	orehole Incli		on (from	Vertical)	N/	A	
R	eview	ed By _	K. Ca	irey	ΑĮ	pproved By	_	P. Dunne				
		_ithology				Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1173.5	റരവരവരവ	Top of Hole								_
				Gravel, [FILL]								
- 1			0404040 0404040									_
- 2												_
- 3	3.0	1170.5										
- 3				SILT WITH SAND, ML, 10YR 3/1 (v	-		3.0/5.0	CC04E	20.45	3.0	1.5	0.40.0
- 4				low plasticity, dense, dry, interlayere LEAN CLAY, CL, 2.5YR 4/8 (red) to)-2019	SS01E	3.0 - 4.5	- 4.5	1.5	6-10-8
- 5				(brownish yellow), low plasticity, dry			0514	SS02aE	4.5 - 5.0	4.5		_
				Layer of sandy lean clay from 5.0' to				SS02bG	5.0 - 6.0	- 6.0	1.5	6-9-14
- 6								SS03aG	6.0 - 6.5	6		_
- 7							6.5/8.5	SS03bE	6.5 - 7.5	0 - 7.5	1.5	10-18-15
							-20190	SS04aE	7.5 0.5	7		
- 8)514		7.5 - 8.5	.5 - 9.0	1.5	4-8-13
- 9								SS04bG	8.5 - 9.0	9.	1	_
– 10							<u> </u>	SS05aG	9.0 - 10.0	.0 - 10.5	1.5	5-11-18
							0.0/12.0	SS05bE	10.0 - 10.5	5	-	
- 11							0-2019	SS06E	10.5 - 12.0	0.5 - 12.	1.5	11-17-18
- 12	12.0	1161.5		N. D. G. al. /			0514			0		
				No Refusal / Bottom of Hole at 12.0 Ft.								_
												_
												_
												_
			Boring	g was backfilled with 30% solids benton	ite gro	out.						_
			1: E =	Environmental Sample Custody (two S	plit Sr	ooons may be	requi	red to obtai	in sufficient san	nple))	_
			G =	Geotechnical Sample Custody c denote Split Spoon divided between		•	•					
				oths are reported in feet below ground s			COLE	omioai Gal	IIPICO			_



(lient F	Borehole	ID	N/A	4	St	antec Borin	a N	₀ JSF-	TW05			
	Client	Jordinoid	-		ssee Valley Authority					65 N; 2,892,398	R 09	F NAD27	Plant Local
		Number					urface Eleva						
	-	Name					ate Started		•	Comple			
	•	Location			wkins Co, Rogersville, Tennessee		epth to Wat	_		Oomple Date/Ti		N/A	
	•	or M. P	_				epth to Wat	_		Date/Ti		N/A	
	•				antec Consulting Services Inc.		' rill Rig Type						
	_		_		I Sampling Tools (Type and Size								
F	Rock D	rilling an	d Sa	amp	ling Tools (Type and Size)N/	Α							
	Overdri	ill Tooling	ı (Ty	/pe a	and Size)N/A					Overdrill	l De	pth _	N/A
5	Sample	er Hamme	er T	ype	Automatic Weight 140	lb	Drop 🖸	30"		Efficiency		N/A	
		le Azimu	-		N/A		orehole Incli		•	Vertical) _	N/A	A	
F	Review	ed By _	K	(. Ca	rey	Αŗ	oproved By	_	P. Dunne				
	L	Lithology					Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Gra	phic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1160.1	0303	00-200	Top of Hole								
					Gravel, [FILL]								
- 1													-
- 2													-
- 3	3.0	1157.1											_
- 3					SILT WITH SAND, ML, 10YR 3/1 (ve	•	0 ,	3.0/			ω.		
- 4					and 10YR 6/2 (light brownish gray), n to very hard, dry to moist, [CCR]	on-p	lastic, firm	5.0-20	SS01E	3.0 - 4.5	0 - 4.5	1.4	4-7-7
					to very hard, dry to moist, [OOK]			90429	SS02aE	4.5 - 5.0		-	
- 5					Layer of SANDY LEAN CLAY WITH (GRAY	/FI CI				4.5-	1.2	5-8-15
_					from 5.0' to 6.0'	0101	VLL, OL,		SS02bG	5.0 - 6.0	3.0		
- 6									SS03aG	6.0 - 6.5	6		_
- 7								6.5/8	SS03bE	6.5 - 7.5	0-7.5	1.5	12-29-44
								.5-201				-	
- 8					Geofabric encountered at approximate	tely 7	.5'	90429	SS04aE	7.5 - 8.5	7.5 -	1.5	- 13-22-18
									SS04bG	8.5 - 9.0	9.0	""	10 22 10
- 9											9		_
- 10									SS05G	9.0 - 10.5	0-10.	1.5	15-29-35 _
											15		
- 11									SS06aG	10.5 - 11.5	10.5	1.5	5-16-33
								<u> </u>	SS06bE	11.5 - 12.0	- 12.0	1.5	D-10-33
- 12								.5/13.5	000002			1	_
_ 12								-20190	SS07E	12.0 - 13.5	2.0 - 13	1.5	12-20-26
- 13								429			3.5		_
- 14									0000	40 = 4= =	13.5	, _	-
									SS08G	13.5 - 15.0	- 15.0	1.5	14-24-36
- 15											15.0		_
40									SS09G	15.0 - 16.5) - 16.5	1.5	16-23-38



С	lient E	Borehole	ID N/A	A	Stantec Borin	g N	lo. JSF-	TW05			
С	lient		Tennes	ssee Valley Authority	Boring Location			65 N; 2,892,398	3.09	E NAD27	Plant Local
Р	roject	Number	175568	3225	Surface Eleva	atio	n <u>1160.1 ft</u>	Elevatio	n [Datum_	NGVD29
	L	_ithology			Overburden:	:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
Dep - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32			Graphic	Description SILT WITH SAND, ML, 10YR 3/1 (ver and 10YR 6/2 (light brownish gray), n to very hard, dry to moist, [CCR] (Cc.) Coarse-grained lens from 28.4' to 28. Fat clay from 29.0' to 30.6'	Rock Core: ry dark gray) on-plastic, firm ontinued)	16.5/18.5-20190429 21.5/23.2-20190429 26.5/28.5-20190429 31.5/3	SS10E SS11aE SS11bG SS12G SS13aG SS13bE SS14E SS15G SS16aG SS16bE SS17E SS18G	Run Ft 16.5 - 18.0 18.0 - 18.5 18.5 - 19.5 19.5 - 21.0 21.0 - 21.5 21.5 - 21.9 22.5 - 23.2 24.0 - 25.5 25.5 - 26.5 26.5 - 26.7 27.0 - 28.5 28.5 - 30.0 30.0 - 31.5	16.5-18.0 18.0-19.5 19.5-21.0 21.0-21.9 22.5-23.2 24.0-25.5 25.5-26.7 27.0-28.5 28.5-30.0 30.0-31.5 31.5	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	Rec. % 19-25-28 14-17-25 13-24-36 29-50/5" 37-50/2" 16-34-42 16-27-50/2" 12-12-15 14-23-25
- 33 - 34 - 35						33.5-20190429	SS20E SS21aE SS21bG SS22G	31.5 - 33.0 33.0 - 33.5 33.5 - 34.5	.5-33.0 33.0-34.5 34.5-36.0	1.5	21-22-20 - 20-32-34 - 14-15-18
- 36	36.0	1124.1					00220	04.0 - 00.0	36.0		17 10-10
- 36				Equipment obstruction encountered fi 38.5'.	rom 36.0' to						-



	Ŋ	Ju	aiic	ec IVA					Page:	3 of 3
Cli	ent B	orehole	ID N/A	\ \	Sta	ntec Boring	No. JSF-	TW05		
Cli	ent		Tennes	see Valley Authority		ring Locatio		55 N; 2,892,398.0	9 E NAD27	Plant Local
Pro	oject	Number	175568	225	Su	rface Elevat	tion 1160.1 ft	Elevation	Datum_1	NGVD29
	L	ithology				Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth		Elevation	Graphic	Description		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 38	38.5	1121.6		Equipment obstruction encount 38.5'. (Continued)	tered from 36	6.0' to				
'				No Refusal / Bottom of Hole at 38.5 Ft.						
										-
			high so	terminated when obstruction (unrollids bentonite grout. See JSF-TW	recoverable t V05b boring l	tooling in hole) og for continua	encountered a ation of boring s	it 36.0'. Boring ba sample and litholo	ckfilled with ogy informat	i 30% tion at
			an offs	eet location.						
				Environmental Sample Custody (t Geotechnical Sample Custody	two Split Spo	oons may be re	equired to obtai	n sufficient samp	le)	
			2: a,b,	c denote Split Spoon divided betw ths are reported in feet below grou	veen Environ	mental and Ge	eotechnical Sar	mples		-
			о. Бор	and are reported in real below grow	ana sanase					
										_



					IOE THIOSE								
C	lient E	Borehole	IDN/A	\	Stantec Boring No. JSF-TW05b								
C	lient		Tennes	ssee Valley Authority	_ Bo	oring Location	n	736,522.6	64 N; 2,892,394.	88 I	E NAD27	Plant Local	
F	roject	Number	175568	3225	_ Sı	ırface Eleva	tio	1160.1 ft	Elevatio	n D	atum_r	NGVD29	
F	roject	Name		DEC Order	_ Da	ate Started	_	4/30/19	Complet	ed			
	-	Location		wkins Co, Rogersville, Tennessee		epth to Wate	_	70.4 ft	Date/Tin		5/1/19)	
	•	or M. Pr		Logger C. Sexton	Depth to Water <u>N/A</u> Date/Time <u>N/A</u> Drill Rig Type and ID CME 850XR, #953								
	-			antec Consulting Services Inc.		• • •							
			_	Sampling Tools (Type and Size)	ze) <u>4</u> N/A	-1/4" HSA, 3" 8	55 \	w/o liners, 3	" Shelby Tubes				
		•		lling Tools (Type and Size) l and Size) ^{8-1/4"} HSA	IN/A				Overdrill		nth 7	79.8 ft	
		_		•	40 lb	Drop 3	0"		Efficiency		۱/A	<u></u>	
		le Azimut		N/A		rehole Incli		ion (from	•	N/A			
		ed By	K. Ca	irey		proved By		P. Dunne	,				
	i	_ithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Der	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
	0.0	1160.1	·	Top of Hole									
- 0				Boring advanced due to obstruction	n encou	intered at							
- 1				original in JSF-TW05 boring location JSF-TW05 for sample and lithology								-	
- 2				0.0' to 36.0'.	y iiiiOiiii	audii iidiii						-	
- 3													
- 3												_	
- 4												-	
- 5												_	
- 6												_	
- 7												_	
- 8												-	
- 9												-	
40													
- 10												_	
- 11												-	
- 12												_	
- 13												_	
- 13													
- 14												_	
- 15												_	
- 16												_	
- 17												+	
- 18												_	
– 19												-	
00													



			_							_	ICE	TMOEL			
		Borehole		_	N										
	lient								ing Locatio						
Р	roject	Number	_	17	556	382	225	5un	face Eleva	itio	n <u>1160.1 ft</u>	Elevatio	n L	Jatum_	NGVD29
		Lithology							Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	G	Gra	phi	С	Description	!	Rock Core:	_	RQD %	Run Ft		Rec. Ft	Rec. %
- 20															_
- 21							Boring advanced due to obstruction enco original in JSF-TW05 boring location. Se JSF-TW05 for sample and lithology infor	e bo	oring log						-
- 22							0.0' to 36.0'. (Continued)	IIIau	1011 110111						_
- 23															_
- 24															_
- 25															_
- 26															_
- 27															_
- 28															_
- 29															_
- 30															_
- 31															_
- 32															_
- 33															_
- 34															_
- 35	36.0	1124.1													_
- 36 - 37	30.0	1124.1	Ī				SILT WITH SAND, ML, 10YR 3/1 (very dand 10YR 6/2 (light brownish gray), non-			36.5/	SS23aG	36.0 - 36.5	36.0 - 3	1.5	- 17-28-39
- 37							to very hard, dry, [CCR]	-piac		38.5-20	SS23bE	36.5 - 37.5	7.5 3	-	_
- 38										20190430	SS24aE SS24bG	37.5 - 38.5 38.5 - 39.0	7.5 - 39.0	1.5	19-21-28
- 39											SS25G	39.0 - 40.5	39.0 -	1.5	- 16-28-27
- 40 41													40.5 40.		<u>-</u>
- 41 - 42										41.5/4	SS26aG SS26bE	40.5 - 41.5 41.5 - 42.0	.5 - 42.0	1.5	19-28-32
- 42 - 43	40 -	4446-								13.5-20190	SS27E	42.0 - 43.5	42.0 - 43.	1.5	13-18-24
- 44	43.5	1116.6	1	\parallel		\parallel	SANDY SILT, ML, 10YR 3/1 (very dark g			430	SS28G	43.5 - 45.0	5 43.5	1.5	7-19-23
- 45							10YR 6/2 (light brownish gray), non-plast very hard, dry, [CCR]	·uC, 1	וווווו נ0				45.0 45.		_
- 46											SS29G	45.0 - 46.5	0 - 46.5	1.5	15-20-18



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Client Borehole ID N/A				Stantec Boring No. JSF-TW05b							
Client	Te	nnes	see Valley Authority		g Locatio			64 N; 2,892,394	.88	E NAD27	Plant Local
Project	Number 17	5568	225	Surfac	ce Eleva	itior	1160.1 ft	Elevatio	n E	atum <u>ı</u>	NGVD29
I	Lithology			Ove	erburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation Gra	phic	Description	Ro	ck Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 47			SANDY SILT, ML, 10YR 3/1 (very dar 10YR 6/2 (light brownish gray), non-pl			46.5/48	SS30E	46.5 - 48.0	46.5 - 48.0	1.5	11-25-25
- 48			very hard, dry, [CCR] (Continued)	iasiic, iiiii	11 10	5-20190	SS31aE	48.0 - 48.5			_
- 49			Interlayered CCR with clay from 48.6'	to 77.4'		4 30	SS31bG	48.5 - 49.5	48.0 - 49.5	1.5	11-13-16 _
- 50			Layer of LEAN CLAY WITH SAND, CI 51.0'	L, from 49	9.5' to		SS32G	49.5 - 51.0	49.5 - 51.0	1.5	9-10-12
- 51						51	SS33aG	51.0 - 51.5	51.0	1 ,	-
- 52						.5/53.5-	SS33bE	51.5 - 52.5	51.0 - 52.5	1.5	10-12-18
- 53						201904	SS34aE	52.5 - 53.5	52.5 - 54.0	1.5	11-12-14
- 54						30	SS34bG	53.5 - 54.0	54.0	"	-
- 55							SS35G	54.0 - 55.5	54.0 - 55.5	1.5	5-12-14 _
- 56							SS36aG	55.5 - 56.5	55.5 -	1.5	6-9-13
- 57						56.5/5	SS36bE	56.5 - 57.0	55.5 - 57.0	1.5	0-9-13
- 58						8.5-2019043	SS37E	57.0 - 58.5	57.0 - 58.5	1.5	3-7-14
- 59						0	SS38G	58.5 - 60.0	58.5 - 60.0	1.5	9-17-21
- 60 - 61							SS39G	60.0 - 61.5	60.0 - 61.5	1.0	8-15-13 _
- 62						61.5/64	SS40E	61.5 - 63.0	61.5 - 63.0	1.5	17-21-14
- 63 - 64						5-20190501	SS41E	63.0 - 64.5	63.0 - 64.5	1.5	7-9-10 _
- 65							SS42G	64.5 - 66.0	5 64.5 - 66.0	1.5	6-8-10
- 66							SS43aG	66.0 - 66.5	.0 66.0		_
- 67						36.5/68.5	SS43bE	66.5 - 67.5	.0 - 67.5	1.5	10-9-8
- 68						-20190501	SS44aE	67.5 - 68.5	67.5-69.0	1.5	5-9-8
69.0	1091.1	 	SILTY SAND WITH GRAVEL, SM, 10	YR 3/1 (v	/erv		SS44bG	68.5 - 69.0			_
- 70 ¥			dark gray) and 10YR 6/2 (light brownis dense, moist to wet, [CCR]		,		SS45G	69.0 - 70.5	69.0 - 70.5	1.5	6-11-10 _
- 71			•			71.1	SS46aG SS46bE	70.5 - 71.5 71.5 - 72.0	70.5 - 72.0	1.5	8-10-10
- 72 - 73						5/73.5-20190501	SS47E	72.0 - 73.5	0 72.0 - 73.5	1.5	8-8-8 _



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Client Boreho	ole ID N/A	Stantec Boring No. JSF-TW05b
Client _	Tennessee Valley Authority	Boring Location 736,522.64 N; 2,892,394.88 E NAD27 Plant Local
Project Numl	ber 175568225	Surface Elevation 1160.1 ft Elevation Datum_ NGVD29

		Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 74 - 75				SILTY SAND WITH GRAVEL, SM, 10YR 3 dark gray) and 10YR 6/2 (light brownish gradense, moist to wet, [CCR] (Continued)	` ,		SS48G	73.5 - 75.0	73.5 - 75.0	1.4	11-10-7 [–]
- 76				tenes, means near [co.t.] (commence)			SS49G	75.0 - 76.5	75.0 - 76.5	1.5	10-11-9
- 77	78.0	1082.1					SS50a SS50bG		76.5 - 78.0	1.5	3-5-9
- 78 - 79	76.0	1002.1		SILT WITH SAND, ML, 10YR 3/1 (very da and 10YR 6/2 (light brownish gray), non-p to firm, moist to wet, [CCR]	0 ,,		ST01G	77.0 - 70.0	78.0 - 80.0	0.8	400 -
- 80 - 81	80.5	1079.6		LEAN CLAY WITH SAND, CL, 10YR 5/6 (brown) with 10YR 2/2 (very dark brown), lo	•		SS51G	80.0 - 81.5	80.0 - 81.5	1.5	4-9-15 __
- 82 - 83				medium plasticity, firm, moist	to		ST02G	81.5 - 83.5	81.5 - 83.5	2.0	900
	83.5	1076.6	Y/Z								

No Refusal / Bottom of Hole at 83.5 Ft.

Temporary well JSF-TW05 installed. See well installation log for backfill details.

Boring advanced due to obstruction encountered at original JSF-TW05 boring location. See boring log JSF-TW05 for sample and lithology information from 0.0' to 36.0'.

- 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

G LOG 173308223 - JSF IDEC ORDER.GPJ IDEC SUBSURF DI 20190330.GDI 7/14/20

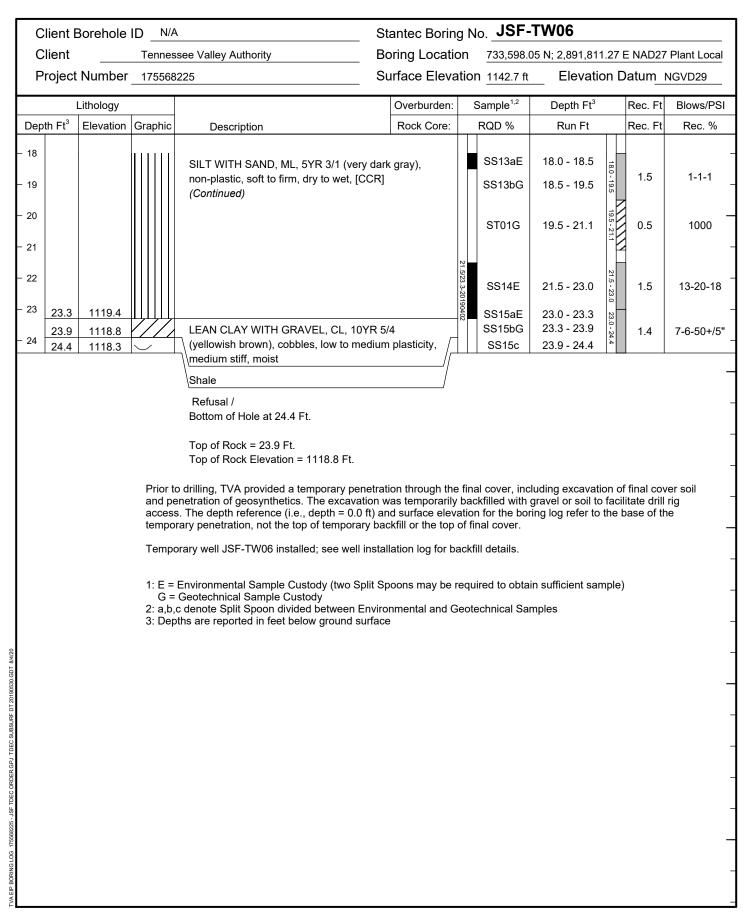


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							105	TM (0.0			
		Borehole			Stantec Borin		o. JSF-	TW06			
	Client			see Valley Authority	Boring Location			05 N; 2,891,811			
	-	Number			Surface Eleva	atior	-	Elevatio	n C	atum <u>r</u>	NGVD29
	-	Name		PEC Order	Date Started	_	4/2/19	Comple			
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wate		13.5 ft	Date/Tii		4/2/19	9 15:09
	•	or M. P		Logger <u>C. Sexton</u>	Depth to Wate	_		Date/Tii	me	N/A	
	_	Contract		ntec Consulting Services Inc.	Drill Rig Type						
			•	Sampling Tools (Type and Size	· ————————————————————————————————————	SS v	v/o liners, 3	" Shelby Tubes			
		_		ling Tools (Type and Size) N/A	\			0	D-	41	
		_		and Size) 8-1/4" HSA Automatic Weight 140	lb Drop 3	20"		Overdrill		∙ptn <u></u> √A	24.4 ft
		н паппп le Azimu		Automatic Weight 140 N/A	Borehole Incli		ion (from	Efficiency	N/		
		ed By	K. Ca		Approved By		P. Dunne	vertical)	1 1/7		
			0			_		3			
_		_ithology			Overburden:	-	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³		Graphic	Description	Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1142.7	///	Top of Hole							
				SANDY LEAN CLAY, CL, 10Y 3/1 (ve greenish gray) with 5GY 4/2 (dark gra	•		SS01G	0.0 - 1.5	0.0 - 1.5	1.5	7-11-12
- 1				medium plasticity, firm, moist, and 10	YR 6/6				·σ		-
- 2				(brownish yellow), some gravel, [CCR	!]	1.5/3.	0000	45.20	1.5	10	0.44.0
						5-2019	SS02E	1.5 - 3.0	.5 - 3.0	1.2	8-11-9
- 3						0402	SS03aE	3.0 - 3.5	ω		-
- 4							SS03b	3.5 - 4.5	.0 - 4.5	0.7	4-34-27
										-	
- 5							SS04G	4.5 - 6.0	4.5 - 6.0	1.5	7-12-9
- 6									5.0		_
Ü							SS05a	6.0 - 6.5	6.0	4.5	0.0.7
- 7						5.5/8.5-	SS05bE	6.5 - 7.5	- 7.5	1.5	6-8-7
- 8				Interbedded CCR and clay from 7.5' to	o 11.3'	20190	SS06aE	7.5 - 8.5	7.	1	_
Ü						102			5-9.0	1.5	5-7-6
- 9							SS06bG	8.5 - 9.0		1	-
40							SS07G	9.0 - 10.5	9.0 - 10.5	1.5	6-9-47
- 10).5		_
- 11	11.3	1131.4		SS08a inadvertantly discarded			SS08a	10.5 - 11.5	10.5 -	1.2	13-17-13
				SILT WITH SAND, ML, 5YR 3/1 (very	dark gray),		SS08bE	11.5 - 12.0	12.0	1.2	13-17-13
- 12				non-plastic, soft to firm, dry to wet, [C	CR]	1			12.		_
- 13						1.5/15.0	SS09	12.0 - 13.5	2.0 - 13.5	0.0	26-29-21
	¥					.20190					
- 14						402	SS10E	13.5 - 15.0	3.5 - 15.0	1.5	3-4-4
- 15									5.0		_
			$\ \ \ \ \ \ $				SS11G	15.0 - 16.5	15.0-	1.5	3-3-2
- 16			$\ \ \ \ \ \ \ $			16.5	55116	10.0 - 10.0	5.0 - 16.5	'.5	J-J-Z _
- 17			$\ \ \ \ \ \ $			¥18.5-2			16.5		-
•						019040	SS12E	16.5 - 18.0	.5 - 18.0	1.5	1-2-2

8/4/20







Clier	t Borehole	ID N/A	1	Stantec Boring No. JSF-TW07							
Clier	ıt	Tennes	see Valley Authority	Boring Locati	on	733,901.	54 N; 2,892,829	.04 I	E NAD27	Plant Local	
Proje	ct Number	175568	225	Surface Eleva	atio	n <u>1146.3 ft</u>	Elevatio	on D	atum_r	NGVD29	
Proje	ect Name		PEC Order	Date Started	_	4/9/19	Comple	ted	4/10/1	19	
•	ect Location		wkins Co, Rogersville, Tennessee	Depth to Water 21.4 ft Date/Time 4/9/19 15:12							
	ector M. P.		Logger <u>C. Sexton</u>	Depth to Wat	_		Date/Ti	me	N/A		
	•		ntec Consulting Services Inc.	Drill Rig Type							
		•	Sampling Tools (Type and Size)		SS	w/o liners, 3	" Shelby Tubes				
	_		ling Tools (Type and Size) <u> N/A</u> and Size) 8-1/4" HSA	L			Overdrill	Do	nth 3	34.0 ft	
	pler Hamme		•	b Drop	30"		Gverann Efficiency		V/A		
	hole Azimu	• •	N/A	Borehole Incl		ion (from	•	N/A			
	ewed By	K. Ca	rey	Approved By		P. Dunne					
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Depth F		Granhic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
0		Grapino	Top of Hole	TOOK GOIC.		TOD 70	Ruitt		1100.11	1100. 70	
0 0.	0 11100	111111	SILTY SAND, SM, 10YR 3/1 (very dar	·k gray),							
- 1			non-plastic, loose to dense, dry to wet	• • • •		SS01G	0.0 - 1.5	0.0 - 1.5	1.5	15-18-22	
'											
- 2					1.5/3.	CCOOF	45.00	1.5	4.5	- 11 01 00	
					5-2019	SS02E	1.5 - 3.0	-3.0	1.5	11-21-22	
- 3					0409	SS03aE	3.0 - 3.5			-	
- 4		 				SS03bG	3.5 - 4.5	3.0 - 4.	1.5	9-12-19	
4						330303	3.3 - 4.3	6			
- 5		[[+]+]+]				00040	45.00	4.5	4.5		
						SS04G	4.5 - 6.0	-6.0	1.5	11-14-12	
- 6						SS05aG	6.0 - 6.5			-	
- 7					6.5	SS05bE	6.5 - 7.5	6.0 - 7.	1.4	8-15-17	
·					/8.5-20	SSUSBE	0.3 - 7.3	6			
- 8					190409	SS06aE	7.5 - 8.5	7.5	4.5	45.00.00	
						SS06bG	8.5 - 9.0	- 9.0	1.5	15-23-26	
- 9		[[+]+]+]				000000	0.0 0.0		-	_	
- 10						SS07G	9.0 - 10.5	9.0 - 10	1.5	17-13-10	
10								.51			
- 11						SS08aG	10.5 - 11.5	10.5		-	
					<u> </u>	SS08bE	11.5 - 12.0	- 12.0	1.5	5-3-4	
- 12					1.5/13.5	JOOODL	11.0 - 12.0			-	
40					5-20190	SS09E	12.0 - 13.5	2.0 - 1:	1.5	4-4-5	
- 13)409			3.5		_	
- 14						00:	40 = 1= 1	13.5	_	-	
						SS10G	13.5 - 15.0	- 15.0	1.5	2-2-3	
- 15								15.		_	
						SS11G	15.0 - 16.5	0 - 16.5	1.5	3-3-7	



Clier	Client Borehole ID N/A				Stantec Boring No. JSF-TW07					
Clier	ıt	Tennes	see Valley Authority	Boring Location			54 N; 2,892,829	9.04 E	NAD27	' Plant Local
Proje	ct Number	175568	225	Surface Eleva	atio	n <u>1146.3 ft</u>	Elevatio	on D	atum_	NGVD29
	Lithology			Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth F	t ³ Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 16 - 17			SILTY SAND, SM, 10YR 3/1 (very dar non-plastic, loose to dense, dry to wet (Continued)		16.5/18	SS12E	16 F 10 O	16.5	1 5	-
- 18			(,		3.5-2019040		16.5 - 18.0	. 18.0	1.5	6 - 6-4 _
- 19					9	SS13aE SS13bG	18.0 - 18.5 18.5 - 19.5	18.0 - 19.5	1.5	5-4-4
- 20						SS14G	19.5 - 21.0	19.5 - 21.0	1.5	5-3-2
- 21 - 22 22	.5 1123.8				21.0/24.0-2	SS15E	21.0 - 22.5	21.0 - 22.5	1.5	3-2-1 _
- 23 - 24			SILTY SAND, SM, 10YR 3/1 (very dar non-plastic, very loose, wet, [CCR]	k gray),	20190409	SS16E	22.5 - 24.0	22.5 - 24.0	1.5	1-WH-WH
- 25						ST01G	24.0 - 26.0	24.0 - 26.0	0.0	100 —
- 26 - 27					26.5/2	SS17aG SS17bE	26.0 - 26.5 26.5 - 27.5	26.0 - 27.5	1.5	WH-WH-WH_
- 28 - 29	.0 1117.3				9.0-20190409	SS18E	27.5 - 29.0	27.5 - 29.0	1.5	WH-WH-WH
- 30			SILT, ML, 10YR 3/1 (very dark gray), revery soft, wet, [CCR]	non-plastic,		SS19G	29.0 - 30.5	29.0 - 30.5	1.5	WR-WR-WR_
- 31 - 32					31.5/33	SS20aG SS20bE	30.5 - 31.5 31.5 - 32.0	30.5 - 32.0	1.5	WH-WH-WH
33	.0 1113.3				0-20190409	SS21aE	32.0 - 33.0	32.0 - 33.	1.5	WH-2-20 _
- 34			SILTY CLAY WITH GRAVEL, CL-ML, grayish green) with 10Y 5/4 (light olive plasticity, very hard, moist, interlayere with cobbles and medium to coarse gr	e), medium d with CCR,		SS21bG SS22G	33.0 - 33.5 33.5 - 35.0	5 33.5 - 35.0	1.5	9-12-14
- 35 - 36	.5 1110.8		LEAN CLAY WITH SAND, CL, 10Y 4/2 olive), medium plasticity, firm, moist, c blocks, broken roots			SS23G	35.0 - 36.5	35.0 - 36.5	1.5	7-8-11 _
- 37			piocito, proteir roots							_



Page: 3 of 3

C	lient E	Borehole	ID N/A			tantec Boring		TW07						
	lient		Tennes	see Valley Authority	В	oring Locatio	n <u>733,901.</u>	54 N; 2,892,829.04	E NAD27	Plant Local				
P	roject	Number	175568	225	Sı	urface Elevat	tion 1146.3 ft	Elevation	Datum_	NGVD29				
		Lithology				Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI				
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %				
- 38	38.5	1107.8					ST02G	36.5 - 38.5	1.5	500 –				
				No Refusal / Bottom of Hole at 38.5 Ft.						_				
	Prior to drilling, TVA provided a temporary penetration through the final cover, including excavation of final cover soil and penetration of geosynthetics. The excavation was temporarily backfilled with gravel or soil to facilitate drill rig access. The depth reference (i.e., depth = 0.0 ft) and surface elevation for the boring log refer to the base of the temporary penetration, not the top of temporary backfill or the top of final cover.													
			Tempo	orary well JSF-TW07 installed;	see well instal	llation log for ba	ckfill details.			-				
			G = 2: a,b,e	Environmental Sample Custod Geotechnical Sample Custody c denote Split Spoon divided be ths are reported in feet below o	etween Enviro	nmental and Ge			;)	-				
										_				
										_				
										_				
										_				
										-				
										_				
										_				
										-				

4/16/20



Client Borehole ID N/A	Stantec Borin						
Client Tennessee Valley Authority	Boring Location		-	90 N; 2,893,524			
Project Number 175568225	Surface Eleva	atio					-
Project Name	Date Started	_	4/3/19	Comple			
Project Location Hawkins Co, Rogersville, Tennessee	Depth to Water			Date/Ti			9 09:05
Inspector M. Pritt Logger C. Sexton Drilling Contractor Stantec Consulting Services Inc.	Depth to Wate	_		Date/Ti	me	N/A	
Drilling Contractor Stantec Consulting Services Inc. Overburden Drilling and Sampling Tools (Type and Size	Drill Rig Type		· · · · · · · · · · · · · · · · · · ·				
	/A	00 (W/O IIIIE13, 3	Offerby Tubes			
Overdrill Tooling (Type and Size) 8-1/4" HSA				Overdrill	De	pth 2	29.8 ft
Sampler Hammer Type Automatic Weight 140) lb Drop 3	30"		Efficiency		N/A	
Borehole Azimuth N/A	Borehole Incli	inat	ion (from	•	N/A	4	
Reviewed By K. Carey	Approved By		P. Dunne				
Lithology	Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft³ Elevation Graphic Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
Top of Hole							
SILTY SAND WITH GRAVEL, SM, 1					0.0		
dark grayish brown) to 10YR 2/1 (blating dark grayish brown) to 10YR 2/1 (blating dense, dry to moist, very fine to coar			SS01G	0.0 - 1.5	0.0 - 1.5	1.5	14-18-13
10YR 5/8 (vellowish brown) silty clay		1.5			_		
		/3.5-20	SS02E	1.5 - 3.0	.5 - 3.0	1.5	10-11-8
- з		190403	SS03aE	3.0 - 3.5			-
					3.0 - 4.5	1.5	6-7-7
- 4			SS03bG	3.5 - 4.5	.5		=
- 5			SS04G	4.5 - 6.0	4.5-	1.5	5-6-4
			33040	4.5 - 0.0	1.5 - 6.0	1.5	3-0-4
- 6			SS05aG	6.0 - 6.5	6.0		-
- 7		6.5/8.5	SS05bE	6.5 - 7.5	- 7.5	1.5	4-2-3
		-20190	SS06aE	7.5 - 8.5	7		
~ °		403			5-9.0	1.5	4-3-4
- 9			SS06bG	8.5 - 9.0			-
- 10			SS07G	9.0 - 10.5	9.0 - 10.5	1.5	5-3-2
					.55		
- 11			SS08aG	10.5 - 11.5	10.5 -	1.5	3-3-3
_ 12		11.5/	SS08bE	11.5 - 12.0	12.0		_
		13.5-20	00005	400 405	12.0	4.5	4.0.0
- 13		19040	SS09E	12.0 - 13.5	2.0 - 13.5	1.5	4-3-2
_ 14		3			13		_
			SS10G	13.5 - 15.0	3.5 - 15.0	1.5	4-3-4
15.0 1127.8 SILT WITH SAND, ML, 10YR 3/2 (ve	ary dark gravish	-					_
brown) to 10YR 2/1 (black), non-plas			ST01G	15.0 - 16.0	15.0 - 16.0	1.0	500
moist, some 10YR 5/8 (yellowish bro	own) clay, [CCR]	16.5/1	SS11aG	16.0 - 16.5		,	44.4.4
- 17		3.5-201	SS11bE	16.5 - 17.5	16.0 - 17.5	1.5	14-4-4
		90404					



Page: 2 of 2

Client Borehole I	D N/A	Stantec Boring No	JSF-TW08
Client	Tennessee Valley Authority	Boring Location	734,209.90 N; 2,893,524.88 E NAD27 Plant Local

Project Number 175568225 Surface Elevation 1142.8 ft Elevation Datum NGVD29

Lithology						Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth	Ft ³	Elevation	Grap	hic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
18					SILT WITH SAND, ML, 10YR 3/2 (very dark brown) to 10YR 2/1 (black), non-plastic, firm			SS12aE SS12bG	17.5 - 18.5 18.5 - 19.0		1.4	2-1-1
20					moist, some 10YR 5/8 (yellowish brown) c (Continued)	lay, [CCR]		SS13G	19.0 - 20.5	300	1.5	1-2-2
21								ST02G	20.5 - 22.5		0.0	1000
23							22.5/24.5-201	SS14E	22.5 - 24.0	325 340	1.5	4-4-4
24 25 ¥	24.5	1118.3			SILT, ML, 10YR 3/2 (very dark grayish bro 10YR 2/1 (black), non-plastic, soft to firm,		90404	SS15aE SS15bG	24.0 - 24.5 24.5 - 25.5	24.0	1.5	5-6-9
26					[CCR]	moist,	26.	SS16aG SS16bE	25.5 - 26.5 26.5 - 27.0	25.5.0	1.5	2-2-2
27							5/28.5-2019040	SS17E	27.0 - 28.5	27.0 28.5	1.5	4-2-3
29								SS18G	28.5 - 30.0	20 5	1.5	2-5-3
30 3	30.3	1112.5			SANDY SILT, ML, 10YR 5/4 (yellowish bromedium plasticity, very hard, dry, iron oxid			SS19G	30.0 - 31.5	200 24 5	1.5	9-21-39
32	33.0	1109.8			laminated			SS20G	31.5 - 33.0	24 6 22 0	1.5	9-18-21
33 ,			шш		No Refusal /				I		· · · · · ·	

No Refusal /

Bottom of Hole at 33.0 Ft.

Prior to drilling, TVA provided a temporary penetration through the final cover, including excavation of final cover soil and penetration of geosynthetics. The excavation was temporarily backfilled with gravel or soil to facilitate drill rig access. The depth reference (i.e., depth = 0.0 ft) and surface elevation for the boring log refer to the base of the temporary penetration, not the top of temporary backfill or the top of final cover.

Temporary well JSF-TW08 installed; see well installation log for backfill details.

Stantec Consulting Services Inc.

4/16/20

^{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 N/A						<u>A</u>	Stantec Boring No										
Client Tennessee Valley Authority						ssee Valley Authority	Boring Location 732,960.02 N; 2,886,153.10 E NAD27 Plant Loca										
F	Project Number 175568225						Surface Elevation 1107.9 ft Elevation Datum_N					NGVD29					
F	Project Name						Date Started 3/6/19				Completed 3/12/19						
	Project Location Hawkins Co, Rogersville, Tennessee						Depth to Water 6.0 ft Date/Time 3/7/19 14:00						9 14:00				
	•	or M.P				Logger C. Sexton	· '										
	Drilling Contractor Stantec Consulting Services Inc.							Drill Rig Type and ID CME 55T#2, #711									
	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) Note Overdrill Tooling (Type and Size) 8-1/4" HSA							N/A Overdrill Depth 37.7 ft									
							40 lb Drop 30" Efficiency N/A										
	•	le Azimu		7 1	,,	N/A	Borehole Inclination (from Vertical) N/A										
		ed By		K. (Са	arey		pproved By		P. Dunne	/						
		Lithology		_										Blows/PSI			
De	pth Ft ³	Elevation	Gra	anh	ic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %			
	0.0	1107.9		<u> </u>		Top of Hole		Trook Core.		1102 %	ranit		1100.11	1100.70			
- 0	0.5			噩										_			
- 1				//	GRAVELLY LEAN CLAY, CL, 10YR 5/8 (yellowish					SS01G	0.0 - 1.5	.0 - 1.5	1.2	2-6-5			
			brown) to 2.5YR 4/8 (red), medium plasticity, fi														
- 2				//		to moist, medium to coarse gravel, w [FILL]	ith co	obbles,	1.5/3.5	1.5/3.5 SS02E	1.5 - 3.0		1.0	4-8-7			
				//					5-20190	OOUZL	1.0 - 0.0	3.0	1.0	4-0-7			
- 3	3.5	1104.4		/					1306	SS03aE	3.0 - 3.5	ω		_			
- 4				SILT, ML, N 5/ (gray), non-plastic, so		oft to I	hard, dry to		SS03bG	3.5 - 4.5	.0 - 4.5	1.5	7-20-26				
						wet, [CCR]											
- 5										SS04G	4.5 - 6.0	4.5-	1.5				
	 								00040	4.0 0.0	6.0	1.0	14 10 20				
- 6	Ť								SS05aG	6.0 - 6.5	6		_				
- 7									6.5/8	SS05bE	6.5 - 7.5	.0 - 7.5	1.5	7-12-10			
									8.5-201								
- 8								90307	SS06aE	7.5 - 8.5	7.5 -	1.0	2-2-3				
									SS06bG	SS06bG	8.5 - 9.0	9.0	1.0	220			
- 9												9.		_			
– 10										SS07G	9.0 - 10.5	0 - 10.5	1.5	3-6-6			
- 11										SS08aG	10.5 - 11.5	10.5-	1.5	3-5-6			
									<u> </u>	SS08bE	11.5 - 12.0	12.0	1.5	3-3-0			
- 12									.5/13.5-			12		-			
– 13									201903	SS09E	12.0 - 13.5	.0 - 13.	1.5	4-6-11			
									307			5					
- 14												13		_			
										ST01G	13.5 - 15.5	5 - 15.6	1.7	NR			
– 15														_			
40										SS10aG	15.5 - 16.0						



Client E	Borehole	ID N/A	Λ	Stantec Boring No. JSF-TW09								
Client		Tennes	see Valley Authority	Boring Location	732,960.02 N; 2,886,153.10 E NAD27 Plant Local							
Project	Number	175568	225	Surface Eleva	atio	on 1107.9 ft Elevation Datum NGVD2						
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation Graphic		Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %		
- 16 - 17			SILT, ML, N 5/ (gray), non-plastic, sof wet, [CCR] (Continued)	t to hard, dry to	16.0/	SS10bE	16.0 - 17.0	15.5 - 17.0	1.5	7-20-18 -		
- 18					19.0-20190312	SS11E	17.0 - 18.5	17.0 - 18.5	1.5	6-9-8		
10					2	SS12aE	18.5 - 19.0	18				
- 19 - 20						SS12bG	19.0 - 20.0	.5 - 20.0	1.5	6-8-8		
- 21						SS13G	20.0 - 21.5	20.0 - 21.5	1.5	4-11-35		
- 22					21.5/23.5-201	SS14E	21.5 - 23.0	21.5 - 23.0	1.5	5-23-36		
- 23					90312	SS15aE	23.0 - 23.5	23		_		
- 24						SS15bG	23.5 - 24.5	1.0 - 24.5	1.5	5-9-5 _		
- 25						SS16G	24.5 - 26.0	24.5 - 26.0	1.5	4-4-3		
- 26					26	SS17aG	26.0 - 26.5	26.0-	1.5	2-2-2		
- 27					6.5/28.5	3.5/28.5-	S.5/28.5-	SS17bE	26.5 - 27.5	27.5	1.5	2-2-2
- 28					20190312	SS18aE	27.5 - 28.5	27.5 - 29.	1.5	3-3-6		
- 29						SS18bG	28.5 - 29.0	0				
- 30						SS19G	29.0 - 30.5	29.0 - 30.5	1.5	4-5-9 _		
- 31						SS20aG	30.5 - 31.5	30.5 - 32	1.5	4-4-5		
- 32					31.5/3	SS20bE	31.5 - 32.0	2.0				
- 33					3.5-20190312	SS21E	32.0 - 33.5	32.0 - 33.5	1.5	8-7-4		
- 34						SS22G	33.5 - 35.0	33.5 - 3	1.5	5-5-3		
- 35								35.0 3		_		
- 36						SS23G	35.0 - 36.5	¥5.0 - 36.5	1.5	2-1-2		
- 37						SS24E	36.5 - 38.0	36.5 - 38.0	1.5	4-4-3		



Page: 3 of 3

Client B	Borehole ID N/A	· .	Stantec Boring No. JSF-TW09								
Client	Tennes	ssee Valley Authority	Boring Location 732,960.02 N; 2,886,153.10 E NAD27 Plant Local								
Project	Number _ 175568	S225 S	Surface Elevation 1107.9 ft Elevation Datum NG						NGVD29		
	Lithology		Overburden: Sample ^{1,2}			Depth Ft ³		Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation Graphic	Description	Rock Core: RQD %		QD %	Run Ft	Rec. Ft		Rec. %		
- 38 - 39 - 40 - 41 41.5	1069.2	SILT, ML, N 5/ (gray), non-plastic, soft to wet, [CCR] (Continued) SANDY LEAN CLAY, CL, 10YR 6/6 (broand 10YR 7/1 (light gray), low to medium firm, moist, little fine to medium gravel	wnish yellow)	20190312	SS25aE SS25bG ST02G	38.0 - 38.5 38.5 - 39.5 39.5 - 41.5	38.0 - 39.5 39.5 - 41.5	1.5	3-5-8 _ 1000 _		
		No Refusal /							_		

Bottom of Hole at 41.5 Ft.

Temporary well JSF-TW09 installed. See well installation log for backfill details.

- 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



		Borehole	ID	_	N/A		Stantec Borin		lo. JSF-	-TW10				
Clie							Boring Locati			50 N; 2,886,886				
-		Number					Surface Eleva	atio				-		
-							Date Started	_	3/14/19	Comple				
•		Location		_	На		Depth to Water 7.2 ft Date/Time 3/14/19 13:47							
•		or <u>M. P</u>			Cto		Depth to Water N/A Date/Time N/A							
	_	Contract		_			Drill Rig Type and ID_ CME 55T#2, #711 ize) 4-1/4" HSA, 3" SS w/o liners, 3" Shelby Tubes							
				_		ling Tools (Type and Size) N/A	4-1/4 110A, 5	00	W/O IIIIeis, o	Offerby Tubes				
		_				and Size) 8-1/4" HSA	Overdrill Depth 38.9 ft							
		_	•			Automatic Weight 140 lb	Drop 3	30"		Efficiency		N/A		
	•	le Azimu		,	•		 Borehole Incl		tion (from	•	N/A	4		
Rev	iew	ed By _		K.	Ca	irey .	Approved By		P. Dunne					
										Rec. Ft	Blows/PSI			
Depth F			Gr	ар	hic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
- 0 0	0.0	1111.8				Top of Hole	•							
						FAT CLAY WITH SAND, CH, 10YR 5/6	(yellowish		00040	00.45	0.0			
- 1 <u>1</u>	.2	1110.6	1	1	1	brown), high plasticity, firm, dry, [FILL]		11	SS01G	0.0 - 1.5	0.0 - 1.5	1.5	5-7-7	
- 2					//	LEAN CLAY WITH GRAVEL, CL, 5YR 4 red), medium plasticity, firm, dry to mois		1.5/					_	
_					//	staining, with medium to coarse gravel,		3.5-201	SS02E	1.5 - 3.0	.5 - 3.0	1.2	6-7-6	
- 3			/		//			90314	SS03aE	3.0 - 3.5			-	
- 4 3	3.8	1108.0	\mathbb{H}	\angle	4			┦	SS03bG	3.5 - 4.0	3.0 - 4.5	1.5	6-5-7	
*						SILT WITH SAND, ML, N 3/ (very dark of non-plastic, hard, moist to wet, [CCR]	gray),		SS03cG	4.0 - 4.5	5			
- 5						non placine, nara, molectic weil, [eerly			SS04G	4.5 - 6.0	4.5 - 6.0	0.9	5-9-9	
- 6											3.0		_	
									00055	00.75	6.0		E 40 E	
- 7 🛓								3.0/9.0-	SS05E	6.0 - 7.5	6.0 - 7.5	1.5	5-10-5	
- 8								201903			7.		_	
								814	SS06E	7.5 - 9.0	5-9.0	1.5	4-6-8	
- 9											9		-	
- 10									SS07	9.0 - 10.5	9.0 - 10.5	1.5	4-5-6	
											5			
- 11									SS08aG	10.5 - 11.5	10.5 -	1.5	4-5-7	
- 12								12.	SS08b	11.5 - 12.0	12.0		_	
								0/13.5	SS09E	100 105	12.0	1.5	4 5 7	
- 13 1:	3.5	1098.3						.20190:	5509E	12.0 - 13.5	.0 - 13.5	1.5	4-5-7	
- 14			Ħ		Ħ	SILT, ML, N 3/ (very dark gray), non-pla	stic, hard,	314					_	
						wet, [CCR]			ST01G	13.5 - 15.5	3.5 - 1	2.0	1000	
- 15											5.5		_	
- 16				$\ \ $					SS10aG	15.5 - 16.5	15.5-		-	
-								16.5/18	SS10bE	16.5 - 17.0	5 - 17.0	1.5	4-9-10	
- 17				$\ \ $.5-2019	331000	10.5 - 17.0	17.0		-	
40								90314	SS11E	17.0 - 18.5	- 18.5	1.5	4-4-5	



С	Client Borehole ID N/A Stantec Borin					g No. JSF-TW10								
С	lient		Τe	enne	ess	see Valley Authority		oring Location			50 N; 2,886,886	3.30	E NAD27	' Plant Local
Р	roject	Number	17	'556	82	225	Sι	ırface Eleva	atio	1111.8 ft	Elevatio	n E	Datum_	NGVD29
	l	Lithology						Overburden:	:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Gra	phic	;	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18						SILT, ML, N 3/ (very dark gray), non-p	lasti	c, hard,						_
- 19	20.0	1091.8				wet, [CCR] (Continued)				SS12G	18.5 - 20.0	18.5 - 20.0	1.5	31-21-31
- 20	20.0	1001.0				SILT, ML, N 3/ (very dark gray), non-p soft, wet, [CCR]	lasti	c, very		SS13aG	20.0 - 21.0	20.0 - 21.5	1.5	 1-1-1
- 21						, ,,			2	SS13bE	21.0 - 21.5	1.5		_
- 22									1.0/24.0-2019	SS14E	21.5 - 23.0	21.5 - 23.0	1.5	1-WR-WR
- 23									90314	SS15aE	23.0 - 24.0	23.0 - 2	1.5	WH-WH-WH
- 24										SS15bG	24.0 - 24.5	4.5		
- 25										SS16G	24.5 - 26.0	24.5 - 26.0	1.5	WH-WH-WH
- 26 - 27									26.0/29.0-	SS17E	26.0 - 27.5	26.0 - 27.5	1.4	WR-WR-WR_
- 28									20190314	SS18E	27.5 - 29.0	27.5 - 29.0	1.5	3-1-3
- 29 - 30										SS19G	29.0 - 30.5	29.0 - 30.5	1.5	3-2-1
- 31										SS20aG	30.5 - 31.5	30.5 - 32	1.5	WH-WH-2
- 32									31.5/33	SS20bE	31.5 - 32.0	2.0		-
- 33									3.5-20190314	SS21E	32.0 - 33.5	32.0 - 33.5	1.5	2-1-2
- 34										SS22G	33.5 - 35.0	33.5 - 35.0	1.5	3-1-1
- 35 - 36										SS23G	35.0 - 36.5	35.0 - 36.5	1.5	WH-WH-WH_
- 37									36.5/38.5-	SS24E	36.5 - 38.0	36.5 - 38.0	1.5	WH-WH-WH
- 38									20190319	SS25aE	38.0 - 38.5		-	_
- 39									19	SS25bG	38.5 - 39.5	38.0 - 39.5	1.5	WH-WH-WH_
- 40	39.9 40.5	1071.9 1071.3				LEAN CLAY WITH GRAVEL, CL, 5YF				SS26G	39.5 - 41.0	39.5 - 41.0	1.5	4-12-23 —
- 41	red), low to medium plasticity, hard,							ST02G	41.0 - 41.8	.0 41.0 - 41.	0.8	1000		
- 42	42											11.8		_



Page: 3 of 3

Client Borehole ID N/A	Stantec Boring No. JSF-TW10							
Client Tennessee Valley Authority	Boring Location		50 N; 2,886,886.30	E NAD27	Plant Local			
Project Number 175568225	Surface Eleva	ition <u>1111.8 ft</u>	Elevation	Datum_r	NGVD29			
Lithology	Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI			
Depth Ft ³ Elevation Graphic Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %			
42.7 1069.1 SANDY LEAN CLAY, CL, 10YR 5/6 and 10YR 2/1 (black), low plasticity,	·• /	SS27G	41.8 - 42.7	0.9	31-50/5"			
iron oxide staining, laminated (Coni Shale fragments in tip of spoon at 42	tinued)		7		_			
Refusal / Bottom of Hole at 42.7 Ft.					_			
Top of Rock = 42.7 Ft. Top of Rock Elevation = 1069.1 Ft.					_			
Temporary well JSF-TW10 installed. See well	installation log for ba	ackfill details.			-			
1: E = Environmental Sample Custody (two S G = Geotechnical Sample Custody				e)	=			
2: a,b,c denote Split Spoon divided between E 3: Depths are reported in feet below ground s	environmental and G urface	eotechnicai Sai	nples					
					_			
					_			
					_			
					_			
					_			
					_			
					_			
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					_			
					_			



Client Borehole ID N/A	Stantec Boring No								
Client Tennessee Valley Authority	Boring Locati	on	733,552.4	46 N; 2,887,639	9.90 E	E NAD27	Plant Local		
Project Number 175568225	Surface Eleva	atior	1108.7 ft	Elevation	on D	atum_ <u>r</u>	NGVD29		
Project NameJSF TDEC Order	Date Started3/21/19 Completed3/26/19								
Project Location Hawkins Co, Rogersville, Tennessee	Depth to Water9.3 ft Date/Time3/21/19 15:57								
Inspector M. Pritt Logger C. Sexton	Depth to WaterN/A Date/TimeN/A								
Drilling Contractor Stantec Consulting Services Inc.	Drill Rig Type and ID CME 55T#2, #711								
Overburden Drilling and Sampling Tools (Type and Size	· ————————————————————————————————————	SS v	v/o liners, 3	" Shelby Tubes	•				
Rock Drilling and Sampling Tools (Type and Size) <u>N</u> Overdrill Tooling (Type and Size) 8-1/4" HSA	/A			Overdril	l Do	nth 3	31.0 ft		
Sampler Hammer Type Automatic Weight 140) lb Drop	30"		Overdrii Efficiency		рш <u> </u>)1.0 IL		
Borehole Azimuth N/A	Borehole Incl			•	N/A				
Reviewed By K. Carey	Approved By		P. Dunne	vertical)		•			
				D 11 E13		Б E.I			
Lithology	Overburden:	_	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI		
Depth Ft ³ Elevation Graphic Description	Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %		
0.0 1108.7 Top of Hole 0.1 108.6 Topsoil		+					_		
	OVD 4/4 (doub		SS01G	0.0 - 1.5	0.0 - 1.	1.5	7-9-8		
SILTY SAND WITH GRAVEL, SM, 1 1.6 1107.1 yellowish brown) to 10YR 7/8 (yellow		1.5/			5				
- 2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		2.8-20190	SS02aE	1.5 - 2.8	1.5-	1.5	9-11-13		
2.8 1105.9 \staining, blocky, [FILL]		190321	SS02b	2.8 - 3.0	3.0	1.0	0 11 10		
The state of the s	` '				3.0				
- 4	-		SS03G	3.0 - 4.5	- 4.5	1.4	7-11-15		
SILT WITH SAND, ML, N 3/ (very da			SS04G	4.5 - 6.0	1.5 - 6.0	1.5	9-12-14		
non-plastic, firm to hard, moist to we	t, slight organic		SS05aG	6.0 - 6.5			-		
		6.5			6.0 - 7	1.5	7-8-8		
- 7		/8.5-20	SS05bE	6.5 - 7.5	.5		-		
- 8		19032	SS06aE	7.5 - 8.5	7.5	1.5	5-3-3		
			SS06bG	8.5 - 9.0	9.0	1.5	3-3-3		
9 					9.0		_		
- 10 40 5 4000 0			SS07G	9.0 - 10.5	9.0 - 10.5	1.5	3-2-3		
10.5 1098.2	ark araw)	1			_				
non-plastic, very soft to soft, wet, sli			SS08aG	10.5 - 11.5	0.5 - 12	1.5	WH-WH-1		
- 12 stratified, [CCR]		11.5/13	SS08bE	11.5 - 12.0	2.0		-		
		3.5-201	SS09E	12.0 - 13.5	12.0-	1.5	WH-1-1		
- 13 13.5 1095.2		90321	33332	.2.0	13.5				
_ ₁₄ SILT, ML, N 3/ (very dark gray), non							-		
to soft, wet, slight organic odor, strat	ified, [CCR]		ST01G	13.5 - 15.5	3.5 - 16	1.0	400		
- 15					5		_		
_ 16			SS10aG	15.5 - 16.5	15.5-				
		6.5/18	SS10bE	16.5 - 17.0	- 17.0	1.5	WH-1-1		
- 17		.5-2019	COTOBL	10.0 - 17.0	17.0-		-		
		90322	SS11E	17.0 - 18.5	- 18.5	1.5	2-1-1		



CI	lient E	Borehole	ID _	N/A	<u> </u>	Stantec Boring No. JSF-TW11							
CI	lient		Те	nnes	see Valley Authority	Boring Location	on	733,552.4	46 N; 2,887,639	9.90	E NAD27	Plant Local	
Pr	oject	Number	_17	5568	225	Surface Eleva	atior	1108.7 ft	Elevatio	on E	atum_	NGVD29	
	l	_ithology				Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Dept	h Ft³	Elevation	Gra	phic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
	ا	Lithology			Description SILT, ML, N 3/ (very dark gray), non-plato soft, wet, slight organic odor, stratifier (Continued) CLAYEY GRAVEL WITH SAND, GC, 1	Overburden: Rock Core: astic, very soft od, [CCR]		Sample ^{1,2}	Depth Ft ³	n 18.5-20.0 20.0-21.5 21.5-23.0 23.0-24.5 24.5-26.0 26.0-27.5 27.5-29.0 29.0-30.5 30.5-32.0 32.0-	Rec. Ft	Blows/PSI	
- 33	33.2	1075.5	1	# <i>#</i>	(yellowish brown) and 10YR 2/1 (black) ¬ plasticity, hard, moist, iron oxide stainir	ng /				32		_	
					Shale fragments in tip of spoon at 33.2 Refusal / Bottom of Hole at 33.2 Ft.							-	
												_	
												=	
			T	empo	orary well JSF-TW11 installed. See well in	stallation log for b	ackf	ill details.				-	
			1:		Environmental Sample Custody (two Split Geotechnical Sample Custody	Spoons may be	requ	ired to obta	in sufficient sar	nple))	-	
			2: 3:	a,b,	c denote Split Spoon divided between Enviths are reported in feet below ground surf	vironmental and G ace	Seote	echnical Sa	mples			_	
												_	



С	lient E	Borehole	ID	_	N/A	4	Stantec Boring No. JSF-TW12							
С	lient		Т	er	nnes	ssee Valley Authority	Boring Locati	ion	732,773.	07 N; 2,889,531	1.81 E	NAD27	Plant Local	
Р	roject	Number	1	75	5568	3225	Surface Eleva	atio	n <u>1141.9 ft</u>	Elevatio	on D	atum_r	NGVD29	
Р	roject	Name	J			DEC Order	Date Started3/27/19 Completed3/27/19							
	•	Location		_	На	wkins Co, Rogersville, Tennessee	Depth to Water N/A Date/Time N/A							
	•	or M. Pr				Logger M. Edmunds	Depth to WaterN/A Date/TimeN/A							
	-					antec Consulting Services Inc.	Drill Rig Type and ID CME 55T#2, #711							
				_		Sampling Tools (Type and Size	· ————————————————————————————————————	SS	w/o liners, 3	" Shelby Tubes	-			
		_				lling Tools (Type and Size) <u>N/A</u> and Size) 8-1/4" HSA	N/A Overdrill Depth 21.1 ft							
		_	•	•		Automatic Weight 140	lb Drop	30"		Gverann		Рит <u>-</u> V/A		
	•	le Azimut		·y	PC	N/A	Borehole Incl		ion (from	•	N/A			
		ed By		K.	. Ca	arey	Approved By		P. Dunne					
		_ithology					Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Den	th Ft ³	Elevation	Gr	an	hic	Description	Rock Core:	+	RQD %	Run Ft		Rec. Ft	Rec. %	
	0.0	1141.9	Oi	ар	1110	Top of Hole	TOOK COIC.		TOOD 70	Ruiii	П	1100.11	1100. 70	
- 0	0.0			\overline{Z}	\overline{Z}	SILTY LEAN CLAY TRACE SAND, C	L, 7.5YR 5/4		SS01aG	0.0 - 1.0	0			
- 1	1.0	1140.9		/	4	(brown) to 7.5YR 4/4 (brown), non-pla	stic to low				0-1.5	1.4	4-8-17	
						\plasticity, medium stiff to stiff, moist, [SS01bE	1.0 - 1.5				
- 2						SANDY SILT, ML, 5YR 2.5/1 (black), to firm, moist, medium to coarse sand		1.0/4.5	SS02E	1.5 - 3.0	1.5 - 3	1.3	6-9-13	
- 3						[CCR]	partieles,	-20190					-	
								1327	SS03E	3.0 - 4.5	3.0 -	1.5	4-3-2	
- 4											4.5		_	
- 5													_	
									ST01G	4.5 - 6.5	.5 - 6.5	1.3	200	
- 6													_	
- 7	7.0	1134.9		\coprod				6.5/8.5	SS04E	6.5 - 8.0	6.5	1.5	- 1-1-1	
						SILT, ML, 5YR 3/1 (very dark gray) to (black), non-plastic to low plasticity, so		5-20190	3304E	0.5 - 6.0	8.0	1.5	1-1-1	
- 8						[CCR]	,	1327	SS05aE	8.0 - 8.5	8.0		_	
- 9						Trace clay from 7.0' to 8.0'	1.6		SS05bG	8.5 - 9.5	8.0 - 9.5	1.5	2-1-WH _	
40						Trace poorly graded, medium to coars 8.0' to 13.8'	e gravel from							
- 10									ST02G	9.5 - 11.5	9.5-1	0.0	500	
- 11											1.5		-	
40								11.5						
- 12								/13.5-2	SS06E	11.5 - 13.0	.5 - 13.	1.5	2-1-1	
- 13								019032	SS07aE	13.0 - 13.5	0		-	
44	13.8	1128.1	Ш	\coprod	4			27			13.0 - 1	1.5	4-WH-WH	
- 14						SANDY SILT, ML, 5YR 3/1 (very dark 2.5/1 (black), non-plastic, soft to hard,			SS07bG	13.5 - 14.5	4.5		_	
- 15						medium to coarse gravel, [CCR]	wei, iface				1		_	
_ 10									ST03G	14.5 - 16.5	5 - 16.5	2.0	500	
- 16								16.5/1					_	
- 17								8.5-20	SS08E	16.5 - 18.0	16.5-	1.5	WR-5-12	
40	18.0	1123.9						190327	22002		18.0		0 12	



Page: 2 of 2

Stantec Boring No. JSF-TW12 Client Borehole ID N/A Client **Boring Location** 732,773.07 N; 2,889,531.81 E NAD27 Plant Local Tennessee Valley Authority Project Number 175568225 Surface Elevation 1141.9 ft Elevation Datum NGVD29 Sample^{1,2} Lithology Overburden: Depth Ft3 Rec. Ft Blows/PSI Depth Ft³ Elevation Rock Core: RQD % Rec. Ft Graphic Run Ft Rec. % Description 18 SS09aE 18.0 - 18.5 SILTY SAND WITH GRAVEL, SM, 5YR 3/1 (very 1.5 6-6-3 dark gray) to 5YR 2.5/1 (black), non-plastic, soft, SS09bG 19 18.5 - 19.5 moist to wet, trace medium to coarse gravel, [CCR] 20 ST04G 19.5 - 21.5 1.8 400 21 22.1 1119.8 22 SS10G 21.5 - 23.0 1.5 33-48-12 Shale, gray to dark gray, very fine grained, soft, laminated to thin bedded, slightly weathered to 23 moderately weathered, 15° to 30° bedding angle, **SS11G** 23.0 - 23.8 8.0 27-50+/4" 23.8 1118.1 transitions to competent shale Refusal / Bottom of Hole at 23.8 Ft. Top of Rock = 22.1 Ft. Top of Rock Elevation = 1119.8 Ft. Temporary well JSF-TW12 installed. See well installation log 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

APPENDIX B.4

PIEZOMETERS

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Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	В	BA-2	Total Dept	h_ 50.5 ft
County		Hawkins			Surface Elev	vation	114	45.9 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	d 3	/25/09	Completed	3/26/09
Supervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Wa	ater 3	4.5 ft	Date/Time	3/26/09
Logged	Ву	A. Davis			Depth to Water			Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1145.9	0.0	Top of Hole							Boring
1145.3 - -	_0.6	SOIL 3: Bottom Ash, gray gray, moist, mediu		SPT-1	0.0 - 1.5 1.5 - 3.0	0.6 1.1	10-12-4 6-10-19	13 16	advanced with 4 - 1/4 I.D. Hollow
-		dense, medium to	very						Stem Augers _
-		coarse grained, posorted	porty	SPT-3	3.0 - 4.5	0.4	8-10-14	13	-
		SOIL 1:		SPT-4	4.5 - 6.0	8.0	9-8-9	15	Installed – Piezometer with _
-		Lean Clay with Sa Gravel, light brow	n to	SPT-5	6.0 - 7.5	1.2	7-11-11	19	10' of slotted screen at 40.1'
-		brown with occasi mottling, damp to medium stiff to ve	moist,	SPT-6	7.5 - 9.0	1.3	4-8-11	16	and 30.1' of riser- protected with
-		with occasional		SPT-7	9.0 - 10.5	1.2	4-8-5	24	flushmount manhole set in
-		manganese concr and silty zones	etions	SPT-8	10.5 - 12.0	0.5	13-14-11	18	concrete pad Boring backfilled _
-				SPT-9	12.0 - 13.5	1.2	3-4-5	24	from 0' to 50.5' with well
-				SPT-10	13.5 - 15.0	1.1	3-7-10	15	installation – materials. –
-				SPT-11	15.0 - 16.5	1.5	4-5-5	21	-
-					16.5 - 18.0	1.3	4-6-6	25	-
1126.4	19.5			SPT-13	18.0 - 19.5	1.1	2-3-4	21	-
-		SOIL 10: Lean Clay, light br			19.5 - 21.0	1.2	3-4-6	28	_
-		brown, moist, stiff with rare mangane		SPT-15	21.0 - 22.5	1.4	5-10-13	25	-
5		concretions		SPT-16	22.5 - 24.0	1.2	4-6-7	27	_
_				SPT-17	24.0 - 25.5	1.4	3-6-11	28	_
_				SPT-18	25.5 - 27.0	1.5	6-12-12	33	-
				SPT-19	27.0 - 28.5	1.5	6-12-17	29	- -
_				SPT-20	28.5 - 30.0	1.5	5-10-13	28	-
_				SPT-21	30.0 - 31.5	0.8	22-26-13	29	-
				SPT-22	31.5 - 33.0	1.5	5-12-10	21	_
				SPT-23	33.0 - 34.5	1.1	5-9-8	21	-
 1109.9	36.0			SPT-24	34.5 - 36.0	1.1	5-7-6	24	- -
			TANTECC		 ΓING SERVI	CES INI		I	1/23/10



Project N	Number	175569038			Location Rogersville, TN					
Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	B	A-2	Total Depth	50.5 ft	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
-		Shale, brown to gi	ray, soft	SPT-25	36.0 - 37.5	1.5	6-19-27	27	-	
-		to moderately hard thin bedded, wate	derately hard, very gedded, water stained,	SPT-26	37.5 - 39.0	0.9	6-19-29	29	- -	
_		heavily weathered (augered) (Conti		SPT-27	39.0 - 40.5	1.4	5-10-10	34	_	
-		(auguru) (aum		SPT-28	40.5 - 42.0	0.8	5-10-18	28	-	
_				SPT-29	42.0 - 43.5	0.8	6-8-11	24	-	
-				SPT-30	43.5 - 45.0	1.0	4-5-8	26	-	
-				SPT-31	45.0 - 46.5	0.9	5-10-12	23	-	
-									-	
-									-	
1095.4	50.5			SPT-32	50.0 - 50.5	0.5	50+	2	_	
-		No Refusal / Bottom of Hole							-	
-		Top of Rock = 36.	0						-	
- -		Elevation (1109.9))						- -	
-									-	
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									1/23/10	



Project I	Number	175569038			Location	R	ogersville	, TN		
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	B	BA-3	Total Dept	h37.1 ft	
County	_	Hawkins			Surface Elev	vation	114	45.3 ft		
Project ⁻	Туре	Geotechnical Explo	oration		Date Started	d3	/31/09	Completed	3/31/09	
Supervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Wa	ater 3	1.5 ft	Date/Time	3/31/09	
Logged	Ву	A. Davis			Depth to Wa	ater		Date/Time		
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
1145.3	0.0	Top of Hole							Boring	
1145.2	0.1	DGA + Soil 1		SPT-1	0.0 - 1.5	0.7	3-3-3	20	advanced with 3 -	
-		SOIL 1: Lean Clay with Sa		SPT-2	1.5 - 3.0	0.7	3-6-9	16	1/4 I.D. Hollow _ Stem Augers _	
-		brown with occasi	Gravel, light brown to brown with occasional gray nottling, damp to moist,		3.0 - 4.5	1.1	5-8-8	18	_	
		medium stiff to ha	rd, with	SPT-4	4.5 - 6.0	0.9	5-7-9	20	Installed – Piezometer with _–	
-		occasional manga concretions and s		SPT-5	6.0 - 7.5	1.0	6-7-11	17	10' of slotted screen at 34.8'	
<u> </u>				SPT-6	7.5 - 9.0	1.0	6-8-11	23	and 24.8' of riser protected with	
F				SPT-7	9.0 - 10.5	0.9	8-14-14	16	flushmount manhole set in	
-				SPT-8	10.5 - 12.0	0.7	8-23-20	15	concrete pad Boring backfilled _	
-				SPT-9	12.0 - 13.5	0.4	7-13-10	23	from 0' to 37.1' with well	
-				SPT-10	13.5 - 15.0	0.6	9-14-14	24	installation - materials	
1128.8	16.5			SPT-11	15.0 - 16.5	1.3	8-15-15	21	Rock in Spoon Tip	
-		SOIL 10: Lean Clay, light bi	rown to	SPT-12	16.5 - 18.0	1.1	20-19-17	28	- -	
-		brown, damp to m to hard, with rare		SPT-13	18.0 - 19.5	0.1	7-6-8	19	Rock in Spoon	
-		manganese concr	etions	SPT-14	19.5 - 21.0	1.5	7-10-12	34	Tip	
-				SPT-15	21.0 - 22.5	1.4	6-7-12	31	_	
17.33/10				SPT-16	22.5 - 24.0	1.3	7-11-12	30	_	
HIC LOG.6E				SPT-17	24.0 - 25.5	1.5	4-9-15	27	_	
ASM-GRAPH				SPT-18	25.5 - 27.0	0.7	5-20-22	29	_	
EAS.GPJ FI				SPT-19	27.0 - 28.5	1.3	14-15-17	27	=	
SPOSAL AR				SPT-20	28.5 - 30.0	1.5	4-9-11	28	- -	
ER ASH DIS				SPT-21	30.0 - 31.5	0.4	5-8-15	26	<u>-</u>	
MSM, LEGACY JOHN SEVIER ASH DISPOSAL AREAS GPJ. FAISM-GRAPHIC LOCK GDT				SPT-22	31.5 - 33.0	1.5	20-25-27	29	 -	
/_LEGACY				SPT-23	33.0 - 34.5	0.5	5-12-13	34	_	
INTEC/FMSN				SPT-24	34.5 - 36.0	0.9	5-10-12	29	-	
ŠĽ.			TANTEOO	0110111	ING SERVI				1/23/10	





Pr	oject N	Number	175569038			Location	R	ogersville	e, TN		
Pr	oject N	Name	John Sevier Ash D	isposal Area	as	Boring No.	В	8 A-8	Total Dept	h40.2 ft	
Co	ounty	_	Hawkins			Surface Ele	vation	114	45.2 ft		
Pr	oject 7	Туре	Geotechnical Explo	oration		Date Started	d4	/3/09	Completed	4/3/09	
Su	upervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Wa	ater 3	1.5 ft	Date/Time4/3/09		
Lo	ogged	Ву	A. Davis			Depth to Wa	ater		Date/Time		
	Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
_	/ation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
_ 114	45.2	0.0	Top of Hole							Boring	
+			SOIL 1: Lean Clay with Sa	and and	SPT-1	0.0 - 1.5	0.9	2-2-4	23	advanced with 3 -	
-			Gravel, light brown brown with occasi	n to	SPT-2	1.5 - 3.0	1.0	3-4-4	21	1/4 I.D. Hollow _ Stem Augers _	
-			mottling, damp to medium stiff to ha	moist, rd, with	SPT-3	3.0 - 4.5	0.5	3-5-6	28	_	
			occasional manga concretions and s		SPT-4	4.5 - 6.0	1.0	7-9-11	26	Installed — Piezometer with _	
-			zones.	,	SPT-5	6.0 - 7.5	1.5	4-8-15	25	10' of slotted screen at 34.5'	
-					SPT-6	7.5 - 9.0	1.2	5-8-14	24	and 24.5' of riser – protected with	
F				8			1.5	7-14-10	19	flushmount manhole set in	
-			5		SPT-8	10.5 - 12.0	1.5	7-6-11	24	concrete pad Boring backfilled _	
}						12.0 - 13.5	1.2	7-11-12	23	from 0' to 40.2' with well	
					SPT-10	13.5 - 15.0	1.3	8-8-10	26	installation - materials	
-					SPT-11	15.0 - 16.5	0.7	7-8-9	23	_	
t					SPT-12	16.5 - 18.0	0.5	7-13-23	22	_	
112	25.7	19.5			SPT-13	18.0 - 19.5	1.0	14-22-19	8	_	
			SOIL 10: Lean Clay, light bi	rown to	SPT-14	19.5 - 21.0	1.2	9-13-12	16		
-			brown, moist, very with rare mangane	/ stiff,	SPT-15	21.0 - 22.5	1.5	9-12-12	40	_	
T 1/23/10			concretions		SPT-16	22.5 - 24.0	1.5	7-11-18	32	_	
111 <u>- 11</u> 1	19.7	25.5			SPT-17	24.0 - 25.5	1.5	5-10-20	31	_	
ISM-GRAPH			Shale, brown to go to moderately hard		SPT-18	25.5 - 27.0	1.5	7-13-15	29	_	
EAS.GPJ F)			thin bedded, wate heavily weathered	r stained,	SPT-19	27.0 - 28.5	1.5	11-25-30	26	<u>-</u>	
POSAL ARE			-		SPT-20	28.5 - 30.0	1.1	7-9-14	28	_	
ER ASH DIS			SPT		SPT-21	30.0 - 31.5	1.3	7-13-15	27	-	
JOHN SEVII										=	
LEGACY										-	
TEC/FMSM	- SPT-2			SPT-22	35.0 - 36.5	1.4	11-15-16	27	_		
STAN	STANTEC CONSU								-	1/23/10	



Project I	Number	175569038			Location	R	ogersville	e, TN	
Project I		John Sevier Ash D	isposal Are	as	Boring No.		A-8	Total Depth	40.2 ft
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
<u> </u>									-
									-
_ 1105.0	40.2			CDT 22	40.0 - 40.2	0.2	5 0+	5	_
		No Refusal /		-3F 1-23	' 40.0 - 40.2	- 0.2			_
-		Bottom of Hole							_
-		Top of Rock = 25.	5						-
-		Elevation (1119.7)						-
-									_
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Project I	Number	175655042		Location		755376.79	N, 286056	7.51 E	
Project I	Name	JSF Bottom Ash Po	ond		Boring No.		BA-11	Total Depth	n29.5 ft
County	_	Hawkins County, T	ennessee		Surface Ele	vation_	114	45.9 ft	
Project ⁻	Туре	Geotechnical Explo	oration		Date Started	8 b	/23/16	Completed	8/23/16
Supervis	sor	C. Branson Dri	iller T. Cau	dill	Depth to Wa	ater 2	7.5 ft	Date/Time	8/23/16
Logged	Ву	C. Branson			Depth to Wa	ater N	/A	Date/Time	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1145.9	0.0	Top of Hole							_
1145.4	0.5	GRAVEL							-
- - -		FILL: FAT CLAY v (CH), brown, mois very stiff							- -
- - -				SPT-1	4.5 - 6.0	1.5	2-5-6	22	- - -
- - - -		- River gravel	SPT-2	9.5 - 11.0	1.5	6-8-10	19	Composite (4.5' - 16.0') LL = 50 PL = 24	
- - - -				SPT-3	14.5 - 16.0	1.5	4-6-8	25	- - - -
1125.9 - - -	20.0	RESIDUAL: LEAN (CL), brown, mois manganese concrand highly weather	t, stiff, etions	SPT-4	19.5 - 21.0	1.5	3-4-6	36	- - - -
1121.0	24.9	shale fragments throughout SHALE, gray		SPT-5	24.5 - 24.9	0.4	50+/0.4'	26	-
1116.4	29.5	-							- - -
		No Refusal / Bottom of Hole							LL = Liquid Limit— PL = Plastic Limit
		Top of Rock = 24. Elevation (1121.0)							- -
		Vibrating wire piez	zometer inst	talled at	27.5 foot dep	th.			- - -
				ting Services	lno			10/27/16	



Projec	ct Number	175655042		Location		754707.17	N, 286064	9.95 E	
Projec	ct Name	JSF Bottom Ash Po	ond		Boring No.		3A-15	Total Depth	n 26.0 ft
Count	ty	Hawkins County, T	ennessee		Surface Ele	vation_	114	45.7 ft	
Projec	ct Type	Geotechnical Explo	oration		Date Started	 d b	3/24/16	Completed	8/24/16
Super	visor	C. Branson Dri	iller T. Cau	dill	Depth to Wa	ater 2	22.7 ft	Date/Time	8/24/16
Logge	ed By	C. Branson			Depth to Wa	ater N	N/A	Date/Time	N/A
Lith	nology		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	n Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1145.7		Top of Hole							
1145.1	0.6	GRAVEL		_					
- - - -		FILL: SANDY LEA (CL), brown with occasional gray m moist, medium stif	ottling,	SPT-1	4.5 - 6.0	1.5	2-3-6	23	- - - -
- - - -		- Black organics w Manganese concr from 9.5' to 11.0'	SPT-2	9.5 - 11.0	1.2	8-3-3	16	Composite (4.5' - 16.0') LL = 35 PL = 18	
- - -		- Sandstone rocks 14.5' to 16.0'	s from	SPT-3	14.5 - 16.0	1.5	3-3-7	21	- -
1125.7 1125.7 	20.0	- Wet from 19.0' to SHALE, gray, high weathered		SPT-4	19.5 - 21.0	1.5	2-2-4	30	Composite (19.5' - 26.0') LL = NP
- 1119.7	26.0			SPT-5	24.5 - 26.0	0.3	12-19-21	9	PL = NP _
ANTECHASAL LEGACY 178956022, LSF BAP, BORRINGS GPD F MSM-GBAPHOLOO	No Refusal / Bottom of Hole Top of Rock = 20.0 Elevation (1125.7) Vibrating wire piezometer installed					oth.			LL = Liquid Limit PL = Plastic Limit NP = Non Plastic



Project N County Project T Supervis Logged I	- Type ₋ sor ₋	JSF Bottom Ash Po Hawkins County, T Geotechnical Explo			Boring No.	B	Δ-16	Total Depti	n 31.0 ft
Project T Supervis	sor _		ennessee		Boring No BA-16 Total D				1 01.0 It
Supervis	sor _	Geotechnical Explo			Surface Elev	vation_	114	43.2 ft	
· ·	-		oration		Date Started	d 8/	24/16	Completed	8/24/16
Logged F	- Bv	C. Branson Dr	iller T. Cau	dill	Depth to Wa	ater 19	9.7 ft	Date/Time	8/24/16
	_,	C. Branson / R. Fu	ller		Depth to Wa	ater N	/A	Date/Time	
Litholog	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1143.2	0.0	Top of Hole							
- - -		FLY ASH with Gra Clay, gray, dry to very soft to mediu	moist,						Shale boulder
- - -				SPT-1	4.5 - 6.0	1.5	6-4-5	19	(Augered) from 3.0' to 4.0'
- - -		-Wet starting at 9.	0'	SPT-2	9.5 - 11.0	1.5	1-1-1	32	Initial free water at 9.0'
- - -									Composite (4.5' - 21.0') LL = NP PL = NP
- - -				ST-1	14.5 - 16.5	2.0			-
- - -				SPT-3	19.5 - 21.0	1.5	1-2-2	28	-
1119.6	23.6	RESIDUAL: LEAN with Sand (CL), br gray, moist, stiff to stiff, saturated at 2	rown and o very 23.6',	SPT-4	24.5 - 26.0	1.5	3-5-6	21	- Composite
1112.4	30.8	rock at 23.6' to 23	.8'	SPT - 5	29 . 5 - 31.0	1 . 5	6-8-13	22	(24.5' - 31.0') LL = NP PL = NP
1112.2	\31.0/	SHALE, gray and highly weathered No Refusal /	brown,	1					LL = Liquid Limit PL - Plastic Limit NP = Non Plastic
		Bottom of Hole	0						-
		Top of Rock = 30. Elevation (1112.4)							10/27/



Project l	Number	175655042			Location	7	55237.07	7 N,2860585 . 2	7 E
Project l	Name	JSF Bottom Ash F	Pond		Boring No.	В	A-16	Total Depth_	31.0 ft
Litholo	2011		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
		5		1					Б
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
									_
_									
_		Vibrating wire pie	ezometer inst	talled at	24.0 foot dep	oth.			-
_									-
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Project I	Number	175655042			Location	7	755007.34	N, 286061	3.66 E	
Project I	Name	JSF Bottom Ash Po	ond		Boring No.	Е	BA-17	Total Dept	h 30.5 ft	
County		Hawkins County, T	ennessee		Surface Ele	vation	114	47.3 ft		
Project ⁻	Туре	Geotechnical Explo	ration		Date Started	d 8	/25/16	Completed	8/25/16	
Supervis	sor	C. Branson Dri	ller <u>T. Cau</u>	dill	Depth to Wa	ater 1	6.5 ft	Date/Time	8/25/16	
Logged	Ву	C. Branson			Depth to Wa	ater N	I/A	Date/Time	N/A	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	_
1147.3 	0.0	Top of Hole BOTTOM ASH, gramoist, very loose, grained	coarse							-
- - - -		- Moist to wet at 8.		ST-1	9.5 - 11.5	2.0				-
- - - -		- Moist to wet at 13	3.0'	SPT-1	14.5 - 16.0	1.5	2-1-1	28	Initial free wate at 16.0' Composite (14.5 - 21.0')	- er - -
- - - -				SPT-2	19.5 - 21.0	1.5	WOH-1-1	22	LL = NP PL = NP	-
1122.8	24.5			-						1
 _ 1121.2 _ - -	26.1	FLY ASH, gray, mostiff, fine grained - Dry at 25.5' SHALE, brown and highly, weathered		SPT-3		1.5	3-8-11	27	LL = NP PL = NP	
1116.8	30.5			SPT-4	29.5 - 30.0	0.0	50+/0.5'			\exists
- - - -		No Refusal / Bottom of Hole Top of Rock = 26. Elevation (1121.2) Vibrating wire piez Sondex Locations:		alled at	25.0 foot dep e seam, botte	oth. om mag	net center	red 6" from b	LL = Liquid Lin PL = Plastic Lin NP = Non Plas WOH = Weigh of Hammer	mit∟ tic
		THUR UP	Ctanta	Conqui	ting Services	Inc			10	/27/1



Project I	Number	175655042		Location		755187.87	N, 286108	5.06 E	
Project I	Name	JSF Bottom Ash Po	ond		Boring No.	E	3 A- 18	Total Depth	141.0 ft
County		Hawkins County, T	ennessee		Surface Ele	vation_	114	18 . 3 ft	
Project ²	Туре	Geotechnical Explo	oration		Date Started	8 t	/25/16	Completed	8/25/16
Supervi	sor	C. Branson Dr	iller <u>T. Cau</u>	dill	Depth to Wa	ater 2	0.0 ft	Date/Time	8/25/16
Logged	Ву	C. Branson			Depth to Wa	aterN	I/A	Date/Time	N/A
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1148.3	0.0	Top of Hole							_
- - - - -		BOTTOM ASH, gr moist, very loose, grained, coal fragr throughout	coarse	ST-1	4.5 - 6.5	2.0			- - - - -
- - - -				ST-2	9.5 - 11.5	2.0			- - - - -
- - - -				SPT-1	14.5 - 16.0	1.5	2-1-2	31	Composite - (14.5' - 26.0') _ LL = NP PL = NP
- - -				ST-3	19.5 - 21.5	2.0			K = 6.1E-5 cm/s - Initial free water — at 20.0'
NOMESPARTIC LOCATOR INTERIOR				SPT-2	24.5 - 26.0	1.5	1-WOH- WOH	60	- - - -
1117.6	30.7	RESIDUAL: LEAN (CL), brown, mois		SPT-3	29.5 - 31.0	1.5	WOH-2-2	49	- - - - -
- 1112.8	35.5			ST-4	34.5 - 36.5 tina Services	1.5			10/27/16



Project	Number	175655042			Location	7	755187.87	N, 2861085.06 E		
Project	Name	JSF Bottom Ash Po	ond		Boring No.	В	A-18	Total Dept	h41.0 ft	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
		SHALE, gray, high weathered <i>(Cont</i>							LL - ND	
1107.3	41.0			SPT-4	39.5 - 41.0	1.5	20-8-10	18	LL = NP PL = NP	
		No Refusal / Bottom of Hole Top of Rock = 35. Elevation (1112.8) Vibrating wire piez Sondex = 46.2' sla 3 magnets placed)	talled at (neter pipe eam, bott	35.3 foot depe om magnets	oth.	d 6" from	bottom	LL = Kiquid Lim PL = Plastic Lin K = Hydraulic Conductivity NP = Non Plast WOH = Weight of Hammer	



Project N	Number	175655042			Location	7	755351.07	N, 286149	7.79 E
Project N	Name -	JSF Bottom Ash P	ond		Boring No.	E	3A-19	Total Dept	h 41.0 ft
County	-	Hawkins County, T	ennessee		Surface Ele	vation	 114	45.5 ft	
Project 7	Гуре	Geotechnical Expl	oration		Date Started	8 b	/24/16	Completed	8/24/16
Supervis	sor	C. Branson Dr	iller T. Cau	dill	Depth to Wa	ater 1	7.9 ft	Date/Time	8/24/16
Logged	Ву	C. Branson			Depth to Wa	ater N	I/A	Date/Time	N/A
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1145.5	0.0	Top of Hole BOTTOM ASH, gramoist, very loose coarse grained, cragments through	to loose, oa l	SPT-2 SPT-3	9.5 - 11.0 14.5 - 16.0 19.5 - 21.0	1.5 0.8	5-5-3 2-1-2 WOH-WOH-WOH	17 22 61	Initial free water at 10.5' Composite (9.5' - 26.0') LL = NP PL = NP
SNLIEGACY 17865502_USF_BAP_BORNGS,GRP FNSNAGRAPHC.100s.	35.0			SPT-5	29.5 - 31.0	0.0	WOR- WOR- WOR		- - - - - -
STANTECHMSN	33.0	- Saturated to wet SHALE, gray, wea		SPT-6	34.5 - 36.0	1.5	WOH-5-6	34	



Project Name SF Bottom Ash Pond Boring No. BA-19 Total Depth 41.0 ft	Project	Number	175655042			Location	7	755351 07	7 N 286149	97 79 F
Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth Remarks SHALE, gray, weathered (Continued) SPT-7 39.5 - 41.0 1.5 6-11-14 30 No Refusal / Bottom of Hole Top of Rock = 35.0 Elevation (1110.5) Vibrating wire piezometer installed at 35.5 foot depth. LL = Liquid Lim PL = Plastic Lim PL = Plastic Lim WOR = Weight of Rod WOR = Weight of Rod				ond						
Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth Remarks SHALE, gray, weathered (Continued) SPT-7 39.5 - 41.0 1.5 6-11-14 30 No Refusal / Bottom of Hole Top of Rock = 35.0 Elevation (1110.5) Vibrating wire piezometer installed at 35.5 foot depth. LL = Liquid Lim PL = Plastic Lim PL = Plastic Lim WOR = Weight of Rod WOR = Weight of Rod	Lithol	ogv		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois Cont. %	
SHALE, gray, weathered (Continued) SPT-7 39.5 - 41.0 1.5 6-11-14 30 No Refusal / Bottom of Hole Top of Rock = 35.0 Elevation (1110.5) Vibrating wire piezometer installed at 35.5 foot depth. SPT-7 39.5 - 41.0 1.5 6-11-14 30 LL = Liquid Lim PL = Plastic Lim NP = Non Plast WOH = Weight of Hammer WOR = Weight of Rod			Description							
No Refusal / Bottom of Hole Top of Rock = 35.0 Elevation (1110.5) Vibrating wire piezometer installed at 35.5 foot depth.	- - -		SHALE, gray, wea							Composite - (34.5' - 41.0') _ LL = 44
No Refusal / Bottom of Hole Top of Rock = 35.0 Elevation (1110.5) Vibrating wire piezometer installed at 35.5 foot depth. Vibrating wire piezometer installed at 35.5 foot depth.	1104.5	41.0			SPT-7	39.5 - 41.0	1.5	6-11-14	30	_
	- - - -		Bottom of Hole Top of Rock = 35. Elevation (1110.5)	talled at	35.5 foot dep	oth.			WOR = Weight -
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Project Number		Location	R	Rogersville	, TN			
Project Name	John Sevier Ash Di	sposal Area	as	Boring No.	J	P-03	Total Dept	h35.4 ft
County	Hawkins			Surface Ele	vation_	110	05.8 ft	
Project Type	Geotechnical Explo	oration		Date Started	d5	/12/09	Completed	5/12/09
Supervisor	R. Mehnert Dri	ller G. Tho	mpson	Depth to Wa	ater D	ry	Date/Time	5/12/09
Logged By	R. Mehnert			Depth to Wa	ater		Date/Time	
Lithology		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1105.8 0.0	Top of Hole							Boring
- - - -	SOIL 1: Lean Clay with Sa brown to brown wi occasional gray m damp to wet, medi to hard, with occas	th ottling, ium stiff	SPT-1	0.0 - 1.5	0.9	2-3-5	20	advanced with 3 - 1/4 I.D. Hollow _ Stem Augers _
-	manganese concretions,shale, cobble, and silty zones				1.5	4-5-6	20	Installed – Piezometer with _ 10' of slotted screen at 34.9'
-	BAG-1	6.5 - 11.5				and 24.9' of riser- protected with		
-				10.0 - 11.5	1.5	5-6-9	26	flushmount manhole set in
- - - - -			SPT-4	15.0 - 16.5	1.5	5-7-13	16	concrete pad. – Boring backfilled _ from 0' to 35.4 with well installation — materials
			SPT-5	20.0 - 21.5	0.5	10-17-21	18	- - - -
			SPT-6	25.0 - 26.5	0.5	8-17-17	17	_ - -
			BAG-2	26.5 - 30.0				- -
			SPT-7	30.0 - 31.5	1.1	5-8-7	18	-
1073.2 32.6			SPT-8	31.5 - 33.0	1.4	5-7-13	16	=
1071.1 34.7 1070.4 35.4	SOIL 6: Gravel with Sand, brown to tan, dam	р, _Г	SPT-9 SPT-10	33.0 - 34.5 34.5 - 35.4	0.7 0.9	5-9-21 14-50+	10 13	- - -
_	medium dense to very dense, medium grained,							1/23/10



Project Nu	umber	175569038			Location	Ro	ogersville	e, TN	
Project Na	ame	John Sevier Ash D	isposal Are	as	Boring No.	JF	P-03	Total Depth_	35.4 ft
Lithology	v		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
ANTECHNISM, LEGACY JOHN SEVIER ASH DISPOSAL AREAS GPJ PINSAGARPHICLOS, GDT 123:10		subrounded with a clay. Shale, brown to g to moderately har thin bedded, wate heavily weathered (augered) No Refusal / Bottom of Hole Top of Rock = 34. Elevation (1071.1	ray, soft d, very er stained, d						
ō					TING SERVI				1/23/10



Project Nui	mber_	175569038			Location	R	ogersville	, TN	
Project Na	me _	John Sevier Ash D	isposal Area	as	Boring No.	J	P-04	Total Dept	h47.7 ft
County	_	Hawkins			Surface Elev	vation	110	05.6 ft	
Project Typ	pe _	Geotechnical Explo	oration		Date Started	d5	/12/09	Completed	5/12/09
Supervisor	r _	R. Mehnert Dri	iller G. Tho	mpson	Depth to Wa	ater 4	5.7 ft	Date/Time	5/12/09
Logged By	/ _	R. Mehnert			Depth to Wa	ater		Date/Time	
Lithology			Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation D	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1105.6	0.0	Top of Hole							Roring
- - -		SOIL 1: Lean Clay with Sa brown and gray, of wet, medium stiff the stiff, with shale, gr	damp to to very	SPT-1	0.0 - 1.5	1.1	3-4-2	18	Boring advanced with 3 - 1/4 I.D. Hollow Stem Augers
- - - -				SPT-2 BAG-1	5.0 - 6.5 0.0 - 11.5	1.5	4-8-7	15 	Installed – Piezometer with _ 10' of slotted screen at 46.0' and 36.0' of riser-
- - - -				SPT-3	10.0 - 11.5	1.5	7-7-11	17	protected withflushmount manhole set in concrete padBoring backfilled _from 0' to 47.7
- - -				SPT-4	15.0 - 16.5	1.5	6-7-7	21	with well installation materials
				SPT-5 BAG-2	20.0 - 21.5 20.0 - 25.0	1.1 5.0	9-10-11	17 	- - - -
9	25.7	SOIL 2: Lean Clay with Sa brown to brown, d moist, soft to very silty zones.	amp to	SPT-6 BAG-3	25.0 - 26.5 25.7 - 30.0	1.5	10-12-16	17 	- - - - -
The second secon		•		SPT-7	30.0 - 31.5 31.5 - 33.0	1.5 1.5	7-8-11 10-13-15	21 21	- - - -
- -				SPT-9	33.0 - 34.5	1.4	3-5-5	19	-
- EG				SP1-10	34.5 - 36.0	0.8	2-3-3	20	-
)			TANITEO	ONICL II -	TING SERVI			1	1/23/10



Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name ₋	John Sevier Ash D	isposal Area	as	Boring No.		P-04	Total Depth	n47.7 ft
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
		SOIL 2: Lean Clay with Sa	and dark		36.0 - 37.5	1.0	7-4-5	23	-
-		brown to brown, d moist, soft to very silty zones. (Con	amp to stiff, with		37.5 - 39.0 39.0 - 40.5	1.2 1.2	WoR-1-4 WoR-1-3		- -
		Silty Zories. (Oori	unueu)		40.5 - 42.0 37.5 - 45.0	0.5	2-4-5	24	-
-					42.0 - 43.5	1.0	5-8-9	23	-
- 4000 0	4- 0			SPT-16	43.5 - 45.0	1.5	WoR-2-2	22	- _
1060.0	45.6	SOIL 7:		SPT-17	45.0 - 46.5	1.2	WoR-2-3	21	-
1058.3	47.3 47.7	Sand, light brown √ wet, loose, mediu		SPT-18	46.5 - 47.7	1.2	3-9-50+	19	-
		Shale, brown to go to moderately hard thin bedded, wate heavily weathered (augered) No Refusal / Bottom of Hole Top of Rock = 47. Elevation (1058.3)	ray, soft d, very r stained,						- - - - - - - - - - - - - - - - - - -
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			TANTECO	ONCLIL	TING SERVI				1/23



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	P-05	Total Dept	h45.7 ft
County	_	Hawkins			Surface Ele	vation	110	04.5 ft	
Project ⁻	Туре	Geotechnical Expl	oration		Date Started	d5	/13/09	Completed	5/13/09
Supervis	sor	R. Mehnert Dr	iller G. Tho	mpson	Depth to WaterDry			Date/Time	5/13/09
Logged	Ву	R. Mehnert			Depth to Wa	ater		Date/Time	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
_1104.5	0.0	Top of Hole							Boring
- - -		SOIL 1: Sandy Lean Clay, brown to dark bro occasional gray m damp, medium sti stiff, with gravel, o	wn with nottling, iff to very cobble,	SPT-1	0.0 - 1.5	1.2	3-3-3	21	advanced with 3 - 1/4 I.D. Hollow _ Stem Augers _
- - -		shale, and silty zo	ones	SPT-2	5.0 - 6.5	1.5	5-5-10	17	Installed – Piezometer with _ 10' of slotted screen at 45.7' and 35.7' of riser- protected with _
- - -				SPT-3 BAG-1	10.0 - 11.5 6.5 - 16.5	0.2	6-8-8	18 	flushmount manhole set in concrete pad. Boring backfilled from 0' to 45.7' with well installation
- - -				SPT-4	15.0 - 16.5	0.2	5-6-10	18	materials
6.607 123/10				SPT-5	20.0 - 21.5	1.5	4-7-11	22	- - -
AS.GRJ FMSM-GRAPHICLO				SPT-6	25.0 - 26.5	1.5	3-6-8	22	- - -
SAL ARE				BAG-2	26.5 - 32.0				-
IHN SEVIER ASH DISPC				SPT-7	30.0 - 31.5	1.5	6-8-11	22	- - -
CFMSM_LEGACY JO				CDT C	25.0 20.5	1.2	240	22	- - -
STANTE				SPT-8	35.0 - 36.5	1.3	2-4-8	23	1/23/10



Project N	Number	175569038			Location	R	ogersville	e, TN	
Project N	-	John Sevier Ash D	isposal Area	as	Boring No.		P-05	Total Depth_	45.7 ft
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
- - - -		SOIL 1: Sandy Lean Clay brown to dark bro occasional gray n damp, medium st stiff, with gravel, of shale, and silty zo (Continued)	wn with nottling, iff to very cobble,	BAG-3 SPT-9		0.4	5-6-6	18	- - - - - -
1059.5	45.0			ODT 40	4-0 4		00 =0		_
	45.7	Shale, brown to g to moderately har thin bedded, water heavily weathered (augered) No Refusal / Bottom of Hole Top of Rock = 45 Elevation (1059.5)	rd, very er stained, d	SP1-10	45.0 - 45.7	0.7	30-50+	13	
- - -									- - - -



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	P-06	Total Dept	h42.0 ft
County	_	Hawkins			Surface Elev	vation_	110	06.3 ft	
Project ⁻	Туре	Geotechnical Explo	oration		Date Started	d 5	/13/09	Completed	5/13/09
Supervis	sor	R. Mehnert Dr	iller G. Tho	mpson	Depth to Wa	ater 3	1.4 ft	Date/Time	5/13/09
Logged	Ву	R. Mehnert			Depth to Wa	ater		Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
_1106.3	0.0	Top of Hole							Boring
- - -		Lean Clay with Sa brown to dark bro- occasional gray m damp to moist, me stiff to very stiff, w	SOIL 1: Lean Clay with Sand, light brown to dark brown with occasional gray mottling, damp to moist, medium stiff to very stiff, with gravel, cobble, manganese concretions, and silty zones		0.0 - 1.5	1.3	3-4-4	14	advanced with 3 - 1/4 I.D. Hollow _ Stem Augers _
- - -		concretions, and s			5.0 - 6.5	1.5	5-8-9	19	Installed – Piezometer with _ 10' of slotted screen at 40.6' and 30.6' of riser- protected with _
- - -				BAG-1 SPT-3	6.5 - 15.0 10.0 - 11.5	1.5	5-6-11	 18	flushmount manhole set in concrete pad. Boring backfilled from 0' to 40.6' with well installation
- - -				SPT-4	15.0 - 16.5	1.3	7-5-6	25	materials
3.607 123410				SPT-5	20.0 - 21.5	1.4	4-6-6	26	- - -
TANTECFISM, LEGACY, JOHN BEWIER RSH DISPOSAL AREAGOP, FISM-GRAPHIC LOG, 507 172310				SPT-6	25.0 - 26.5	1.5	2-4-8	23	- - - -
SEVIER ASH DISPO:				BAG-2 SPT-7 SPT-8	26.5 - 34.5 30.0 - 31.5 31.5 - 33.0	1.5 1.2	4-7-9 7-11-14	 22 22	- - -
NHO9 _									
SM_LEGA				SPT-9	33.0 - 34.5	1.5	3-6-9	19	-
MTEC/FMS				SPT-10	34.5 - 36.0	1.5	4-6-8	20	
STA			TANTEOO	0110111	TING SERVI	250 IN			1/23/10



Project N	Number	175569038			Location	R	ogersville	e, TN	
Project N	Name	John Sevier Ash D	isposal Are	as	Boring No.	J	P-06	Total Depth_	42.0 ft
Litholo Elevation	gy Depth	Description	Overburden Rock Core	Sample #	Depth Run	Rec. Ft.	Blows Rec. %	Mois.Cont. %	Remarks
-		·		SPT-11	36.0 - 37.5	0.9	2-2-6	22	
- 1066.7	39.6				37.5 - 39.0	1.5	3-4-8	18	
-1066.3	40.0	SOIL 7: Sand, light brown	to brown		39.0 - 40.5	1.5	3-3-8	23	-
1064.3	42.0	wet, medium dens	se, /_	SP1-14	40.5 - 42.0	1.2	3-4-6	30	
- - - - - -		Shale, brown to g to moderately har thin bedded, water heavily weathered (augered) No Refusal / Bottom of Hole Top of Rock = 40 Elevation (1066.3	ray, soft d, very er stained, d						- - - - -
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Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name	John Sevier Ash D	as	Boring No.	J	S-10	Total Dept	h23.2 ft	
County		Hawkins			Surface Ele	vation	108	35.0 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	d 4	/16/09	Completed	4/16/09
Supervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Wa	ater 2	1.0 ft	Date/Time	4/16/09
Logged	Ву	A. Davis			Depth to Wa	ater		Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1085.0	0.0	Top of Hole							Doring
1084.2	0.8	Topsoil and Clay		SPT-1	0.0 - 1.5	8.0	1-5-7	21	Boring advanced with 3 -
_		Shale (Fragmente	d Fill)	SPT-2	1.5 - 3.0	1.3	12-11-16	14	1/4 I.D. Hollow _ Stem Augers _
1080.5	4.5			SPT-3	3.0 - 4.5	1.0	4-4-6	21	_
		SOIL 2: Lean Clay, light bi	rown to	SPT-4	4.5 - 6.0	1.5	2-4-9	21	Installed – Piezometer with _
-		brown, moist to we hard, with occasion	et, stiff to	SPT-5	6.0 - 7.5	1.0	2-4-6	20	10' of slotted screen at 23.8'
-		manganese concr	etions,	SPT-6	7.5 - 9.0	1.3	11-12-12	20	and 16.8' of riser- protected with
-			-	SPT-7	9.0 - 10.5	1.2	12-7-8	21	steel cover set in concrete pad.
_				SPT-8	10.5 - 12.0	1.5	13-6-9	22	Boring backfilled - from 0' to 24.3'
-				SPT-9	12.0 - 13.5	1.5	9-11-5	21	with well _ installation _
_				SPT-10	13.5 - 15.0	1.5	4-6-7	23	materials Used roller-bit to_
-				SPT-11	15.0 - 16.5	1.0	4-5-7	25	clean out hole
				SPT-12	16.5 - 18.0	1.1	3-5-7	23	_ _
-				SPT-13	18.0 - 19.5	1.5	1-22-33	20	_
_ 1064.0	21.0			SPT-14	19.5 - 21.0	0.4	9-25-15	22	_
1062.5	22.5	SOIL 6: Gravel with Sand,	gray to	SPT-15	21.0 - 22.5	0.5	9-15-18	27	_
<u> 1061.8</u>	23.2	\neg brown to tan, wet,	dense,	SPT-16	22.5 - 23.2	0.7	50+	10	_
1 TG:001 1 -		medium grained, pgraded and subro							_
- APHIC LO		Shale, brown to g							
ASM-GRA		to moderately har	d, very						_
- FK		thin bedded, wate heavily weathered							_
L AREAS		some limestone (a							-
ASH DISPOSY		No Refusal / Bottom of Hole							_
ECHYSM, LEGACY JOHN SEVIER ASH DISPOSAL, AREAS GPJ. PASSAGRAPHIC LOG GDJ.		Top of Rock = 22. Elevation (1062.5							_
<u>I</u> LEGACY		•	•						-
									-
STAN					TING SERVI				1/23/10



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name _.	John Sevier Ash D	isposal Area	as	Boring No.	J	S-23	Total Dept	h17.1 ft
County	_	Hawkins			Surface Ele	vation	107	75.1 ft	
Project ⁻	Гуре	Geotechnical Explo	oration		Date Started	d 4	/16/09	Completed	I 4/16/09
Supervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Water10.5 ft			Date/Time	4/16/09
Logged	Ву	A. Davis			Depth to Water			Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1075.1	0.0	Top of Hole							Boring
-		SOIL 1: Lean Clay, brown,	medum	SPT-1	0.0 - 1.5	1.1	2-3-5	26	advanced with 3 -
-		stiff, to very stiff, of with sand and gra	lamp,	SPT-2	1.5 - 3.0	1.3	7-8-11	23	1/4 I.D. Hollow _ Stem Augers _
1070.6	4.5	J. 1		SPT-3	3.0 - 4.5	1.5	6-8-13	22	-
		SOIL 2: Lean Clay, light bi	rown to	SPT-4	4.5 - 6.0	1.5	6-8-12	22	Installed – Piezometer with
-		brown, stiff to very damp to wet, with	/ stiff,	SPT-5	6.0 - 7.5	1.5	11-13-13	22	10' of slotted screen at 16.0'
		and gravel	Jana	SPT-6	7.5 - 9.0	1.2	5-6-8	24	and 6.0' of riser - protected with
-				SPT-7	9.0 - 10.5	1.5	3-5-6	24	flushmount manhole set in
_				SPT-8	10.5 - 12.0	1.5	4-6-8	24	concrete pad Boring backfilled_
-				SPT-9	12.0 - 13.5	1.5	6-6-9	22	from 0' to 17.1' with well
- 1060.7	14.4	0011 6:		SPT-10	13.5 - 15.0	1.0	4-17-13	17	installation – materials
1059.5 	15.6	SOIL 6: ☐ Gravel with Sand,		SPT-11	15.0 - 16.5	1.1	2-6-6	24	_
_ 1058.0	17.1	∖tan, medium grain poorly graded, me		SPT-12	16.5 - 17.1	0.6	50+	21	
-		dense, wet							-
<u> </u>		Shale, brown to go to moderately hard							-
		thin bedded, wate	r stained,						_
-		heavily weathered (augered)	d						-
-		No Refusal /							-
2, TOD		Bottom of Hole							-
HIC LO		Top of Rock = 15.	6						=
SM-GRAF		Elevation (1059.5)						
- EGPU FM									_
L AREAS									=
—									_
/IER ASH									-
ISM, LEGACY JOHN SEVIER ASH DISPOSAL AREAS, GFJ. FASKI-RAPHICLOG GDT									_
EGACY									-
									\dashv
STANTEC									
			TANITEOO	ONIOLII:	TING SERVI	OFO IN			1/23/10



Project I	Number	175569038			Location	R	Rogersville	TN	
Project I	-	John Sevier Ash D	isposal Area	 as	Boring No.		S-28	Total Dept	h 18.3 ft
County	-	Hawkins			Surface Ele			74.5 ft	
Project ⁻	Type	Geotechnical Explo	oration		Date Started		/15/09	Completed	4/15/09
Supervis		·	ller M. Mar	tin				Date/Time	
Logged	-	A. Davis			Depth to Wa			Date/Time	
Litholo			Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1074.5	0.0	Top of Hole							Boring
-		SOIL 1: Lean Clay with Sa	nd and	SPT-1	0.0 - 1.5	1.1	3-14-8	18	advanced with 3 -
-		Gravel, light brown		SPT-2	1.5 - 3.0	1.0	8-8-11	26	1/4 I.D. Hollow _ Stem Augers
1070.0	4.5	brown, gray, with occasional gray m	ottling,	SPT-3	3.0 - 4.5	1.3	3-3-3	24	
1070.0	4.5	$\sqrt{}$ medium stiff to ve damp to moist with		SPT-4	4.5 - 6.0	1.1	3-5-6	22	Installed –
-		manganese concr							Piezometer with _ 10' of slotted
-		and silty zones SOIL 2:		SPT-5	6.0 - 7.5	1.5	6-7-9	21	screen at 16.8'
		Lean Clay, brown		SPT-6	7.5 - 9.0	1.2	6-9-14	19	and 6.8' of riser - protected with
1064.8	9.7	moist, stiff to very sand and gravel	stiff, with	SPT-7	9.0 - 10.5	1.2	3-5-5	20	flushmount
1062.5	12.0	SOIL 7:	4- h	SPT-8	10.5 - 12.0	1.0	4-5-5	21	concrete pad Boring backfilled_
-	12.0	Sand, light brown loose, wet	to brown,	SPT-9	12.0 - 13.5	1.3	14-22-30	20	from 0' to 17.6'
1059.5	15.0	SOIL 6: Gravel with Sand,		SPT-10	13.5 - 15.0	0.7	11-15-13	22	installation – materials
-		brown, medium groporly graded, me	dium	SPT-11	15.0 - 16.5	0.5	7-9-13	24	-
1050.0	400	dense to very den subrounded, wet	se,	1	16.5 - 18.0	I	10-13-	33	=
<u> </u>	18.3	Shale, dark brown		SPT-13	18.0 - 18.3	0.3	50+ 50+	8	
L		gray, soft to mode hard, very thin bed							
-		water stained, hea	vily						_
-		weathered (auger	eu)						_
1 1/23/10		Bottom of Hole							_
		Top of Rock = 15.							_
-GRAPHIC		Elevation (1059.5))						_
PJ FMSM									_
AREAS.GI									_
- SPOSAL,									
A ASH D									_
HN SEVII									_
EGACY J.									-
									_
TANTEC									-
			TANTECC			.=			1/23/10



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-30	Total Dept	h49.2 ft
County		Hawkins			Surface Elev	vation	110)5.6 ft	
Project ⁻	Туре	Geotechnical Explo	oration		Date Started	d4	/30/09	Completed	4/30/09
Supervis	sor	A. Davis Dr	iller G. Tho	mpson	Depth to Water18.2 ft			Date/Time	4/30/09
Logged	Ву	R. Mehnert			Depth to Water			Date/Time	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
_ 1105.6	0.0	Top of Hole							Boring
1102.9	20	SOIL 1: Lean Clay, brown medium stiff to ve	SPT-1 SPT-2	0.0 - 1.5 1.5 - 3.0	1.2 0.8	4-4-3 10-10-8	23 15	advanced with 3 - 1/4 I.D. Hollow	
1102.8	2.8	acksim stiff, damp, with g	γ stiff, damp, with gravel and \nearrow						Stem Augers _
-		\silt SOIL 4:		SPT-3	3.0 - 4.5	1.1	4-3-4	17	-
		Compacted Fly As	sh, gray	BAG-1	3.0 - 7.5	1.1	4-2-4		Installed – Piezometer with _
-		to dark gray, loose medium dense, da	amp to	SPT-4 SPT-5	4.5 - 6.0 6.0 - 7.5	1.5	5-9-10	29 34	10' of slotted screen at 30'
-		wet, with bottom a	ish zones	SPT-6	7.5 - 9.0	1.1	3-5-7	27	and 23' of riser - protected with
-				SPT-7	9.0 - 10.5	1.5	3-6-7	29	steel cover set in concrete pad.
-				SPT-8	10.5 - 12.0	1.3	3-4-5	32	Boring backfilled - from 0' to 49.2'
-				SPT-9	12.0 - 13.5	1.5	3-6-6	25	with well installation
-				SPT-10	13.5 - 15.0	1.5	3-4-5	27	materials
-				SPT-11	15.0 - 16.5	1.5	5-5-8	27	-
-				SPT-12	16.5 - 18.0	1.2	7-10-11	38	=
-				SPT-13	18.0 - 19.5	1.5	4-5-6	36	-
-				SPT-14	19.5 - 21.0	1.3	5-6-9	34	_
-					19.5 - 24.0 21.0 - 22.5	1.2	5-7-8	 33	-
 1081.6	24.0				22.5 - 24.0	0.8	2-6-3	32	-
1080.6	25.0	SOIL 5: Sluiced Fly Ash, g	ırav to	SPT-17	24.0 - 25.5	1.5	WoH	34	_
ISM-GRAPH		dark gray, wet, ve		SPT-18	25.5 - 27.0	0.6	WoH-1-2	23	-
EAS.GPJ FP		SOIL 2:		SPT-19	27.0 - 28.5	0.8	WoH-2-2	20	-
SPOSAL ARI		Lean Clay, light by brown, tan, very stiff west with	oft to	SPT-20	28.5 - 30.0	1.3	4-6-8	18	-
IER ASH DIK		very stiff, wet, with manganese concr		SPT-21	30.0 - 31.5	1.5	4-5-6	19	-
JOHN SEV		sand and gravel		SPT-22	31.5 - 33.0	1.1	8-7-8	21	- -
M_LEGACY				SPT-23	33.0 - 34.5	0.3	4-4-6	20	-
NTEC/FMS)				SPT-24	34.5 - 36.0	1.5	2-3-3	21	-
STANTEC CONSULTING SERVICES INC									



Project Number 175569038					Location	R	ogersville	, TN	
Project N	Name ₋	John Sevier Ash Di	sposal Area	as	Boring No.	J	S-30	Total Depth	49.2 ft
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
-				SPT-25	36.0 - 37.5	1.5	6-8-12	24	
- 1066.6	39.0			SPT-26	37.5 - 39.0	0.5	3-3-4	18	-
_		Gravel with Sand, gray to brown to tan, medium dense to very dense, medium grained, poorly graded, subrounded, wet Shale, brown to gray, soft to moderately hard, very		SPT-27	39.0 - 40.5	0.6	7-8-8	14	_
_				SPT-28	40.5 - 42.0	0.0	5-19-18	23	
_				SPT-29	42.0 - 43.5	1.2	22-30- 50+	10	-
1060.8	44.8			SPT-30	43.5 - 45.0	0.7	13-15-10	7	-
-				SPT-31	45.0 - 46.5	0.0	7-9-30	22	-
_		thin bedded, water heavily weathered	stained,	SPT-32	46.5 - 48.0	0.2	17-19-26	23	
_ 1056.4	49.2	(augered)		SPT-33	48.0 - 49.2	0.9	7-7-50+	24	-
		Top of Rock = 44. Elevation (1060.8)							1/23/11



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-34C	Total Dept	h_ 36.9 ft
County		Hawkins			Surface Ele	vation	112	20.4 ft	
Project ⁻	Туре	Geotechnical Expl	oration		Date Started 6/2/09		/2/09	Completed	6/2/09
Supervis	sor	R. Mehnert Dr	iller G. Tho	mpson	Depth to Water 8.5 ft		Date/Time	6/2/09	
Logged	Ву	R. Mehnert			Depth to Water			Date/Time	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1120.4	0.0	Top of Hole							Boring
-	SOIL 4:			SPT-1	0.0 - 1.5	1.3	2-3-9	24	advanced with 3 -
-	Compacted Fly Ash, gray to dark gray, medium dense, damp to wet, with		ium	SPT-2	1.5 - 3.0	1.5	9-12-14	23	1/4 I.D. Hollow _ Stem Augers _
-		occasional areas		SPT-3	3.0 - 4.5	1.5	6-10-10	22	-
				SPT-4	4.5 - 6.0	1.4	3-6-8	21	Installed — Piezometer with _
1112.9	7.5			SPT-5	6.0 - 7.5	1.5	11-11-14	16	10' of slotted screen at 21.5'
		SOIL 5: Sluiced Fly Ash, g	ırav to	SPT-6	7.5 - 9.0	1.5	2-1-1	21	and 14.5' of riser – protected with
		dark gray, wet, ve		SPT-7	9.0 - 10.5	0.5	WoH	23	flushmount manhole set in
-		to loose		BAG-1 SPT-8	7.5 - 13.5 10.5 - 12.0	1.0	WoH-	 22	concrete pad Boring backfilled _
-				SPT-9	12.0 - 13.5	1.0	WoH-1 1-2-3	23	from 0' to 36.9'
E				SPT-10	13.5 - 15.0	1.5	1-WoR- WoR	24	installation – materials
-				SPT-11	15.0 - 16.5	1.2	WoR-1-2	23	_
-				SPT-12	16.5 - 18.0	1.3	1-1-1	26	_
1100.9	19.5			SPT-13	18.0 - 19.5	0.4	1-2-2	24	_
_		SOIL 9: Lean Clay, dark b	rown to	SPT-14	19.5 - 21.0	1.5	WoR-1-1	28	_
-		gray, wet, very so with sand and silty	oft to soft,	SPT-15	21.0 - 22.5	0.5	WoH	20	_
1/23/10		and a strong orga		SPT-16	22.5 - 24.0	1.5	WoH	19	_
- HIC LOG.GD				SPT-17	24.0 - 25.5	1.5	WoR- WoR-2	23	_
ASM-GRAPH				SPT-18	25.5 - 27.0	1.5	WoR-1-1	34	_
1092.2	28.2			SPT-19	27.0 - 28.5	1.5	WoR-1-2	32	-
1000 7	20.7	SOIL 2: Lean Clay, light be		SPT-20	28.5 - 30.0	1.5	2-2-4	25	- -
1089.7 7	30.7	brown, medium st SOIL 7:	.111,	SPT-21	30.0 - 31.5	1.5	3-4-7	21	=
JOHN SEVIE		Soil 7: Sand, light brown medium dense, m		SPT-22	31.5 - 33.0	1.5	9-13-17	14	_
M_LEGACY		coarse grained, wareas of clay and	et, with	SPT-23	33.0 - 34.5	0.7	7-11-11	11	_
<u>-</u> 1084.2	36.2	,	_		34.5 - 36.0	0.4	15-9-8	14	_
SIA			TANTEOO		36.0 - 36.9 TING SERVI		8-50+	16	1/23/10



Project Numb	er 175569038			Location	Ro	ogersville	 e, TN	
Project Name		Disposal Are	as	Boring No.		S-34C	Total Depth_	36.9 ft
Lithology		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation Depti	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1083.5 36.9	Shale, brown to go to moderately har thin bedded, water heavily weathered (augered) (Conton No Refusal / Bottom of Hole Top of Rock = 36 Elevation (1084.2)	rd, very er stained, d inued)						
,				TING SERVI				1/23/10



Project I	Number	175569038		Location	R	ogersville	, TN		
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-35	Total Dept	h22.3 ft
County		Hawkins			Surface Ele	vation	107	78.9 ft	
Project ⁻	Туре	Geotechnical Explo	oration		Date Started	d 4	/14/09	Completed	4/14/09
Supervis	sor	A. Davis Dr	iller M. Mar	tin	Depth to Wa	Pepth to Water15.0 ft		Date/Time	4/14/09
Logged	Ву	A. Davis			Depth to Water		Date/Time		
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1078.9	0.0	Top of Hole							Doring
1078.5	0.4	∖DGA and TOPSO	SPT-1	0.0 - 1.5	1.0	7-9-6	21	Boring advanced with 3 -	
		SOIL 1: Lean Clay with Sand and Gravel light brown to			1.5 - 3.0	1.2	7-9-11	18	1/4 I.D. Hollow _ Stem Augers _
-	Gravel, light brown to brown, gray, with gray		SPT-3	3.0 - 4.5	0.2	7-6-7	16	-	
-		mottling, stiff to very stiff, damp to moist, with few manganese concretions			4.5 - 6.0	1.5	3-3-6	21	Installed — Piezometer with _
1071.4	7.5	and silty zones	CHOITS	SPT-5	6.0 - 7.5	1.5	6-9-14	21	10' of slotted screen at 21.5'
-		SOIL 9: Lean Clay, dark b		SPT-6	7.5 - 9.0	1.5	3-7-8	21	and 11.5' of riser – protected with
-		gray, stiff, damp to with sand	SPT-7	9.0 - 10.5	1.1	4-7-5	19	flushmount manhole set in	
-	Williama			SPT-8	10.5 - 12.0	1.5	4-6-7	19	concrete pad Boring backfilled _
-				SPT-9	12.0 - 13.5	1.5	3-5-6	20	from 0' to 21.5' with well
-	45.0			SPT-10	13.5 - 15.0	0.5	4-5-10	18	installation - materials
1063.1	15.8	SOIL 6:		SPT-11	15.0 - 16.5	0.7	10-18-38	6	-
- 1061.5 -	17.4	Gravel with Sand, brown to tan, wet,		SPT-12	16.5 - 18.0	1.5	21-8-5	23	_
-		dense to very den medium coarse,		SPT-13	18.0 - 19.5	1.0	4-5-8	28	-
		subrounded, wet		SPT-14	19.5 - 21.0	0.7	5-10-8	28	_
- 1056.6	22.3	Shale, brown to g moderately hard, y	very thin _	SPT-15	21.0 - 22.3	1.1	10-13- 50+	13	_
1/23/10		bedded, water sta heavily weathered					00.		-
- DG.GDT		(augered)							-
MAPHIC LO		No Refusal /							_
MSM-GR		Bottom of Hole							-
AS.GPJ FI		Top of Rock = 17. Elevation (1061.5							-
)SAL ARE		2.0744.011 (1001.0	,						-
ASH DISPC									
N SEVIER ,									-
OCMSM, LEGACY, JOHN BEVIER SAH DISPOSAL, RREAS GAJ. MASM-GRAPHIC LOG GOT									-
									_
STANTEC									-
			TANITEO	ONIOLII :	TING SERVI	OFO IN			1/23/10



nber	175569038			Location	R	ogersville	e, TN	
ne _	John Sevier Ash Di	sposal Are	as	Boring No.	J:	S-37	Total Dept	h 25.0 ft
	Hawkins			Surface Ele	vation	11	03.8 ft	
e	Geotechnical Explo	ration		Date Starte	d 4/	17/09	Completed	4/18/09
	R. Riker Dri	ller G. Tho	mpson	Depth to Water13.8 ft		Date/Time	4/18/09	
_	R. Mehnert			Depth to Water		Date/Time		
		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
epth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
0.0	Top of Hole							Boring
3.9	Gravel, brown, tan medium stiff to ver damp, with cobble SOIL 4: Compacted Fly As to medium dense,	n, gray, ry stiff, and silt h, loose damp to						Boring advanced with 3 - 1/4 I.D. Hollow Stem Augers Installed — Piezometer with _ 10' of slotted screen at 25' and 17' of riser protected with steel cover set in concrete pad. Boring backfilled - from 0' to 25' with well installation materials. Boring is located
5.0								5' east of JS-37
5.0	No Refusal /							_
	Bottom of Hole							- - - - - -
	eepth 0.0	Hawkins Geotechnical Exploration R. Riker Dri R. Mehnert Description Descrip	Hawkins Geotechnical Exploration R. Riker Driller G. Tho R. Mehnert Description Top of Hole SOIL 1: Lean Clay with Sand and Gravel, brown, tan, gray, medium stiff to very stiff, damp, with cobble and silt SOIL 4: Compacted Fly Ash, loose to medium dense, damp to wet, with occassional bottom ash layers 4.4 SOIL 5: Sluiced Fly Ash, gray to dark gray, wet, very loose to loose No Refusal /	Hawkins Geotechnical Exploration R. Riker Driller Rock Core RQD Top of Hole SOIL 1: Lean Clay with Sand and Gravel, brown, tan, gray, medium stiff to very stiff, damp, with cobble and silt SOIL 4: Compacted Fly Ash, loose to medium dense, damp to wet, with occassional bottom ash layers 4.4 SOIL 5: Sluiced Fly Ash, gray to dark gray, wet, very loose to loose No Refusal /	Hawkins Geotechnical Exploration R. Riker Driller R. Mehnert Description Top of Hole SOIL 1: Lean Clay with Sand and Gravel, brown, tan, gray, medium stiff to very stiff, damp, with cobble and silt SOIL 4: Compacted Fly Ash, loose to medium dense, damp to wet, with occassional bottom ash layers SOIL 5: Sluiced Fly Ash, gray to dark gray, wet, very loose to loose No Refusal /	Hawkins Geotechnical Exploration R. Riker Driller R. Mehnert Depth to Water Popth Description Description Description Rock Core ROD ock Core Rod Rock Core Rock	Hawkins Geotechnical Exploration R. Riker Driller G. Thompson R. Mehnert Depth to Water Depth to Water Depth To Water Rock Core ROD Top of Hole SOIL 1: Lean Clay with Sand and Gravel, brown, tan, gray, medium stiff to very stiff, damp, with cobble and silt SOIL 4: Compacted Fly Ash, loose to medium dense, damp to wet, with occassional bottom ash layers SOIL 5: Sluiced Fly Ash, gray to dark gray, wet, very loose to loose No Refusal /	Double Description Descr



Project N	Number	175569038			Location	F	Rogersville	e, TN	
Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-37-SV	Total Deptl	n36.3 ft
County		Hawkins			Surface Ele	vation	11	02.3 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	 d 6	/4/09	Completed	6/4/09
Supervis	sor	A. Davis Dri	ller Kent C		Depth to Water Dry			Date/Time	6/4/09
Logged	Ву	A. Davis			Depth to Wa	ater	-	Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1102.3	0.0	Top of Hole							
- - - 1099.0 - - - -	3.3	SOIL 1: Lean Clay with Sa Gravel, brown, tar medium stiff to ver damp, with cobble SOIL 4: Compacted Fly As to medium dense, wet, with occassio bottom ash layers	n, gray, ry stiff, and silt / sh, loose damp to						- - - - -
- - - 1089.4	12.9	SOIL 5:							- - - -
- - -		Sluiced Fly Ash, g dark gray, wet, ver to loose		ST-1	18.0 - 19.7	1.7			Vane shear test — performed at _ 18.5 feet. Undrained _ Shear Strength = 7.5 psi
- - - -				ST-2	24.5 - 26.4	1.9			Vane shear test - performed at _ 25.0 feet. Undrained - Shear Strength - = 7.0 psi _
- - - -									- - - - -
- 1067.2	35.1								=
- 1066.0	36.3	SOIL 2:		ST-3	35.0 - 36.3	1.3			
	- !	☐ Lean Clay, brown		ONCLII.	TING SERVI	OEO IN			1/23/10



Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-42	Total Dept	h49.5 ft
County		Hawkins			Surface Elev	vation	113	38.2 ft	
Project T	Гуре	Geotechnical Explo	oration		Date Started	d 4,	/17/09	Completed	4/17/09
Supervis	sor	A. Davis Dri	ller M. Mar	tin	Depth to Wa	ater 3	0.0 ft	Date/Time	4/17/09
Logged I	Ву	A. Davis			Depth to Water		Date/Time		
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1138.2	0.0	Top of Hole							Boring
1137.5	0.7	Lean Clay with Sand, light /		SPT-1	0.0 - 1.5	0.7	2-3-7	25	advanced with 3
-				SPT-2	1.5 - 3.0	1.3	15-18-21	18	1/4 I.D. Hollow _ Stem Augers
		SOIL 4: Compacted Fly As		SPT-3	3.0 - 4.5	0.8	2-4-12	17	
		to dark gray, medi dense to very den		SPT-4	4.5 - 6.0	1.4	12-22-23	16	Installed – Piezometer with _
-		to wet		SPT-5 BAG-1	6.0 - 7.5 0.0 - 15.0	1.5	12-12-25	18	10' of slotted screen at 46.5'
				SPT-6	7.5 - 9.0	1.4	10-15-19	19	and 36.5' of riser- protected with
_						1.5	10-14-14	19	flushmount manhole set in
				SPT-8	10.5 - 12.0	1.3	12-11-15	20	concrete pad Boring backfilled_
-				SPT-9	12.0 - 13.5	1.5	18-27-34	23	from 0' to 49.5' with well
				SPT-10	13.5 - 15.0	1.4	11-17-21	23	installation – materials
-				SPT-11	15.0 - 16.5	1.5	11-18-20	22	-
				SPT-12	16.5 - 18.0	1.3	11-17-11	22	-
_				SPT-13	18.0 - 19.5	1.5	7-11-16	23	-
				SPT-14	19.5 - 21.0	1.5	7-12-13	23	_
				SPT-15	21.0 - 22.5	1.5	7-15-20	24	-
1114.2	24.0			SPT-16	22.5 - 24.0	1.3	10-13-14	26	=
——————————————————————————————————————		SOIL 3: Bottom Ash, gray		SPT-17	24.0 - 25.5	1.5	7-14-15	18	_
WW-GRAP		gray to black, very very dense, damp		SPT-18	25.5 - 27.0	1.5	14-20-37	21	- -
EAS.GFO				SPT-19	27.0 - 28.5	1.5	14-35- 50+	19	=
- Lander Art				SPT-20	28.5 - 30.0	1.5	18-20-20	23	- -
EX ASH DE				SPT-21	30.0 - 31.5	1.2	9-12-16	23	-
OHN SEV				SPT-22	31.5 - 33.0	1.0	7-3-3	22	- -
— CG				SPT-23	33.0 - 34.5	0.8	WoR	25	-
- LECTRIS				SPT-24	34.5 - 36.0	0.3	WoR- WoR-1	23	
			TANITEO	ONIOLII :	TING SERVI	2F2 IN			1/23/10



Covier Ach Dianagel Are	Project Number 175569038					
Project Name John Sevier Ash Disposal Areas			J	S-42	Total Depth	49.5 ft
Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
scription Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
	SPT-25	36.0 - 37.5	1.5	3-3-2	20	-
	SPT-26	37.5 - 39.0	1.5	WoR-1-1	27	-
5: ed Fly Ash, gray to gray, wet, very loose /	SPT-27	39.0 - 40.5	1.2	WoR	27	- -
2:	SPT-28	40.5 - 42.0	0.8	WoR-	25	-
Clay with Sand, light to brown, soft to	SPT-29	42.0 - 43.5	0.8	WoH-2 21-24-29	16	-
wet	SPT-30	43.5 - 45.0	0.9	14-23-8	21	-
6: el with Sand, brown, medium grained, /	SPT-31	45.0 - 46.5	0.8	12-11-11	34	_ -
graded, medium		46.5 - 48.0	1.0	12-12-24		-
, brown to gray,	SPT-33	48.0 - 49.5	0.9	12-40-27	16	-
red) efusal / m of Hole f Rock = 46.3 tion (1091.9)						



Project I	Number	175569038			Location	R	ogersville	, TN	
Project I	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-47	Total Dept	h 18.0 ft
County	-	Hawkins			Surface Ele	vation	107	78.2 ft	
Project ²	Туре	Geotechnical Expl	oration		Date Started	d 4	/13/09	Completed	4/13/09
Supervis	sor	A. Davis Dr	iller M. Mar	tin	Depth to Water 15.0 ft		5.0 ft	Date/Time	4/13/09
Logged	Ву	A. Davis			Depth to Wa	ater		Date/Time	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1078.2	0.0	0.0 Top of Hole SOIL 1: Lean Clay with Sand and			0.0 - 1.5	1.5	3-3-10	21	Boring advanced with 3 - 1/4 I.D. Hollow
		Gravel, light brow brown, with occase	SPT-2	1.5 - 3.0	1.5	11-18-10	16	Stem Augers	
-		gray mottling, stiff ,damp to moist, w	SPT-3	3.0 - 4.5	0.9	19-19-19	16	_	
		manganese conc and silty zones	SPT-4	4.5 - 6.0	1.5	9-8-10	21	Installed – Piezometer with _	
-			SPT-5	6.0 - 7.5	1.5	3-12-12	22	5' of slotted screen at 14.4'	
1069.2	9.0			SPT-6	7.5 - 9.0	1.4	7-11-11	20	and 9.4' of riser - protected with
-		SOIL 2: Lean Clay, brown	SPT-7	9.0 - 10.5	1.5	5-6-7	22	flushmount manhole set in	
		hard, damp to mo		SPT-8	10.5 - 12.0	1.4	4-7-8	22	concrete pad. Boring backfilled
F				SPT-9	12.0 - 13.5	1.3	5-7-8	20	from 0' to 14.4' with well
				SPT-10	13.5 - 15.0	0.6	13-16-28	22	installation - materials
1062.3	15.9 16.5			SPT-11	15.0 - 16.5	0.6	12-12-8	10	_
1060.2	18.0	SOIL 6: Gravel with Sand	, gray,	SPT-12	16.5 - 18.0	0.8	4-9-30	20	-
-	16.0	brown, tan, mediu grained, poorly gr medium dense, subrounded, wet	ım 📗						_
1 123/10		Shale, brown to g very thin bedded, stained, heavily w (augered)	water						- - -
NSM_LEGACY, JOHN SEVIER ASH DISPOSAL AREAS GRAFHICLOS, GDT 1/23/10		No Refusal / Bottom of Hole							-
ISM-GRAPH		Top of Rock = 16	5						_
AS.GPJ FN		Elevation (1061.7							-
OSAL ARE									-
ASH DISP									
HN SEVIER									-
GACY JOI									_
- FMSM_LE									
STANTEC									_
-					TING SEDVI		_		1/23/10



Project N	Number	175569038			Location	R	Rogersville	, TN		
Project N	Name	John Sevier Ash Di	isposal Area	as	Boring No.	J	S-49	Total Dept	h 27.1 ft	
County		Hawkins			Surface Ele	vation	109	98.8 ft		
Project T	Гуре	Geotechnical Explo	oration		Date Started	d 4	/29/09	Completed	4/29/09	
Supervis	sor	A. Davis Dri	ller G. Tho	mpson	Depth to Wa	ater 6	.0 ft	Date/Time	4/29/09	
Logged I	Ву	R. Mehnert			Depth to Wa	ater	-	Date/Time		
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
1098.8	0.0	Top of Hole							Boring	
-		SOIL 1: Lean Clay, brown,	tan.	SPT-1	0.0 - 1.5	1.3	2-3-4	23	advanced with 3 -	
1096.2	2.6			SPT-2	1.5 - 3.0	1.1	3-4-7	21	1/4 I.D. Hollow _ Stem Augers	
		SOIL 4:	/	SPT-3	3.0 - 4.5	1.2	2-4-4	24		
_		Compacted Fly As	Compacted Fly Ash, gray			1.5	2-2-2	29	Installed –	
1092.8	6.0	to dark gray to bla ∖loose, damp to we		SPT-4 BAG-1	4.5 - 6.0 2.6 - 10.5				Piezometer with _ 10' of slotted	
-		SOIL 5:	/	SPT-5	6.0 - 7.5	1.3	2-1-2	29	screen at 25.5'	
		Sluiced Fly Ash, g dark gray, wet, vei		SPT-6	7.5 - 9.0	1.1	1-1-1	26	and 18.5' of riser – protected with	
		dark gray, wet, ver	SPT-7	9.0 - 10.5	1.3	WoH-2-1	31	steel cover set in concrete pad.		
-				SPT-8	10.5 - 12.0	1.1	2-1-1	42	Boring backfilled - from 0' to 27.1'	
				SPT-9	12.0 - 13.5	1.5	WoH	29	with well	
-				SPT-10	13.5 - 15.0	1.1	WoH	31	installation == materials. ==	
				BAG-2 SPT-11	12.0 - 18.0	1.5	WoR	 31	_	
									_	
1080.8	18.0			SPT-12	16.5 - 18.0	1.5	WoR	31	_	
-		SOIL 2: Lean Clay, brown,	tan	SPT-13	18.0 - 19.5	1.5	2-5-6	21	_	
		gray, medium stiff damp		SPT-14	19.5 - 21.0	1.5	3-3-5	22	_	
1076.8	22.0	·		SPT-15	21.0 - 22.5	0.5	9-13-32	11	_	
1/23/10		SOIL 6: Gravel with Sand,		SPT-16	22.5 - 24.0	0.7	7-22-28	11	_	
		medium grained, p graded, dense to v		SPT-17	24.0 - 25.5	0.7	24-24-	10	_	
1072.3 1071.7	26.5	dense, wet			25.5 - 27.0	1.5	50+ 33-27-10		_	
TEC/MSM, LEGACY JOHN SEVIER ASH DISPUSAL ARRANGAR J FINS	27.1	Shale, dark brown moderately hard, we bedded, heavily we (augered) No Refusal / Bottom of Hole Top of Rock = 26.8 Elevation (1072.3)	very thin eathered	SP (-19	- 27.0 - 27.1	- 0.1	- 50+	9	- - - - - -	
SIAN	STANTEC CONSULTING SERVICES, INC.									



Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name	John Sevier Ash Di	isposal Area	as	Boring No.	J	S-50	Total Dept	h_ 66.3 ft
County		Hawkins			Surface Elev	vation_	113	38.7 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	d 4	/20/09	Completed	4/21/09
Supervis	sor	A. Davis Dri	ller M. Mar	tin	Depth to Water57.0 ft			Date/Time	4/21/09
Logged	Ву	A. Davis			Depth to Water			Date/Time	
Litholo	gy	Overburden Sample			Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
_1138.7	0.0	Top of Hole							Boring
- 1137.4	1.3	SOIL 1:	nd and ┌	SPT-1	0.0 - 1.5	1.3	3-5-5	22	advanced with 3 -
-		Gravel, light brown brown, stiff, damp	n to	SPT-2	1.5 - 3.0	1.5	10-20-30	19	1/4 I.D. Hollow _ Stem Augers _
-		SOIL 4:		SPT-3	3.0 - 4.5	1.5	16-37-37	18	_
		Compacted Fly As to dark gray to bla	ck,dense	SPT-4	4.5 - 6.0	1.0	6-15-15	24	Installed — Piezometer with _
-		to very dense, dan occassional clay s	np, with eams	SPT-5	6.0 - 7.5	1.3	16-18-31	20	10' of slotted screen at 62'
-				SPT-6	7.5 - 9.0	1.5	16-22-24	17	and 55' of riser - protected with
-			SPT-7	9.0 - 10.5	1.5	10-15-15	19	steel cover set in concrete pad.	
_				SPT-8 BAG-1	10.5 - 12.0 0.0 - 24.0	1.5	18-19-27	16	Boring backfilled - from 0' to 64'
-				SPT-9	12.0 - 13.5	1.5	20-22-24	21	with well installation
				SPT-10	13.5 - 15.0	1.5	10-18-25	20	materials.
				SPT-11	15.0 - 16.5	1.3	11-21-25	21	-
-				SPT-12	16.5 - 18.0	1.5	22-35-32	21	_
-				SPT-13	18.0 - 19.5	1.5	16-21-24	22	_
-				SPT-14	19.5 - 21.0	1.5	18-24-28	21	_
-				SPT-15	21.0 - 22.5	1.5	36-36-34	18	=
1 1/23/10	04.0			SPT-16	22.5 - 24.0	1.5	17-32-32	18	-
□ 1114.1 □	24.6	SOIL 1:		SPT-17	24.0 - 25.5	1.5	16-17-21	19	_
ISM-GRAPH		Lean Clay, brown, damp	hard,	SPT-18	25.5 - 27.0	1.4	17-22-35	20	_
AS.GPJ FA		•		SPT-19	27.0 - 28.5	1.3	16-24-25	23	=
 	30.3			SPT-20	28.5 - 30.0	1.2	12-19-37	21	_
SR ASH DIS	20.0	SOIL 4:	In succession	SPT-21	30.0 - 31.5	1.5	36-25-42	19	-
OOHN SEVIE		dense, damp to moist, with areas clay, bottom ash		SPT-22	31.5 - 33.0	1.5	35-40-26	21	_
				SPT-23	33.0 - 34.5	1.2	25-25-33	20	-
TIEC/FMSM		and gravel	SPT-24	34.5 - 36.0	1.2	19-19-18	24	_	
TAK					TING SEDVI				1/23/10



Project	Number_	175569038			Location	R	ogersville	, TN	
Project I	Name _	John Sevier Ash D	isposal Area	as	Boring No.	<u>J</u>	S-50	Total Depth	66.3 ft
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
-		SOIL 4:		SPT-25	36.0 - 37.5	1.3	11-12-9	23	-
		Compacted Fly As dark gray, dense to		SPT-26	37.5 - 39.0	1.5	9-12-17	22	-
-		dense, damp to mareas clay, bottor	oist, with	SPT-27	39.0 - 40.5	1.5	13-16-23	24	_
		and gravel (Con		SPT-28	40.5 - 42.0	1.5	10-12-26	24	-
-				SPT-29	42.0 - 43.5	1.5	20-33-40	20	-
-				SPT-30	43.5 - 45.0	1.4	19-26-30	21	- -
-	47.0			SPT-31	45.0 - 46.5	1.5	11-12-9	24	-
1091.7 1090.7	47.0 48.0	SOIL 1:		SPT-32	46.5 - 48.0	1.5	8-8-12	22	-
_		Lean Clay with Sa Gravel, very stiff,		SPT-33	48.0 - 49.5	1.2	3-4-7	27	-
-		SOIL 4:		SPT-34	49.5 - 51.0	1.5	4-7-8	29	_
-		Compacted Fly As to dark gray to bla	ck, very	SPT-35	51.0 - 52.5	1.3	7-8-13	27	- -
-		loose, to medium wet		SPT-36	52.5 - 54.0	0.9	WoR- WoR-3	36	-
_				SPT-37	54.0 - 55.5	1.5	3-7-7	33	<u>-</u>
-				SPT-38	55.5 - 57.0	1.3	4-4-7	34	-
- 1081.2 -	57.5	SOIL 2:		SPT-39	57.0 - 58.5	1.5	5-4-8	25	-
_		Lean Clay, brown very stiff, wet	, stiff to	SPT-40	58.5 - 60.0	1.3	9-10-13	18	- _
_ 1077.5	61.2			SPT-41	60.0 - 61.5	1.4	4-7-13	19	-
-		SOIL 6: Gravel with Sand,	gray to	SPT-42	61.5 - 63.0	1.3	20-25-20	14	-
		brown to tan, med grained, medium of		SPT-43	63.0 - 64.5	0.7	4-20-34	15	-
_ 1072.8	65.9	very dense, wet		SPT-44	64.5 - 66.0	0.7	35-50+	22	_
- 1072.4 - - -	- 66.3 ^{-⊥}	Shale, dark brown moderately hard, bedded, heavily w (augered)	very thin	SPT-45	66.0 - 67.5	0.3	50+	14	- - -
		No Refusal / Bottom of Hole							_
- - - - - -		Top of Rock = 65. Elevation (1072.8)							-
									- -
									-



Project N	Number	175569038			Location	R	ogersville	, TN	
Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-52	Total Dept	h_ 54.1 ft
County		Hawkins			Surface Ele	vation	113	36.8 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	d6	/1/09	Completed	6/1/09
Supervis	sor	R. Mehnert Dri	ller G. Tho	mpson	Depth to Wa	ater 3	1.5 ft	Date/Time	6/1/09
Logged	Ву	R. Mehnert			Depth to Wa	ater		Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1136.8	0.0	Top of Hole							Boring
1135.8	1.0	_ SOIL 1: ∖ Lean Clay, light br	rown to	SPT-1	0.0 - 1.5	1.1	3-2-3	12	advanced with 3 -
-		brown, damp , me	dium stiff	SPT-2	1.5 - 3.0	1.0	8-8-9	18	1/4 I.D. Hollow _ Stem Augers
-		SOIL 4: Compacted Fly As		SPT-3	3.0 - 4.5	1.3	2-4-5	18	-
		to dark gray to bla to wet, very loose	to	SPT-4	4.5 - 6.0	1.5	1-4-3	20	Installed — Piezometer with _
-		medium dense, wi of bottom ash and		SPT-5	6.0 - 7.5	1.3	3-4-5	19	10' of slotted screen at 45'
-				SPT-6	7.5 - 9.0	1.4	2-5-5	19	and 38' of riser - protected with _
_				SPT-7	9.0 - 10.5	1.5	2-2-8	20	steel cover set in concrete pad.
-				SPT-8 BAG-1	10.5 - 12.0 6.0 - 18.0	1.5	3-4-4	20	Boring backfilled - from 0' to 54.1'
-			S		12.0 - 13.5	1.5	4-5-7	25	with well installation
		SF		SPT-10	13.5 - 15.0	1.5	3-8-14	22	materials
-				SPT-11	15.0 - 16.5	1.5	4-6-11	22	_
-				SPT-12	16.5 - 18.0	1.5	9-9-8	26	=
-				SPT-13	18.0 - 19.5	1.5	3-8-5	27	_
				SPT-14	19.5 - 21.0	1.3	2-5-5	24	_
-				SPT-15	21.0 - 22.5	1.5	5-11-12	25	-
12310				SPT-16	22.5 - 24.0	0.9	1-1-1	32	_
09901 —				SPT-17	24.0 - 25.5	1.1	1-1-1	31	_
- Sw-ckay				SPT-18	25.5 - 27.0	1.3	9-13-11	29	_
1108.5	28.3			SPT-19	27.0 - 28.5	1.2	11-13-12	22	_
- Losal Ak		SOIL 1: Lean Clay, brown,		SPT-20	28.5 - 30.0	0.6	9-9-7	21	- -
1106.0	30.8	very stiff, with grav	/el	SPT-21	30.0 - 31.5	1.3	11-13-19	16	=
		SOIL 4: Compacted Fly As to dark gray to bla		SPT-22	31.5 - 33.0	1.5	13-27-23	23	_
- LEGACY		medium dense to moist to wet, with	dense,	SPT-23	33.0 - 34.5	1.3	5-10-10	30	_
- CHAS		bottom ash, clay, a gravel		SPT-24 BAG-2	34.5 - 36.0 31.5 - 40.5	1.5	5-6-7	31 	- -
		_			TING SERVI				1/23/10



Project Number 175569038 Location								, TN	
Project	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-52	Total Depth	54.1 ft
Litho	logy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
-		SOIL 4:		SPT-25	36.0 - 37.5	1.5	4-8-17	28	-
		Compacted Fly As to dark gray to bla	sh, gray ck.	SPT-26	37.5 - 39.0	1.3	12-15-18	28	-
-		medium dense to moist to wet, with	dense,	SPT-27	39.0 - 40.5	1.5	4-11-13	28	-
-		bottom ash, clay, gravel (Continue	and	SPT-28	40.5 - 42.0	1.5	4-10-9	27	-
-				SPT-29	42.0 - 43.5	1.5	5-10-10	26	-
1092.3	44.5			SPT-30	43.5 - 45.0	1.5	3-8-10	34	_
-		Shale, dark brown moderately hard, v bedded, heavily w (augered)	very thin	SPT-31	45.0 - 46.5	1.1	4-8-7	32	-
-									-
-				SPT-32	50.0 - 51.5	1.3	8-12-13	33	- -
				SPT-33	51.5 - 53.0	1.4	19-12-13	33	-
1082.7	54.1			SPT-34	53.0 - 54.1	1.0	19-20- 50+	24	
- - - - - -		No Refusal / Bottom of Hole Top of Rock = 44. Elevation (1092.3)							- - - - - -
<u>-</u>									-
.GDT 1/23/10									+
AREAS OF MANAGRAPHIC LOG GDD									-
- MSM-GRV									-
- LEAS.GPJ									-
Posal ar									_
ASH DIS									=
- Oohn sevie									=
- Egacy J									-
- Long Mark									-
TANTS					TING SERVI				1/23/10



	Project N	Number	175569038			Location	R	ogersville	, TN	
	Project N	Name	John Sevier Ash D	isposal Area	as	Boring No.	J	S-53	Total Dept	h13.9 ft
	County		Hawkins			Surface Ele	vation_	108	31.4 ft	
	Project 1	Гуре	Geotechnical Explo	oration		Date Started	d 4	/13/09	Completed	4/13/09
	Supervis	sor	A. Davis Dr	iller M. Mar	tin	Depth to Wa	ater 1	1.9 ft	Date/Time	4/13/09
	Logged	Ву	A. Davis			Depth to Wa	ater		Date/Time	
	Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
\vdash	levation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
<u> 1</u>	081.4	0.0	Top of Hole SOIL 1: Lean Clay with Sa	and and	SPT-1	0.0 - 1.5	1.1	3-5-7	23	Boring advanced with 3 -
L			Gravel, light brown	n to	SPT-2	1.5 - 3.0	1.4	11-9-14	20	1/4 I.D. Hollow _ Stem Augers
1	077.5	3.9	brown with occasi mottling, damp to stiff to very stiff, w	moist, ith silty ∫	SPT-3	3.0 - 4.5	1.5	16-18-22	17	-
			zones and manga concretions.	nese	SPT-4	4.5 - 6.0	0.6	16-15-17	20	Installed – Piezometer with _
ŀ			SOIL 2: Lean Clay, brown,	stiff to	SPT-5	6.0 - 7.5	1.5	7-10-14	20	5' of slotted screen at 13.4' and 8.4' of riser -
			hard, damp to mo	ist	SPT-6	7.5 - 9.0	1.2	12-8-11	22	protected with
\vdash					SPT-7	9.0 - 10.5	0.5	4-7-11	19	flushmountmanhole set in
1	069.4	12.0			SPT-8	10.5 - 12.0	1.2	12-7-6	25	concrete pad Boring backfilled_
 - -	067.5	13.9	Shale, dark brown moderately hard, v		SPT-9	12.0 - 13.5 13.5 - 13.9	1.5 0.4	7-8-11 50+	30 15	from 0' to 13.4' with well
	007.0	10.0	and vertical bedde heavily weathered (augered)	ed, ⊤	ISP1-10	13.5 - 13.9	U. 4	+00	15	installation = materials
			No Refusal / Bottom of Hole							_
L			Top of Rock = 12. Elevation (1069.4)							-
-										-
L										-
T 1/23/10										_
										_
-GRAPHIC										=
PJ FMSN										_
AREAS.G										-
ISPOSAL										_
IER ASH (-
JOHN SEV										=
LEGACY ,										-
STANTECTMSN, LEGACY JOHN BEVIER ÄSH DISPOSAL, RAEKS GPJ. MASM-GRAPHIC LOG GDT 172210										-
STANTE										1/23/10



Project I	Number_	175569038			Location	R	ogersville	e, TN	
Project I	Name _	John Sevier Ash Di	isposal Are	as	Boring No.	J;	S-58	Total Dept	h27.5 ft
County	_	Hawkins			Surface Ele	evation	11	00.2 ft	
Project ⁻	Гуре	Geotechnical Explo	oration		Date Starte	d4/	22/09	Completed	4/22/09
Supervis	sor	R. Riker Dri	ller J. Felts	<u> </u>	Depth to W	ater 10).5 ft	Date/Time	4/22/09
Logged	Ву	R. Mehnert			Depth to W	ater		Date/Time	
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1100.2 - - - 1096.2	4.0	Top of Hole SOIL 1: Lean Clay with Grabrown, tan, mediumedamp							Boring advanced with - 3-1/4 I.D. Hollow _ Stem Augers _
1095.6 	4.6	SOIL 4: Compacted Fly As to dark gray to blad loose, damp to we trace bottom ash SOIL 5: Sluiced Fly Ash, godark gray, wet, ver	ck,very t, with						Installed Piezometer with 10' of slotted screen at 27.5' and 20.5' of riser- protected with steel cover set in concrete pad. Boring backfilled- from 0' to 27.5' with well installation materials. Boring JS-58X is located 3' south of JS-58
1079.4	20.8	SOIL 2:							-
1076.7	23.5	Lean Clay, brown, gray, very soft to n stiff, wet, with sand	nedium	_					- - -
	27.5	Shale, brown to gr to moderately hard thin bedded, water heavily weathered (augered)	d, very r stained,						- - - -
DISPOSAL ARE		No Refusal / Bottom of Hole							- -
MSM_EGACY_JOHN SEVIER ASH DISP		Top of Rock = 23.4 Elevation (1076.8)							-
LEGACY JO									-
—									_
- CIAN									1/23/10



Project N	Number	175569038			Location	R	Rogersville	, TN	
Project N	Name ₋	John Sevier Ash D	isposal Area	as	Boring No.	J	S-59	Total Dept	h28.9 ft
County	_	Hawkins			Surface Elev	vation_	109	99.3 ft	
Project 7	Гуре	Geotechnical Explo	oration		Date Started	d <u>4</u>	/4/09	Completed	4/4/09
Supervis	sor	A. Davis Dr	iller <u>M. Mar</u>	tin	Depth to Wa	ater 2	7.5 ft	Date/Time	4/4/09
Logged	Ву	A. Davis			Depth to Wa	ater 2	4.2 ft	Date/Time	4/8/09
Litholo	ogy -		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1099.3	0.0	Top of Hole							
1099.0	0.3	DGA and Topsoil		SPT-1	0.0 - 1.5	0.8	2-3-4	23	Boring advanced with 3 -
		SOIL 1: Lean Clay with Sa	and and	SPT-2	1.5 - 3.0	0.8	5-7-7	20	1/4 I.D. Hollow _ Stem Augers
		Gravel, light brown brown, medium st		SPT-3	3.0 - 4.5	1.3	3-5-5	23	_
-		hard, damp, with occasional gray m	ottling	SPT-4	4.5 - 6.0	1.1	3-4-5	18	Installed – Piezometer with ₋
-				SPT-5	6.0 - 7.5	1.1	5-7-7	19	10' of slotted screen at 31.1'
-				SPT-6	7.5 - 9.0	1.0	5-12-7	20	and 21.1' of riser- protected with
-				SPT-7	9.0 - 10.5	0.9	6-17-16	16	flushmount manhole set in
-				SPT-8	10.5 - 12.0	1.3	13-12-9	16	concrete pad Boring backfilled ₋
-				SPT-9	12.0 - 13.5	1.3	8-11-9	17	from 0' to 31.1' with well
-				SPT-10	13.5 - 15.0	1.1	4-3-2	19	installation - materials
-				SPT-11	15.0 - 16.5	1.1	2-3-4	22	-
-				SPT-12	16.5 - 18.0	1.4	6-10-12	22	-
-				SPT-13	18.0 - 19.5	1.0	6-12-14	21	-
_ 1079.1	20.2	SOIL 7:		SPT-14	19.5 - 21.0	1.5	7-7-7	21	_
1076.8	22.5	Sand, light brown damp to moist, me		SPT-15	21.0 - 22.5	1.3	7-11-12	10	_
- - 1074.9	24.4	dense, medium to		SPT-16	22.5 - 24.0	1.3	8-11-10	21	-
1074.9	24.4	SOIL 2:		SPT-17	24.0 - 25.5	1.5	7-10-11	33	_
SM-GRAPHIC		Lean Clay, brown, stiff, moist to wet	, very	SPT-18	25.5 - 27.0	0.1	50+	18	-
- Prawican 	28.9	Shale, brown to govery thin bedded,		SPT-19	27.0 - 28.5	0.4	19-62-22	12	-
Posal Are	20.0	∖ stained, heavily w ∖(augered)	eathered /	SPT-20	28.5 - 30.0	0.4	50+	14	<u> </u>
EVIER ASH DIS		No Refusal / Bottom of Hole							-
IFINSM_LEGACY_JOHN SEVIEF ASH		Top of Rock = 24.							-
- WSW_LEC	Elevation (1074.9)								_
TANTECIF	- -								-
n 			ONSI II :	ΓING SERVI	CES IN			1/23/10	



Project N	Number	175569038			Location	R	Rogersville	, TN		
Project N	Name -	John Sevier Ash D	isposal Area	as	Boring No.	J	S-61A			
County	-	Hawkins	· ·		Surface Ele	vation	 108	39.7 ft		
Project 7	- Гуре	Geotechnical Explo	oration		Date Started	— 8 b	/20/09	Completed	8/20/09	
Supervis	sor	A. Davis Dri	iller S. Brad	dford	Depth to Wa	ater 1	8.0 ft	Date/Time	8/20/09	
Logged	Ву	A. Davis			Depth to Wa	ater		Date/Time		
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
1089.7	0.0	Top of Hole							Davis a	
_		SOIL 1:	and liabt	SPT-1	0.0 - 1.5	0.9	1-2-2	19	Boring advanced with 3 -	
-		Lean Clay with Sa brown to brown wi reddish tint, damp	ith some	SPT-2	1.5 - 3.0	0.4	2-2-4	20	1/4 I.D. Hollow _ Stem Augers _	
- 1084.4	5.3	stiff, with silt, man	ganese	SPT-3	3.0 - 4.5	0.9	5-7-6	17	-	
_ 1004.4	ა.ა	SOIL 8:		SPT-4	4.5 - 6.0	1.1	2-3-4	19	Installed — Piezometer with _	
-		Lean Clay with Sa Silt, brown and gra		SPT-5	6.0 - 7.5	1.5	4-10-8	17	10' of slotted screen at 25.5'	
-	to moist, medium stiff to very stiff, with zones				7.5 - 9.0	0.0	10-8-8	11	and 18.5' of riser- protected with	
L		varying with more silt		SPT-7	9.0 - 10.5	1.3	9-8-8	17	steel cover set in concrete pad	
-	Since Since				10.5 - 12.0	1.0	9-8-11	15	Boring backfilled - from 0' to 30'	
-					12.0 - 13.5	0.4	9-4-4	25	with well installation	
-				BAG-1 SPT-10	12.0 - 15.0 13.5 - 15.0	0.3	4-4-4	23	materials	
-				SPT-11	15.0 - 16.5	1.3	2-4-4	21	-	
1071.7	18.0			SPT-12	16.5 - 18.0	0.6	2-4-7	20	_	
-	1910	SOIL 2: Lean Clay, brown	to tan	SPT-13	18.0 - 19.5	1.5	8-9-11	17	-	
		moist, soft to very rare manganese		SPT-14	19.5 - 21.0	0.4	6-8-5	16	_	
_		concretions		SPT-15	21.0 - 22.5	0.8	4-4-5	18	-	
1,123/10				SPT-16	22.5 - 24.0	1.0	4-3-5	21	-	
				SPT-17	24.0 - 25.5	0.3	2-1-3	26	_	
- H88W-GRAPHICTOG-601 L12340	26.7			SPT-18	25.5 - 27.0	1.5	3-4-11	22	-	
- 1061.3	28.4	SOIL 7: Sand with Clay, lig		SPT-19	27.0 - 28.5	1.5	9-12-7	16	_	
1059.7	30.0	to brown, wet, meddense, with gravel		SPT-20	28.5 - 30.0	0.7	10-12-21	27	_	
STANTECTMEN, LEGACY JOHN SEWER ASH DISPO		Shale, light brown to gray, thin bedde weathered (auger	ed,						- -	
LEGACY JOH	No Refusal / Bottom of Hole								-	
Top of Rock = 28.4 Elevation (1061.3)										
		, , , , , , , , , , , , , , , , , , , ,	ONSUL [*]	TING SERVI	CES, IN	 C.		1/23/10		



Project I	Number	175661025			Location	N	I: 734639.	39.83 E: 2890303.16		
Project I	Name	JSF - Dry Stack Fi	nal Closure		Boring No.	J	S-73	Total Dept	h86.5 ft	
County	_	Hawkins, Tenness	ee		Surface Ele	vation_	116	67.9 ft		
Project ²	Туре	Drilling and Piezon	neter Installa	ation	Date Started	d3	/28/13	Completed	3/29/13	
Supervis	sor	Sam Lee Dr	iller Rob Ti	llery	Depth to Wa	ater D	ry	Date/Time	3/29/13	
Logged	Ву	Sam Lee			Depth to Wa	ater_N	I/A	Date/Time	N/A	
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %		
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks	
_1167.9	0.0	Top of Hole								
- - - - -		Compacted Fly As to dark gray, loose medium dense, dawet, with occasion bottom ash and gray	e to amp to nal	SPT-1	0.0 - 1.5 4.0 - 5.5	1.5	2-3-5 4-15-15		Boring — advanced with 4-1/4" I.D Hollow Stem Augers	
- - -				SPT-3	9.0 - 10.5	1.0	6-7-9		- - - -	
- - - -				SPT-4	14.0 - 15.5	1.0	6-19-15		- - - - -	
_ _ _ _ 1146.4	21.5	Bottom Ash, gray	to dark	SPT-5	20.0 - 21.5	1.0	5-14-16		- - - -	
н-ажини составта		gray and black, de very dense, medit very coarse graine to dark gray, poor damp, angular	ense to um to ed, gray	SPT-6	25.0 - 26.5	1.3	5-15-17		- - - - -	
CY BORINGS(LS-73 TO 81), GPJ HAMAN				SPT-7	30.0 - 31.5	1.5	6-12-10	-	- - - - -	
	35.5			SPT-8	34.0 - 35.5	1.5	16-17-16		- - -	
			01 1		ting Services	I.a. a	<u> </u>	I	8/30/13	



	Project I	Number	175661025			Location	N	: 734639.	83 E: 289	00303.16
	Project I	Name	JSF - Dry Stack Fir	nal Closure		Boring No.	J	S-73	Total Dept	h86.5 ft
H	Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
	Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
- - - -			Compacted Fly As to dark gray, loose medium dense, da wet, with occasion bottom ash and gr (Continued)	e to amp to aal	SPT-9	40.0 - 41.5	1.5	8-17-25		- - - - -
- - - -					SPT-10	45.0 - 46.5	1.5	9-23-8		- - - -
- - -					SPT-11	50.0 - 51.5	1.5	7-9-11		- - - -
- - -					SPT-12	55.0 - 56.5	1.5	8-14-10		- - - -
- - - -					SPT-13	60.0 - 61.5	1.5	11-13-11		- - - -
C LOG.GDT 8/30/13					SPT-14	65.0 - 66.5	1.5			- - - -
NGS(JS-73 TO 81).GPJ FMSM-GRAPH					SPT-15	70.0 - 71.5	1.5	15-25-16		Compacted Fly — Ash, gray to dark gray, loose to medium dense, damp to —
STANTEC/FMSM_LEGACY BORINGS(JS-73 TO 81)					SPT-16	75.0 - 76.5	1.0	5-1-2		wet, with _ occasional bottom ash and gravel



Page: 3 of 3

Project N	Number	175661025			Location	N	: 734639.	83 E: 2890	0303.16
Project N	Name	JSF - Dry Stack Fir	nal Closure		Boring No.	J	S-73	Total Depth	86.5 ft
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
- - - - 1086.4 - -	81.5	Compacted Fly As to dark gray, loose medium dense, da wet, with occasion bottom ash and gray (Continued) Lean Clay with Sa	e to amp to hall ravel	SPT-17	80.0 - 81.5	1.5	3-6-9		- - - - -
1082.9	85.0	Gravel, brown, vel hard, wet	ry sun to	-					_
1081.4	86.5	Shale, Brown to G		SPT-18	85.0 - 86.5	1.0	18-20-22		-
		(augered) No Refusal / Bottom of Hole							
- -									- - -
_									=
			Ctanta	Canaul	ting Services	Inc			8/30/



County Hawkins, Tennessee Surface Elevation 1194.7 ft Project Type Drilling and Piezometer Installation Date Started 5/29/13 Completed 5/30/13 Supervisor C. Gabriel Driller Bertram G. Depth to Water 96.3 ft Date/Time 5/29/13 Logged By C. Gabriel Depth to Water N/A Date/Time N/A Lithology Overburden Sample # Depth Rec. Ft. Blows Mois.Cont. % Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth Remarks 1194.7 0.0 Top of Hole Top Soil: Lean clay, light Topsoil with	Project I	Number	175661025			Location	N	: 735028.	37 E: 289	91089.42
Project Type Drilling and Piezometer Installation Supervisor C. Gabriel Driller Bertram G. Depth to Water 96.3 ft Date/Time 5/29/13 Depth to Water 96.3 ft Date/Time N/A Date/Time N/A Depth to Water N/A Date/Time N/A Date/Time N/A Depth to Water N/A Date/Time N/A D	Project I	Name	JSF - Dry Stack Fir	nal Closure		Boring No.	J	S-75	Total Dept	h120.1 ft
Supervisor Logged By C. Gabriel Driller Bertram G. Depth to Water Depth to Water N/A Date/Time N/A Lithology Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. Water Rec. Water Rec. Ft. Rec. Water	County		Hawkins, Tennesse	ee		Surface Elev	vation	119	94.7 ft	
Lighology Lithology Elevation Depth Description Rock Core RQD Run Rec. Ft. Blows Mois Cont. % Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth Remarks 1194.7 0.0 Top of Hole 1193.2 1.5 Top Soil: Lean clay, light brown, dry, medium stiff. Fly Ash: gray to dark gray, dry to moist, loose to medium dense. SPT-1 4.0 - 5.5 1.4 6-7-10 SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	Project ⁻	Туре	Drilling and Piezom	neter Installa	ation	Date Started	d5	/29/13	Completed	I5/30/13
Lithology Elevation Depth Description Rock Core RQD Run Rec. Ft. Blows Mois Cont. % 1194.7 0.0 Top of Hole 1193.2 1.5 Top Soil: Lean clay, light brown, dry, medium stiff. Fly Ash: gray to dark gray, dry to moist, loose to medium dense. SPT-1 4.0 - 5.5 1.4 6-7-10 SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	Supervis	sor	C. Gabriel Dri	ller Bertran	n G.	Depth to Wa	ater 9	6.3 ft	Date/Time	5/29/13
Elevation Depth Description Rock Core RQD Run Rec. Ft. Rec. % Run Depth Remarks 1194.7 0.0 Top of Hole 1193.2 1.5 Top Soil: Lean clay, light brown, dry, medium stiff. Fly Ash: gray to dark gray, dry to moist, loose to medium dense. SPT-1 4.0 - 5.5 1.4 6-7-10 SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	Logged	Ву	C. Gabriel			Depth to Wa	ater N	/A	Date/Time	N/A
1194.7 0.0 Top of Hole 1193.2 1.5 Top Soil: Lean clay, light brown, dry, medium stiff. Fly Ash: gray to dark gray, dry to moist, loose to medium dense. SPT-1 4.0 - 5.5 1.4 6-7-10 SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Top Soil: Lean clay, light brown, dry, medium stiff. Fly Ash: gray to dark gray, dry to moist, loose to medium dense. SPT-1 4.0 - 5.5 1.4 6-7-10 SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
SPT-2 9.0 - 10.5 1.5 9-16-19	_1194.7	0.0	•							_
SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	1193.2	1.5	Top Soil: Lean cla brown, dry, mediu	y, light m stiff.						grass vegetation
SPT-2 9.0 - 10.5 1.5 8-16-18 SPT-3 14.0 - 15.5 1.5 9-16-19	-		dry to moist, loose							cover, 18" tnick =
SPT-3 14.0 - 15.5 1.5 9-16-19	-				SPT-1	4.0 - 5.5	1.4	6-7-10		-
SPT-3 14.0 - 15.5 1.5 9-16-19	-									-
SPT-3 14.0 - 15.5 1.5 9-16-19										_
SPT-3 14.0 - 15.5 1.5 9-16-19	-									-
	-				SPT-2	9.0 - 10.5	1.5	8-16-18		-
	-									-
	-									-
SPT-4 19.0 - 20.5 1.3 8-10-10	_				SPT-3	14.0 - 15.5	1.5	9-16-19		_
SPT-4 19.0 - 20.5 1.3 8-10-10	-									-
SPT-4 19.0 - 20.5 1.3 8-10-10	-									-
SPT-4 19.0 - 20.5 1.3 8-10-10	-									-
					SPT-4	19.0 - 20.5	1.3	8-10-10		
	-									_
	-									-
	-									-
SPT-5 24.0 - 25.5 1.4 7-11-15	<u></u>				SPT-5	24.0 - 25.5	1 /	7_11_15		-
311-5 24.0 - 25.5 1.4 7-11-15					31 1-3	24.0 - 23.3	1.4	7-11-13		
1166.7 28.0	1166.7	28.0								-
Bottom Ash: Gray to dark gray with fragments of SPT 6 20 0 20 5 1.5 4.0.10					CDT A	20.0.20.5	4 5	4 0 40		-
coal. moist to wet, loose to			coal. moist to wet,	loose to	SP1-6	29.0 - 30.5	1.5	4-9-10		7
medium dense, fine to medium coarse grained.	-]
										_
	_									-
SPT-7 34.0 - 35.5 1.4 5-6-8					SPT-7	34.0 - 35.5	1.4	5-6-8		-
	_									8/30/13



Project N	Number	175661025			Location	N	: 735028.	37 E: 289	1089.42
Project N	Name	JSF - Dry Stack Fir	nal Closure		Boring No.		S-75	Total Depth	120.1 ft
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
- - - - 1152.7	42.0	Bottom Ash: Gray gray with fragmen coal. moist to wet, medium dense, fir medium coarse gr (Continued)	ts of loose to ne to	ST-1 SPT-8	36.0 - 38.5 39.0 - 40.5	1.4 0.1	1-2-2		- - - -
	42.0	Fly Ash: gray to da with small fragme coal, dry to damp,	nts of	SPT-9	44.0 - 45.5	1.4	6-12-15		- - - - -
- - -				SPT-10	49.0 - 50.5	1.3	4-9-13		- - -
- - -				SPT-11	54.0 - 55.5	1.2	7-16-32		- - - -
- - -				SPT-12	59.0 - 60.5	1.4	7-14-19		- - - -
1131.7	63.0	Bottom Ash: Gray gray with fragmen coal. Moist to wet, fine to medium co grained.	ts of dense,	SPT-13	64.0 - 65.5	1.4	9-18-20		- - - -
73 TO 81) GPT TWO SECURATED CO.				SPT-14	69.0 - 70.5	1.5	7-13-19		- - - -
WIECERSON				SPT-15	74.0 - 75.5	1.5	9-15-20		- - - -
È.					ting Convious				8/30/13



Page: 3 of 4

Project Number 175661025					Location	N: 735028.37 E: 2891089.42					
Project I	Project NameJSF - Dry Stack Final Closure				Boring No. JS-75		Total Depth 120.1 ft				
Litholo	ogv	Overburden		Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %			
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks		
- - - -		Bottom Ash: Gray gray with fragment coal. Moist to wet, fine to medium congrained. (Continual)	ts of dense, arse	SPT-16	79.0 - 80.5	1.5	10-12-18	-			
- - -				SPT-17	84.0 - 85.5	1.5	4-14-25		- - -		
1104.6 1102.7	90.1	Fat Clay: Dark bro	own, wet, uiced		89.0 - 90.5	1.5	5-10-14		Bottom 0.4' of SPT-18 is stiff reddish brown clay		
- - -	J=.0	Ash. Sluiced Ashed: Gr dark gray, wet, loc medium dense, ve grained.	se to	ST-2 SPT-19	91.0 - 93.5 94.0 - 95.5	1.3	4-8-11		Bottom edge of tube was slightly kinked during the drive.		
- - - -				SPT-20	99.0 - 100.5	1.4	1-1-5		- - - -		
_ 1090.5 _ 1089.5	104.2	Fat Clay: Reddish wet, stiff with a few of ash. Sandy Gravel: red brown, well rounder poorly	v veins	SPT-21	104.0 - 105.5	1.4	10-21-27		- - - -		
3 TO 81), GPJ FNSM-GRAPHIC LC		ροστιγ		ST-3	109.0 - 111.5	1.6			Tube failed but — sample is preserved for other purposes.		
1080.5 1080.1 108	114.2 114.6	Weathered Shale: brown, moderately thin bedded, mode weathered.	/ hard,	SPT-22	114.0 - 115.5	0.6	106		Weathered Shale was augered to 115.0' depth.		
	Stantec Consulting Services Inc										



Page: 4 of 4

Project I	Number	175661025			Location	N:	735028	.37 E: 289	91089.42
Project I	Name	JSF - Dry Stack Fi	nal Closure		Boring No.	JS-75		Total Dept	h120.1 ft
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1074.6 _ _ _	120.1	Limestone: Light to gray, micro graine moderately hard. (Continued) No Refusal /	o dark						Advanced with 6" roller bit. No — water return — observed.
_		Bottom of Hole							-
-									=
									_
-									_
-									-
-									- -
-									_
									_
-									=
<u></u>									_
-									-
-									- -
_									_
-									_
									_
MANAGE TO THE TOTAL TOTA									-
ANIECTNISM_EGACT BORNOS(GS-73 TO 81), GAJ THISIGLARPHOLDOGOD BROADS									= =
									_ =
LEGACY BO									-
E C C C C C C C C C C C C C C C C C C C									- -
<u> </u>			Ctanta	- Canaul	ting Services	. lno			8/30/13

APPENDIX B.5

PERMANENT WELLS

Table of Contents

Subsurface Boring Legend	1
MW-2	2
MW-4	3
10-36	4
W-28SB	5
W-29SB	6
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W-32	9
JSF-101	10
JSF-102	11
JSF-103	12
JSF-104	13
JSF-105	14
JSF-106	15
JSF-107	17
JSF-108	20
JSF-109	23
JSF-109Alt	25
JSF-109Alt2	28
JSF-110	31
JSF-111	33
JSF-112Alt	34
JSF-113Alt	36
JSF-200	38
JSF-201	51
JSF-202	62
JSF-203	73
JSF-204	77
JSF-205	81

JSF-206	85
JSF-206S	88
JSF-207	90
JSF-208	93
JSF-209	96

Subsurface Boring Legend

Lithology Graphics

Symbol	Lithology
	Fill
	Top Soil
03030303 0000000 0000000	Gravel
8 8 8 8 8 8	Well Graded Gravel (GW)
0 0 0 0	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
$\overline{\Delta}$	First water level reading
Ā	Second water level reading

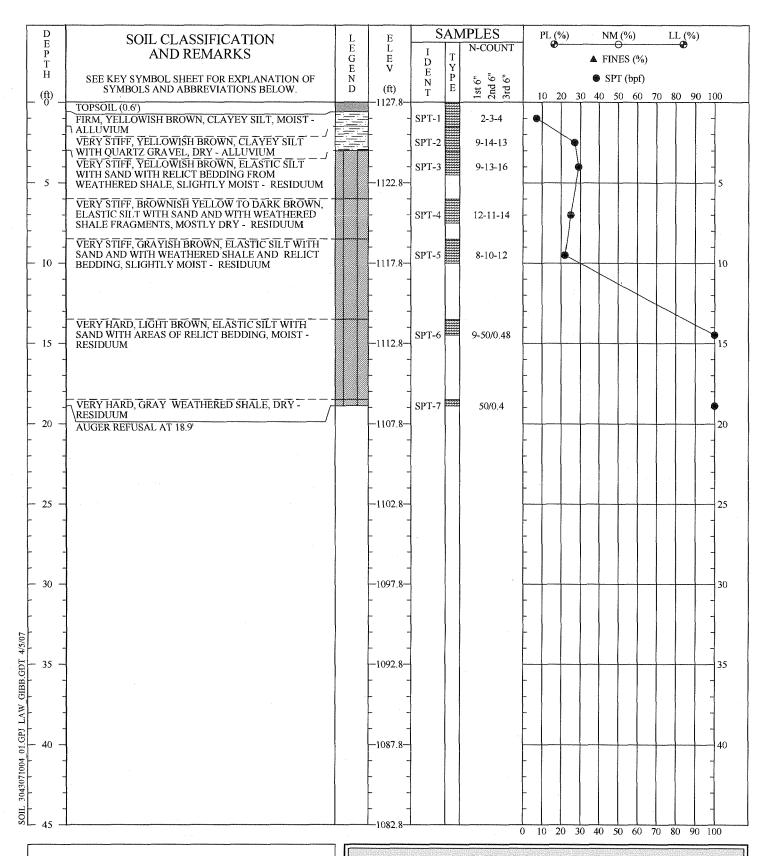
Common Abbreviations

Abbreviation	Definition				
DP	Direct Push				
НА	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.



REMARKS:

STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING A SAFETY DRIVE HAMMER (HYDRAULIC BI-DIRECTIONAL FREEFALL HOIST

FOR DRIVE SAMPLING OPERATIONS).

SOIL TEST BORING RECORD

PROJECT: TVA JSF Proposed Gypsum Stack

DRILLED: February 7, 2007

BORING NO.: MW-2

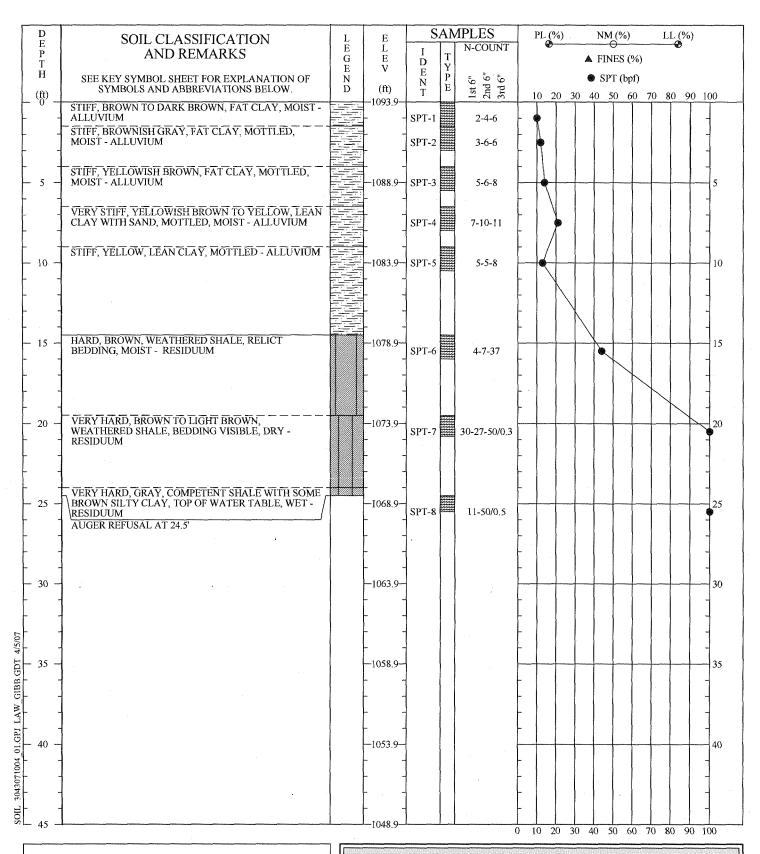
PROJ. NO.: 3043071004/0001

PAGE 1 OF 1

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 BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller: Snider
Prepared By: C.N.
Checked By: J.C.M.





REMARKS: STANDARD PENETRATION RESISTANCE TESTING PERFORMED USING AN AUTOMATIC HAMMER.

MONITORING WELL MW-4 WAS INSTALLED IN

BORING.

SOIL TEST BORING RECORD

PROJECT: TVA JSF Proposed Gypsum Stack

DRILLED: January 31, 2007

BORING NO.: MW-4

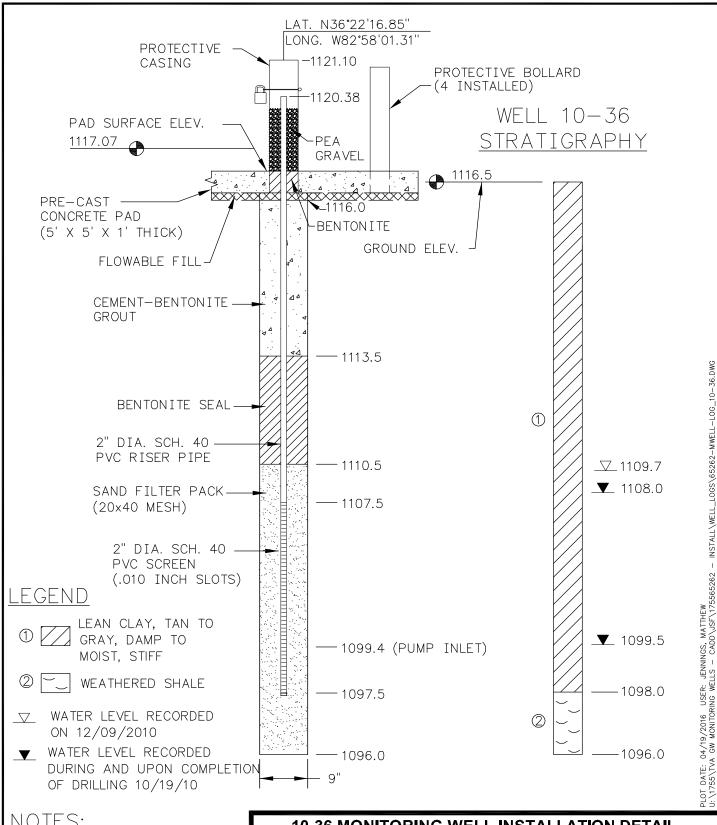
PROJ. NO.: 3043071004/0001

PAGE 1 OF 1

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Driller: Akins
Prepared By: C.N.
Checked By: J.C.M.





NOTES:

- 1. SUBSURFACE STRATIGRAPHY BASED ON SPT SAMPLES OBTAINED DURING THE DRILLING PROCESS.
- 2. SURVEY INFORMATION PROVIDED BY STANTEC (NAD83 SHOWN).
- 3. WELL INSTALLED ON 10/19/2010 BY STANTEC.

10-36 MONITORING WELL INSTALLATION DETAIL TVA JOHN SEVIER FOSSIL PLANT ROGERSVILLE, HAWKINS COUNTY, TN



Stantec Consulting Services Inc. 1409 N. Forbes Rd. 859-422-3000

www.stantec.com

DRAWN BY	MSJ	DATE APRIL, 2	2016	REV	ISED	SHEET
CHECKED BY	DRP	PROJ. NO .175565	262	1.	3.	1 of 1
CHECKED BY	BLB	SCALE	NTS	2.	4.	1 01 1



Project Number 175565280					Location N36°22'45.69 W82°58'02.72 (NAD83				2.72 (NAD83)
Project Na	ame	TVA-JSF	Boring No. W-28SB Total Depth 26.8				n26.8 ft		
County		Hawkins, TN	Surface Elev	vation	10 ⁻	79.9 ft			
Project Ty	/pe	Geotechnical Explo	oration		Date Started	d 10	0/9/15	Completed	10/9/15
Superviso	r	B. Bryant Dri	ller D. Cler	nents	Depth to Wa	ater D	ry	Date/Time	10/9/15
Logged By	у	C. Skees			Depth to Wa	ater N	/A	Date/Time	N/A
Lithology	/		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation [Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1079.9'	0.0'	Top of Hole							Backfilled with
- - -		Fill: Lean Clay Wit Gravel, grayish bromoist, medium stif possible ash and omatter, rock fragm	Grab-1	0.0' - 4.0'	2.6'			30% solids bentonite grout upon completion.	
	8.0'					0.6'			<u>-</u> - -
- - -			ean Clay, gray and rown, moist, medium stiff, vith trace gravel		8.0' - 12.0'	3.2'			- - - -
- - 1065.4' -	14.5'	Lean Clay With Sa brown, moist, soft,		Grab-4	12.0' - 16.0'	4.0'			- - -
- - -			ne sand increasing		16.0' - 20.0'	4.0'			- - - -
- - 1055.9' 2	24.0'			Grab-6	20.0' - 24.0'	4.0'			- - -
_	26.8'		Lean Clay, grayish brown, moist, soft, with weathered shale fragments			2.8'			- - -
		Auger Refusal / Bottom of Hole							- -
_	Top of Rock = 26.8' Elevation (1053.1')								



Project N	Number_	175565280			Location	N;	36°22'40.1	10 W82°58'1	1.20 (NAD83)
Project N	Name	TVA-JSF	Boring No. W-29SB			Total Depth18.6 ft			
County	_	Hawkins, TN	Surface Ele	vation_	10	77.5 ft			
Project 7	Гуре	Geotechnical Explo	Date Started 10/9/15		Completed	10/9/15			
Supervis	sor	B. Bryant Dri	nents	Depth to Water)ry	Date/Time	10/9/15	
Logged	Ву	C. Skees			Depth to Wa	ater N	 I/A	Date/Time	N/A
Lithology			Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1077.5'	0.0'	Top of Hole							Backfilled with
-		Lean Clay, brown, stiff to soft below? - Light gray mottlir	15.0'	Grab-1	0.0' - 4.0'	2.7'			30% solids bentonite grout upon completion.
-		10.0' - Becomes soft be	low 15.0'						- -
-			Grab-2	4.0' - 8.0'	4.0'			-	
-				Grab-3	8.0' - 12.0'	4.0'			- - -
-									-
-				Grab-4	12.0' - 16.0'	,			- - -
_ 1061.4'	16.1'								-
- 1059.0'	18.5'	Sandy Lean Clay, moist to wet, soft	brown,	Grab-5	16.0' - 18.6'	2.5'			-
1058.9'	\18.6'/ [†]	Bedrock			1			-	
<u> </u>		Auger Refusal / Bottom of Hole							_
HC LOG.6DT 4/19/1		Top of Rock = 18. Elevation (1059.0'							-
NNTECFMAN, LEGACY, 4SF_CONFIRMATIORY.GR) I MSM-GRAPHICLOGGE			,						_
TORY.GPJ F									
CONFIRMA									-
SACY JSF									-
- EMSM_LEC									-
TANTECIF									-
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Stantor	Consul	ting Services	Inc			4/19/16

		LAW ENGINEERING						BORING FIELD	BORING NO. W-30		
•	08 NO		٠		١	0	RILLER	No elvel		GROUND SURFACE	
٤	MAN BO	E <u>IVA</u>	<u> John</u>	<u>sev</u>	1160	C	REW	Roberts		HOURS MOVING	-
	PATE;	0-4-	<u>.42</u>		_WEAT	HER _	10+/(loudy/Ra	lny .	PAGEOF_	
No	o. Cepth	SAMP		310 50	SCALE	م ں	REC	so	OIL CLASSIFICATION		REMARKS
			300 1	1195	0-			Tapsoil = 1	0_4		
	5.0/4.5	4	5	7			0.2	Brown silt	·u clan		
_											
2	7.5/م	2	\	9	5-5		1.5	14. brown +	Fine sandy cla		moist
						-					
3	4.9/10.5	4	6	7			0.9	It brown clo	yey sand		moist and wer
4	12.9/3.5	.3	4	7		· · · · · · · · · · · · · · · · · · ·	15	14-6			WET
							1,7	IT. DCs.WX	sandy clay		
5	3.0/16.5	4	6	8	5		1.5	Orange brown	n clayey sand	(allyviam)	WET
								XAUGET rea	iusal @ 17.9		
-				.	0_			set w	<u>e11</u>		
\dashv								<u>Ccomplian</u>	(e)		
_											SO WOS
											+STANDARD PENETRATION RESISTANCE
_											T.S.
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-											
										W	🍄
-					- 0						
j											
	ING TER			****					METHOD OF AD	VANCING BORING	DEPTH
	ING REF			·····					POWER AUGER SO	VI 175	7.
	ER TOB								HAND CHOP: W/MI		TO
	ER 24 HF		TH _			······································			ROTARY DRILL: V		то
	ER LOSS	-	1/4"	······································		<u> </u>			DIAMONO CORE POWER AUGER HO	ALLOW STEM	0.0 TO 17
M\$1	NG: SIZE		L/ 4		NGTH_				A TOTAL MODER MO	ACCAM DICIM	10.0.017

GED: YARNELL

			ENGIN					BORING FIELD REPORT BORING NO	<u>U = ,</u>	31	
								Voehel GROUND SURPA	CE ELE	v	
	OB NAM	E TY	A Joh	<u> </u>	<u>vier</u>		REW	Howie Hours moving	***************************************		
1	DATE:	5 - 2	<u>> -98</u>	·	_WEAT	HER		PAGEO			
N	o. Depth	5AMP	LING "N" 2nd 6"] 3rd 8-,	SCALE	ە ت	REC	SOIL CLASSIFICATION		REMARKS	
					-0-			Tepsoil = 0.4			
F	3.9/4.5	6	7	9			1.2	Brown Mayey silt			
2	60/1.5	C	17	9	5		1.5	B. J. S.			
								Brown/gray sandy silt			0.D.
3	1.9/0.5	9	9	7	0		0.1	Brown silty clay w/ so gravel	4	20 :WET	- â
4	2.8/86	4	50/.4				1.0	Brown weathered shale + gray shab		WET	+STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" TO DRIVE 1-3/8" I.D., SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES
5	59/n.s	59/ _H			- 5		0.3	Caray shall w/ wet clay		OET	TO DRIV
4	18.44.5							*Anger Refusal @15.3			BLOWS FOR 2ND 6" 7
								compliance			FOR
긤	ν.», /12:5				0						BLOWE
8	u az 185.5										SUM OF
					-5-						CE IS 8
1											ISTAN 40 POU
1					-0						N RES
1											+STANDARD PENETRATION RESISTANCE IS SPLIT BARREL SAMPLER WITH 140 POUND H
1					-5-						PENE EL SAN
+											NDARE BARR
+							Victorian and Annual Control of the			4 - Marie - Ma	+STAI SPLIT
	ING TER	MINAT	Fn-		-0						·
OR /AT	ING REF	USAL: DEPTH		5.3				POWER AUGER SOLID HAND CHOP: W/MUD: W/WATER	16	TO TO	1
/AT	ER 24 HI ER LOSS NG: SIZE	ES	TH 'タ"	LE	NGTH_	51		ROTARY DRILL: W/MUD: W/WATER DIAMOND CORE POWER AUGER HOLLOW STEM		70 70 0.070]	二 <u>3</u> ,3

BORING NO. 14-32 LAW ENGINEERING SOIL TEST BORING FIELD REPORT JOB NO. 50500-7-9000/8168/0001 DRILLER John Vocted GROUND SURFACE ELEV. JOB NAME TVA John Sevier CREW John / Howie HOURS MOVING _ DATE: 5-19-48 WEATHER Suny/Warm SAMPLING SCALE REC SOIL CLASSIFICATION REMARKS No. Depth 1st 6" 2nd 6" 2rd 6" Topsoil = 0.4 Some topseil (gross, roots) 2 6%1.5 brown sil clay +STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" TO DRIVE 1.3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES. 3 9.0/05 4 1.5 brown sil clay 4/2.0/35 4 1.5 brown sil chy w/ weathered shale 1.5 dk brown sil clay w/weathered
brown shale w/some cakete niperalization damp (stick 6 19.5 8 5%.4 grayish brown weathered shale 7 21.0/225 50/.4 0.5 grayish brown weathered shale. *Auger refusal @23.2' .. 24 hr H, D level ≈ 16.4" 8 4/25.5 set well (compliance) 9 27/285 11 33.045 13 39/405 BORING TERMINATED: METHOD OF ADVANCING BORING DEPTH BORING REFUSAL: 23.7 POWER AUGER SOLID WATER TOB DEPTH _______ HAND CHOP: W/MUD; W/WATER WATER 24 HR.: DEPTH 1(0.4) TO ROTARY DRILL: W/MUD: W/WATER WATER LOSSES то DIAMOND CORE 0,0 TO,33,2 POWER AUGER HOLLOW STEM



Project Nu	mber	175565262			Location	N	36°22'42.1	5 W82°57'1	0.84 (NAD83)
Project Na	me	TVA - JSF Well Ins	tallation		Boring No.	J	ISF-101	Total Dept	h 24.6 ft
County	_	Hawkins, TN			Surface Ele	vation	 110	06.6 ft	
Project Typ	pe	Well Installations			Date Started	_ d 1	0/7/15	Completed	10/19/15
Supervisor	r	B. Bryant Dri	ller G. Tho	mpson	Depth to Wa	ater 1	7.9 ft -bgs	Date/Time	10/7/15
Logged By	′	C. Skees/ J. Andre	w		Depth to Wa	ater 1	6.0 f -bgs	Date/Time	10/21/15
Lithology			Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation D	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
	0.0'	Top of Hole							4 inch die DVC
	0.4'_/	Topsoil		_					4-inch dia. PVC well installed.
1105.1'	1.5'	Fill: Gravelly Lean brown, moist	Clay,						-
-		Lean Clay, brown brown, moist, med - Gray mottling be	lium stiff slow 5.0'	SPT-1	2.5' - 4.0'	1.3'	3-5-6		-
-		- Becomes light b with gray and red mottling, and Mn concretions below	brown 10.0'	SPT-2	5.0' - 6.5'	1.5'	4-5-9		- -
-		- Fine sand, slight increasing below 1	SPT-3	7.5' - 9.0'	1.5'	4-6-10		-	
-				SPT-4	10.0' - 11.5'	1.4'	3-6-10		Analytical – Samples Composite 1: SPT-5, SPT-6,
-				SPT-5	12.5' - 14.0'	1.4'	3-4-6		SPT-7 Composite 2: SPT-8, SPT-9
1091.0' 1	5.6'	Silty Sand, wet to saturated, loose, li	iaht	SPT-6	15.0' - 16.5'	1.3'	4-6-10		-
-		brown with dark br intermixed, zones (sand is very fine) - Becomes gray to	rown of clayey o dark	SPT-7	17.5' - 19.0'	1.3'	3-4-6		-
42716		gray, fine to mediu coarse grained be		SPT-8	20.0' - 21.5'	1.0'	WOR-1-3		-
1082.0' 2	24.6'			SPT-9	22.5' - 24.0'	1.1'	1-2-3		-
TALL.GPU FINE	,	Auger Refusal / Bottom of Hole						'	-
NAVTC/FWSM_LEGACY SSF_INST		Top of Rock = 24. Elevation (1082.0'							-
STANIECT			<u> </u>	. 0 :	tina Services	l			- 4/21/16



Project	Number	175565262			Location	N	36°22'47.42	2 W82°57'2	7.04 (NAD83)
Project	Name	TVA - JSF Well Ins	tallation		Boring No.	,	JSF-102	Total Dept	h 18.2 ft
County	-	Hawkins, TN			Surface Elev	vation	108	37.6 ft	
Project	Туре	Well Installations			Date Started	d -	10/15/15	Completed	10/15/15
Superv	isor	B. Bryant Dri	ller G. Tho	mpson	Depth to Wa	ater	7.5 ft -bgs	Date/Time	10/15/15
Logged	Ву	J. Andrew			Depth to Wa	ater	7.3 ft -bgs	Date/Time	10/19/15
Lithol	ogy		Overburden	Sample #	Depth	Rec. Ft	t. Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft	. Rec. %	Run Depth	Remarks
1087.6'	0.0'	Top of Hole							4-inch dia. PVC
1087.1'_ -	0.5'	Topsoil							well installed.
-		Fill: Lean Clay with brown, moist, med							-
-				SPT-1	2.5' - 4.0'	1.1'	2-2-3		-
-				01 1-1	2.5 - 4.0	1.1	2-2-3		-
_1082.6'	5.0'		Lean Clay, brown and light						_
-		Lean Clay, brown brown, moist to we		SPT-2	5.0' - 6.5'	1.0'	1-1-3		-
-		very soft	.,						Analytical -
-						0.2'	WOH-		Samples Composite 1:
-				SPT-3	7.5' - 9.0'	0.2	WOH-		SPT-1, SPT-2,
_1077.6'	10.0'						WOH		SPT-3 Composite 2:
-		Sand, brown, wet, loose to medium of		SPT-4	10.0' - 11.5'	1.1'	WOH-1-2		SPT-4, SPT-5, SPT-6
-		ioooo to moulain o	.0.1.00						SP1-0 -
-				SDT 5	12.5' - 14.0'	1.4'	1-1-3		_
-				31 1-3	12.5 - 14.0	1.4	1-1-3		_
L									
-				SPT-6	15.0' - 16.5'	1.5'	5-7-9		_
1070.1	17.5'								_
1069.4	18.2'	_ Weathered shale,	gray	SPT-7	17.5' - 18.2'	0.2'	20-50+		-
-		Auger Refusal /							-
L		Bottom of Hole							_
-		Top of Rock = 17.	5'						_
T 4/19/16		Elevation (1070.1')						_
- LOG.60									-
GRAPHIC —									-
- FMSM-									_
STALL.GP									-
Z									-
LEGAC									_
STANTECFMSNI, LEGACY, ISF_INSTALL.GRV FNISM-GRAPHIC LOGGOT 4/1916									-
STANT					tina Services				4/19/16



Project N	Number	175565262			Location	_N3	6°22'15.0	9 W82°57'49	9.71 (NAD83)
Project N	Name	TVA - JSF Well Ins	tallation		Boring No.	J	SF-103	Total Dept	h 21.3 ft
County		Hawkins, TN			Surface Elev	vation	112	22.8 ft	
Project 7	Гуре	Well Installations			Date Started	d1	0/20/15	Completed	10/20/15
Supervis	sor	B. Bryant Dri	ller G. Tho	mpson	Depth to Wa	ater 1	8.8 ft -bgs	Date/Time	10/20/15
Logged	Ву	J. Andrew			Depth to Wa	ater 9	.7 ft -bgs	Date/Time	10/21/15
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1122.8'	0.0'	Top of Hole							4 inch die DVC
1122.6'	`0.2' _∕	Topsoil							4-inch dia. PVC well installed.
-		Lean Clay, brown, stiff, with red, blac dark brown mottlir	k, and	SPT-1	2.5' - 4.0'	1.5'	5-8-12		- - -
-				SPT-2	5.0' - 6.5'	1.5'	7-9-12		- - -
- - 1112.8'	10.0'			SPT-3	7.5' - 9.0'	1.5'	8-8-11		-
_		Lean Clay, brown, very stiff	moist,	SPT-4	10.0' - 11.5'	1.5'	10-12-15		- - -
1110.3'	12.5'	Lean Clay, brown, stiff to very stiff, w black, and dark br	ith red,	SPT-5	12.5' - 14.0'	1.5'	3-6-10		-
-		mottling.		SPT-6	15.0' - 16.5'	1.5'	11-13-25		<u>-</u> - -
-				SPT-7	17.5' - 19.0'	1.5'	4-8-10		-
1101.8'	21.0' 21.3'	Weathered Shale	grov /	SPT-8	20.0' - 21.3'	1.3'	12-18-50		
TANTEOFINSM LEGACY IS TINSTALL GBJ FINSK-GRAFHIC TOGGOD 47197	(21.3)	Weathered Shale, Auger Refusal / Bottom of Hole Top of Rock = 21. Elevation (1101.8)						- - - - -	
SIANIECT			Stanted	: Consul	ting Services	Inc.			4/19/16



Project N	Number	175565262			Location	N3	6°22'06.4	1 W82°58'0	4.39 (NAD83)
Project N	Name	TVA - JSF Well Ins	stallation		Boring No.	J	SF-104	Total Dept	h28.1 ft
County		Hawkins, TN			Surface Elev	vation	114	41.9 ft	
Project 7	Гуре	Well Installations			Date Started	d 1	0/14/15	Completed	10/14/15
Supervis	sor	B. Bryant Dr	iller G. Tho	mpson	Depth to Wa	ater 2	2.7 ft -bgs	Date/Time	10/14/15
Logged	Ву	J. Andrew			Depth to Wa	ater 1	8.4 ft -bgs	Date/Time	10/19/15
Litholo	gy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1141.9'	0.0'	Top of Hole							4-inch dia. PVC
1141.7'	`0.2' _∕	Topsoil	/						well installed.
_		Lean Clay, brown stiff	, moist,						-
-				SPT-1	2.5' - 4.0'	0.8'	4-5-6		-
									-
				SPT-2	5.0' - 6.5'	1.0'	4-4-5		
				01 1-2	3.0 - 0.3	1.0	7-4-3		1
1134.4'	7.5'	Loop Clay With C	and						
		Lean Clay With Sabrown, moist, med		SPT-3	7.5' - 9.0'	1.5'	1-2-2		_
		to very stiff, with occassional grave	ıle						_
_		ooddolonal grave	.10	SPT-4	10.0' - 11.5'	1.2'	2-8-19		-
1129.4'	12.5'								-
_		Lean Clay, brown		SPT-5	12.5' - 14.0'	1.5'	2-4-5		-
		brown mottling, m to very stiff	oist, stiff						-
		to very etim		CDT 6	15 01 16 51	0.41	7 10 15		-
				SP1-0	15.0' - 16.5'	0.4'	7-12-15		-
1124.4'	17.5'			_					-
		Sandy Lean Clay, moist, very stiff to		SPT-7	17.5' - 19.0'	0.3'	7-15-15		1
		,,							
_				SPT-8	20.0' - 21.5'	1.5'	4-7-9		
_									_
_				SPT-9	22.5' - 24.0'	1.5'	3-10-12		-
				01 1 0	22.0 24.0	1.0	0 10 12		-
_									-
				SPT-10	25.0' - 26.5'	1.5'	2-5-7		-
8 1113.9'	28.0'			CDT 44	07.51.00.41	0.5	0F F0:		-
1113.8	\28.1'/	Weathered shale,	light /	<u> 1971-11</u>	27.5' - 28.1'	0.5'	25-50+		
3 — 2 —		gray							-
		Auger Refusal /]	
		Bottom of Hole							
		Top of Rock = 28.0' Elevation (1113.9')							_
			,	Canaul	tina Services	lna			4/19/16

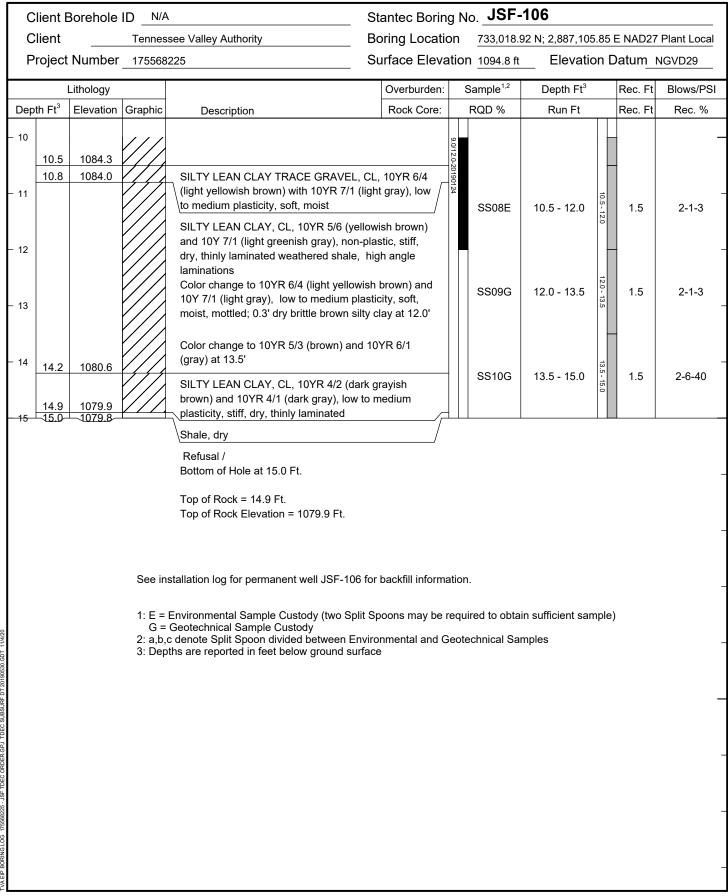


Project I	Number	175565262			Location	N:	36°22'16.0 ₄	4 W82∘58'2	3.13 (NAD83)
Project I	Name	TVA - JSF Well Ins	stallation		Boring No.		JSF-105	Total Dept	h21.1 ft
County		Hawkins, TN			Surface Ele	vation	111	17.3 ft	
Project ⁻	Туре	Well Installations			Date Started	d 1	10/15/15	Completed	10/15/15
Supervis	sor	B. Bryant Dr	iller G. Tho	mpson	Depth to Wa	ater 1	16.7 f⊩bgs	Date/Time	10/15/15
Logged	Ву	J. Andrew			Depth to Wa	ater 8	3.8 ft -bgs	Date/Time	10/20/15
Litholo	ogy		Overburden	Sample #	Depth	Rec. Ft.	Blows	Mois.Cont. %	
Elevation	Depth	Description	Rock Core	RQD	Run	Rec. Ft.	Rec. %	Run Depth	Remarks
1117.3'	0.0'	Top of Hole		-					4-inch dia. PVC
-	0.2	Topsoil	/						well installed.
-		Silty Sand, brown gray, moist, medi							_
-				SPT-1	2.5' - 4.0'	1.5'	4-6-6		_
1113.3'	4.0'	Lean Clay, brown	and	_					_
-		gray, moist, stiff to		5 01 0 51 4 51					
_		stiff		SPT-2	5.0' - 6.5'	1.5'	2-4-7		_
-									_
-			SPT-3	7.5' - 9.0'	1.5'	3-5-7		_	
-									_
-				CDT 4	10.01 11.51	4 51	<i>5 5 7</i>		_
-				SPT-4	10.0' - 11.5'	1.5'	5-5-7		_
_									_
_				SPT-5	12.5' - 14.0'	1.5'	2-2-4		_
1102.3'	15.0'								_
-	10.0	Lean Clay, brown stiff to soft	, moist,	SPT-6	15.0' - 16.5'	1.5'	3-5-6		-
-									_
1098.6'	18.7'			SPT-7	17.5' - 19.0'	1.2'	3-15-8		=
		Weathered shale, gray	dark						_
_ _ 1096.2'	21.1'	gray		SPT-8	20.0' - 21.1'	1.1'	8-42-50+		_
TANTECFRISM, LEGACY JSF_INSTALL GPJ FMSN-GRAPHC LOG GDT 4/19/16		Auger Refusal / Bottom of Hole		1		I			
— — —		Top of Rock = 18	7'						_
		Elevation (1098.6							_
GPJ FM:									_
									-
									_
MSM_LEC									_
ANTECF									-
8									4/19/16



(Client E	Borehole	ID N/A	1	Stantec Borir	ng N	No. JSF-	106			
	Client		Tennes	see Valley Authority	Boring Locat	ion	733,018.9	92 N; 2,887,105	5.85	E NAD27	Plant Local
F	Project	Number	175568	2225	Surface Elev	atio	n <u>1094.8 ft</u>	Elevation	on E	oatum_n	NGVD29
F	Project	Name	_JSF TD	DEC Order	Date Started	_	1/23/19	Comple	eted	1/24/1	19
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wat	_		Date/Ti			19 16:00
				Logger C. Sexton		_			me	1/24/1	9 08:30
	-			ntec Consulting Services Inc.	• • • •		· · · · · · · · · · · · · · · · · · ·	55T#2, #711			
			•	Sampling Tools (Type and Size		SS	w/o liners,				
		•		ling Tools (Type and Size) N/	A						15.0 %
				and Size) 8-1/4" HSA	ll. D	20"		Overdril			15.0 ft
				Automatic Weight 140			tion /fram	Efficiency		N/A ^	
		le Azimu			Borehole Inc Approved By		•	vertical) _	IN/	A	
	review	ed By _	D. LV	1115	Approved by						
		_ithology			Overburden	:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description	Rock Core:	1	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1094.8		Top of Hole		\perp					
	0.5	1094.3		Topsoil							
				SILTY LEAN CLAY, CL, 10YR 5/3 (b	rown) and 10YR	11	SS01G	0.0 - 1.5	0.0-	1.5	WH-3-4
- 1				6/8 (brownish yellow), low plasticity,	soft to medium				1.5		-
				stiff, dry to moist Trace Mn nodules from 0.5' to 2.5'							
				Color change to 10YR 5/4 (yellowish	brown) at 1.5'						
- 2							SS02G	1.5 - 3.0	1.5	1.5	- 3-5-4
							33020	1.5 - 5.0	3.0	1.5	J-J- 4
- 3	3.0	1091.8									
- 3				SILTY LEAN CLAY, CL, 10YR 6/4 (lig	ght yellowish						_
				brown), medium plasticity, soft, dry to	moist, trace Mn				3.0		
- 4				nodules			SS03G	3.0 - 4.5	- 4.5	1.0	2-1-2
				Low to medium plasticity, stiff at 4.5'							
- 5				,,,					4		_
	┙						SS04G	4.5 - 6.0	5 - 6.0	1.5	3-5-5
-	Y										
- 6	6.0	1088.8	1//	SILTY LEAN CLAY CL 10VD 6/4 //i	abt vallowish	+				1	-
				SILTY LEAN CLAY, CL, 10YR 6/4 (light brown) and 10YR 7/1 (light gray), me							
				medium stiff, dry to moist, mottled			SS05G	6.0 - 7.5	3.0 - 7.	1.5	3-3-4
- 7									5		-
	abla										
				Color change to 10YR 6/6 (brownish 10YR 7/1 (light gray), low to medium							
- 8				at 7.5'	plasticity, moist		SS06G	7.5 - 9.0	7.5 - 9	1.3	2-3-3
									0.0		
- 9											_
				Color change to 10YR 5/8 (yellowish							
				10YR 7/1 (light gray), trace Mn nodul	es at 9.0'		9907E	9.0 - 10.5	9.0 -	1.5	224
40			///I				SS07E	9.0 - 10.5	10.5	1.5	2-2-4







	Client E	Borehole	ID N/A		Stantec Borin	g N	o. JSF-	107			
	lient		Tennes	see Valley Authority	Boring Locati	on	733,849.	62 N; 2,887,998	3.51	E NAD27	Plant Local
F	roject	Number	175568	225	Surface Eleva	atio	1106.3 ft	Elevation	on D	atum_r	NGVD29
F	roject	Name			Date Started	_	2/26/19	Comple	eted	2/27/1	9
	•	Locatio		wkins Co, Rogersville, Tennessee	Depth to Wat			Date/Ti		N/A	
	•	or C.S		Logger C. Sexton	Depth to Wat	_		Date/Ti	me	N/A	
	-			ntec Consulting Services Inc.	Drill Rig Type			55T#2, #711			
			-	Sampling Tools (Type and Size) NA NA		SSV	v/o liners				
		_		ling Tools (Type and Size) <u>N/A</u> and Size) 8-1/4" HSA	1			Overdril		nth 3	35.5 ft
		_		Automatic Weight 140	lb Drop	30"		Efficiency		ν/Α	
		le Azimu	• •	N/A	Borehole Incl		ion (from	•	N/A		
		ed By		ans	Approved By		P. Dunne				
		Lithology			Overburden:	_	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Der	oth Ft ³	Elevation	Graphic	Description	Rock Core:	-	RQD %	Run Ft		Rec. Ft	Rec. %
Del	0.0	1106.3	Grapriic	Description Top of Hole	Nock Core.		NQD /0	Null I t	П	Nec. 1 t	Nec. 70
- 0	0.0	1.100.0		Rock Fill					н		
	0.8	1105.5					SS01G	0.0 - 1.5	0.0 - 1	1.4	5-5-6
- 1				SILTY LEAN CLAY TRACE GRAVEL (yellowish brown) with 10Y 7/1 (light g	, ,				.55		_
				medium plasticity, soft to medium stiff							
- 2				mottled, fragments of gray shale, [FIL	L]		SS02G	1.5 - 3.0	1.5 - 3.	1.3	3-4-4
- 3											
- 3									ω		
- 4							SS03G	3.0 - 4.5	.0 - 4.5	1.4	2-6-8
i i											
- 5									4.		_
							SS04G	4.5 - 6.0	5 - 6.0	1.5	4-5-7
- 6											_
									6.0		
- 7							SS05G	6.0 - 7.5	- 7.5	1.2	7-13-12 -
- 8							00000	75.00	7.5	4.5	4.0.0
							SS06G	7.5 - 9.0	- 9.0	1.5	4-6-9
- 9											-
							SS07G	9.0 - 10.5	9.0-	1.4	4-8-12
- 10							33073	3.0 - 10.5	10.5	'	4-0-12
										1	
- 11							SS08G	10.5 - 12.0	10.5-	1.2	4-8-11
									12.0		
- 12											_
							SS09G	12.0 - 13.5	12.0 - 1	1.5	4-7-11
– 13									3.5		_
4.4											



С	lient E	Borehole	ID N/A	\	Stantec Borin	g N	o. JSF-	107			
С	lient		Tennes	see Valley Authority	Boring Location	on	733,849.6	62 N; 2,887,998	3.51	E NAD27	Plant Local
Р	roject	Number	175568	225	Surface Eleva	atio	1106.3 ft	Elevatio	on C	atum_r	NGVD29
	I	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 14											_
- 15				SILTY LEAN CLAY TRACE GRAVEL, (yellowish brown) with 10Y 7/1 (light gr medium plasticity, soft to medium stiff,	eenish gray),		SS10G	13.5 - 15.0	3.5 - 15.0	1.5	4-7-9
– 16				mottled, fragments of gray shale, [FILL]			SS11G	15.0 - 16.5	15.0 - 16.	1.5	5-9-12
– 17									5 16		_
- 18							SS12G	16.5 - 18.0	.5 - 18.0	0.9	10-15-18
- 19	18.3	1088.0		LEAN CLAY, CL, 10YR 4/3 (brown) to (gray), medium plasticity, medium stiff laminated		-	SS13G	18.0 - 19.5	18.0 - 19.5	1.5	5-7-8
- 20							SS14G	19.5 - 21.0	19.5 - 21	1.4	<u> </u>
- 21									.0 2		_
- 22							SS15G	21.0 - 22.5	1.0 - 22.5	1.3	11-16-14
- 23							SS16G	22.5 - 24.0	22.5 - 24.0	1.4	3-5-9
- 24) 24.		=
- 25							SS17G	24.0 - 25.5	0 - 25.5	1.3	3-10-15 _
- 26	26.6	1079.7					SS18G	25.5 - 27.0	25.5 - 27.	1.5	5-11-16
- 27				SANDY LEAN CLAY WITH GRAVEL, (strong brown), fine, low to medium pla	sticity, loose				0 27		_
- 28				to stiff, moist, iron oxide staining, organ	IICS		SS19G	27.0 - 28.5	.0 - 28.5	1.5	4-8-10 _
- 29							SS20G	28.5 - 30.0	28.5 - 30.	1.5	3-6-7
- 30									0 30		_
- 31				Gravel at 30.8'			SS21G	30.0 - 31.5).0 - 31.5	1.3	2-7-16
- 32							SS22G	31.5 - 33.0	31.5 - 33.0	1.2	- 17-20-17



Page: 3 of 3

c	lient E	Borehole	ID N/A	A	Stantec Boring	_{3 No.} JS	F-107		
c	lient		Tennes	see Valley Authority	Boring Location	n <u>733,84</u>	9.62 N; 2,887,998.	51 E NAD27	Plant Local
Р	roject	Number	175568	3225	Surface Eleva	tion <u>1106.3</u>	Elevation	n Datum <u>ı</u>	NGVD29
		Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 33 - 34 - 35	34.3	1072.0		SANDY LEAN CLAY WITH GRAVEL, ((strong brown), fine, low to medium plat to stiff, moist, iron oxide staining, organ (Continued) Wet at ~34' LEAN CLAY, CL, 10YR 4/3 (brown) to gray), low to medium plasticity, stiff to v	sticity, loose lics 10YR 7/1 (light	SS230	00.0 01.0	330-34.5	3-8-17 - 3-9-23
- 36 	36.3 36.6	1070.0 1069.7		to moist, iron oxide staining, laminated, staining Dry shale from 36.3' to 36.6'	residuum, Mn	SS250		0.6	50-50/1"
				Refusal / Bottom of Hole at 36.6 Ft.				50	-

See installation log for permanent well JSF-107 for backfill 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

Top of Rock = 36.3 Ft.

Top of Rock Elevation = 1070.0 Ft.



							105	400			
		Borehole			Stantec B						
	Client			see Valley Authority	Boring Lo			62 N; 2,886,321			
	-	Number					on <u>1106.0 ft</u>			-	
	-	Name			Date Start		2/13/19	Comple			
	•	Locatio		wkins Co, Rogersville, Tennessee	Depth to \			Date/Ti			19 15:02
	•	or <u>C.S</u>		Logger _C. Sexton ntec Consulting Services Inc.	Depth to \			Date/Ti 55T#2, #711	me	N/A	
	_			Sampling Tools (Type and Size	•	• •	-	331#2, #711			
			•	ling Tools (Type and Size) N/	,	1, 2 00	- W/O III IO IO,				
		_	-	and Size) 8-1/4" HSA				Overdrill	De	pth 4	18.4 ft
				Automatic Weight 140) lb Droj	o 30"		— Efficiency		 N/A	
	-	le Azimu		N/A				Vertical)	N/	Ą	
F	Review	ed By	B. Eva	ans	Approved	Ву _	P. Dunne				
	l	Lithology			Overbure	den:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³		Graphic	Description	Rock Co	ore:	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1106.0		Top of Hole	<u>'</u>						
- 0	0.0	1105 1		Rock Fill			00040	00.45	0.0		4.4.0
- 1	0.9	1105.1		SILTY LEAN CLAY TRACE GRAVEL	L CL 10YR 5/6		SS01G	0.0 - 1.5	0.0 - 1.5	1.1	4-4-6
- 2				(yellowish brown) with 10Y 7/1 (light	greenish gray),	1 1					_
2				medium plasticity, soft to medium stif mottled, fragments of gray shale, [FIL			SS02G	1.5 - 3.0	.5 - 3.0	1.2	3-4-6
- 3				moticed, regiments of gray shale, [Fit							-
- 4							SS03G	3.0 - 4.5	3.0 - 4.5	0.8	3-2-14
7									5		
- 5							SS04G	4.5 - 6.0	4.5 - 6.0	1.5	3-5-7
- 6									6.0		_
U							20050	00.75	6.0		2.2.2
- 7							SS05G	6.0 - 7.5	6.0 - 7.5	1.3	6-8-9
- 8									7.		_
O							SS06G	7.5 - 9.0	5-9.0	1.2	3-5-9
- 9									9		-
- 10							SS07G	9.0 - 10.5	9.0 - 10.5	1.5	3-5-8
									5		
- 11							SS08G	10.5 - 12.0	10.5 - 12.0	1.5	4-4-10
- 12									12.0		_
							SS09G	12.0 12.5	12.0	1.5	4 6 10
- 13							3309G	12.0 - 13.5	- 13.5	1.5	4-6-10
- 14									13.		_
							SS10G	13.5 - 15.0	.5 - 15.0	1.4	3-4-8
- 15										1	_
- 16							SS11G	15.0 - 16.5	5.0 - 16.5	1.5	3-6-9
.0									.5		
- 17							SS12G	16.5 - 18.0	16.5 - 18.	1.5	7-11-18
40									18.0		-



Client E	Borehole ID N/A		Stantec Boring	g N	o. JSF-	108			
Client	Tenness	see Valley Authority	Boring Location			S2 N; 2,886,321	.05 E	E NAD27	Plant Local
Project	Number1755682	225	Surface Eleva	tior	1106.0 ft	Elevatio	n D	atum <u>ı</u>	NGVD29
	Lithology		Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18		SILTY LEAN CLAY TRACE GRAVEL	. CL. 10YR 5/6				18		_
- 19		(yellowish brown) with 10Y 7/1 (light gmedium plasticity, soft to medium stiff	greenish gray), f, dry to moist,		SS13G	18.0 - 19.5	19.5	1.5	5-6-13
- 20		mottled, fragments of gray shale, [FIL	L] (Continued)		SS14G	19.5 - 21.0	19.5 - 21.0	0.7	4-11-17 —
- 21 - 22					SS15G	21.0 - 22.5	21.0 - 22	1.5	6-10-12
- 23					SS16G	22.5 - 24.0	.5 22.5	1.3	4-11-17
- 24 24.4	1081.6				33103	22.3 - 24.0	24.0 2	1.5	4-11-17
- 25		LEAN CLAY, CL, 10YR 4/3 (brown) to (gray), medium plasticity, medium stif			SS17G	24.0 - 25.5	4.0 - 25.5	1.2	6-7-14 _
- 26		moist			SS18G	25.5 - 27.0	25.5 - 27.0	1.5	9-10-14
- 27 - 28					SS19G	27.0 - 28.5	27.0 - 28	1.5	6-9-15
- 29					00000	00.5.00.0	3.5 28.5		4.7.40
- 30					SS20G	28.5 - 30.0	28.5 - 30.0 3	1.5	4-7-13 —
- 31					SS21G	30.0 - 31.5	0.0 - 31.5	1.5	8-9-13
- 32					SS22G	31.5 - 33.0	31.5 - 33.0	1.4	11-15-16
- 33 - 34					SS23G	33.0 - 34.5	33.0 - 34	1.5	4-5-9 _
34.6	1071.4	FAT CLAY, CH, 10YR 4/4 (dark yellor			SS24G	34.5 - 36.0	5 34.5-36	1.5	3-4-7 —
- 36		with 10YR 4/2 (dark grayish brown), r plasticity, soft to medium stiff, moist, c traces					36.0 36.		-
- 37					SS25G	36.0 - 37.5	0 - 37.5	1.5	3-4-5
- 38 - 39					SS26G	37.5 - 39.0	37.5 - 39.0	1.5	4-2-3
- 40 - 40					SS27G	39.0 - 40.5	39.0 - 40.5	1.5	1-4-7
<u>¥</u> − 41					SS28G	40.5 - 42.0	40.5 - 42.0	1.5	2-5-8
- 42									_



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С	lient E	Borehole	ID N/A		Sta	antec Boring	No. JSF-	108			
c	lient		Tennes	see Valley Authority				2 N; 2,886,321.	.05 E	E NAD27	Plant Local
Р	roject	Number	175568	225	_ Su	rface Elevat	tion 1106.0 ft	Elevatio	n D	atum_r	NGVD29
		Lithology				Overburden:	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:	RQD %	Run Ft		Rec. Ft	Rec. %
- 43				FAT CLAY, CH, 10YR 4/4 (dark ye with 10YR 4/2 (dark grayish brown plasticity, soft to medium stiff, moistraces (Continued)	ı), mediu	m to high	SS29G	42.0 - 43.5	42.0 - 43.5 4:	1.5	3-5-7
- 44 - 45	45.2	1060.8		traces (Continued)			SS30G	43.5 - 45.0	3.5 - 45.0	1.5	2-5-7
- 46				SANDY LEAN CLAY, CL, 10YR 4/v brown), medium plasticity, soft, mo		yellowish	45.0 - 46.5	45.0 - 46.5	1.5	3-3-5	
- 47	47.3	1058.7					SS32aG	46.5 - 47.3	46.5 -	1.4	5-16-50+/5"
- 48	47.8 48.4	1058.2 1057.6		LEAN CLAY, CL, 10YR 4/3 (brown staining, residuum	n), iron o	xide	SS32bG	47.3 - 47.9	47.9	1.4	J-10-30+/3 _
				Shale						_	
				Refusal / Bottom of Hole at 48.4 Ft.							_
				Top of Rock = 47.8 Ft. Top of Rock Elevation = 1058.2 Ft.							_
			See in	stallation log for permanent well JSF-	·108 for b	oackfill informat	tion.				_
			G = 2: a,b,e	Environmental Sample Custody (two Geotechnical Sample Custody c denote Split Spoon divided betweer ths are reported in feet below ground	n Enviror	nmental and Ge			ple)		- - -
											_
											_
											_
											_
											-
											_



	Borehole	IDN/A	4	Stantec Boring		o. JSF-	109			
Client		Tennes	ssee Valley Authority	Boring Location	on	732,983.	25 N; 2,885,991	.09	E NAD27	Plant Local
•	t Number			Surface Eleva	tion	1105.1 ft	Elevatio	on E	Datum_ <u>N</u>	NGVD29
=	t Name			Date Started	_	2/6/19	Comple			
•	t Locatio		wkins Co, Rogersville, Tennessee	Depth to Wate			Date/Ti			
•	ctor <u>C.S</u>		Logger C. Sexton	Depth to Wate			Date/Ti	me	2/7/19	13:43
	-		antec Consulting Services Inc.	Drill Rig Type			55T#2, #711			
		•	I Sampling Tools (Type and Size) Jing Tools (Type and Size) N/A		55 W	//o liners,				
	_	•	ling Tools (Type and Size) <u> </u>	·			Overdrill	Do	nth N	N/A
			Automatic Weight 140 ll	b Drop 3	O"		Overdilli Efficiency		:рит <u>'</u> N/A	<u> </u>
-	ole Azimu		N/A	Borehole Inclii		on (from	•	 N/.		
	wed By			Approved By		P. Dunne	vertical)			
							D 11 E13		D 51	
D 41- E43	Lithology	0		Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	1105.1	Graphic	'	Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0 0.0	_	হুত্তুত্তুত	Top of Hole Rock Fill					Н		
- 1				/		SS01G	0.0 - 1.5	0.0 - 1.5	1.2	3-7-7
'			LEAN CLAY TRACE GRAVEL, CL, 10 (yellowish brown) with 10Y 7/1 (light gr					5		
- 2			low to medium plasticity, medium stiff	to stiff, dry to		SS02G	1.5 - 3.0	1.5-	1.4	2-2-3
			moist, iron oxide staining, mottled, [FIL	_L]		00020	1.0 0.0	.5 - 3.0	1.4	220
- 3								3.0		_
- 4						SS03G	3.0 - 4.5	.0 - 4.5	0.4	3-6-7
_										
- 5						SS04G	4.5 - 6.0	4.5 - 6.0	1.2	3-4-7
- 6										-
*						SS05G	6.0 - 7.5	6.0 - 7.5	1.5	11-14-13
- 7								7.5		- -
- 8						00000	7.5.00	7.5	4.5	4.7.0
						SS06G	7.5 - 9.0	- 9.0	1.5	4-7-9
- 9 9.7	1095.4							9.0		-
- 10 J.7	1000.4	1///	SANDY LEAN CLAY, CL, 10YR 7/1 (li	ght gray) with		SS07G	9.0 - 10.5	9.0 - 10.5	1.2	6-5-9
11.0	1094.1		5YR 5/8 (yellowish red), low to mediun	n plasticity,						
- 11	1004.1		medium stiff to stiff, dry to moist, [FILL			SS08G	10.5 - 12.0	0.5 - 12.0	1.3	4-5-8
- 12			LEAN CLAY TRACE GRAVEL, CL, 10 (yellowish brown) to 10YR 5/3 (brown)					2.0		_
			plasticity, medium stiff to stiff, dry to m			SS09G	12.0 - 13.5	12.0-	1.2	2-5-12
- 13			blocky, organics, [FILL]			00000	12.0 10.0	2.0 - 13.5	1.2	2012
- 14								13.5		_
						SS10G	13.5 - 15.0	3.5 - 15.0	0.5	3-7-10
- 15	, , , , , , ,									_
- 16 15.7	1089.4		SILTY LEAN CLAY SOME SAND, CL,	7.5VP.2.5/2		SS11G	15.0 - 16.5	5.0 - 16.5	1.5	4-15-23
.			(very dark brown), low plasticity, soft, r	·				5		
- 17			grained sand, [CCR]			SS12G	16.5 - 18.0	16.5 - 18.	1.4	6-16-29
10 +								18.0		



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Client F	Borehole	ID N/A	1	Sta	antec Borin	g N	o. JSF-	109			
Client		Tennes	ssee Valley Authority	Во	oring Location	on	732,983.2	25 N; 2,885,991	1.09	E NAD27	Plant Local
Project	Number	175568	3225	Su	ırface Eleva	tio	1 1105.1 ft	Elevatio	on D)atum_t	NGVD29
	Lithology				Overburden:	,	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18 - 19 - 20 ₂₁ 21.0	1084.1		SILTY LEAN CLAY SOME SAND, CL, (very dark brown), low plasticity, soft, r grained sand, [CCR] (Continued)	•			SS13G SS14G	18.0 - 19.5 19.5 - 21.0	18.0 - 19.5 19.5 - 21.0	1.5	9-23-27 _ 17-22-20
- 21			No Refusal / Bottom of Hole at 21.0 Ft.								

Boring backfilled with 30% solids bentonite grout.

As-drilled boring location not surveyed. Horizontal coordinates shown based on field measurements. Vertical coordinates based on approximate survey data.

- 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



	Oli t . F	N l l .	ID N/A		Otronto - Denin	1.1	ISE	100 A It			
		Borehole			Stantec Boring						Diontil
	Client	Mumba-		see Valley Authority	Boring Location Surface Eleva						
	-	Number				lliOf					
	-			DEC Order	Date Started	_	2/7/19	Comple			
	-			wkins Co, Rogersville, Tennessee	Depth to Water			Date/Ti			19 12:00
				Logger C. Sexton	Depth to Wate	_			me	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type			551#2, #711			
			-	Sampling Tools (Type and Size		55 V	wo liners				
		_		ling Tools (Type and Size) N/A	\			Overdrill	Do	nth N	N/A
		_		and Size) N/A Automatic Weight 140	b Drop 3	:O"		Overdilli Efficiency		үш <u>'</u> √А	<u> </u>
	•	le Azimu	• •		Borehole Incli			•			
		ed By			Approved By		P. Dunne	vertical)	1 1/7		
'			D. Eve								
		_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	pth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1105.1		Top of Hole		Ш			ш		_
			\setminus /	Overburden, no recovery			SS01	0.0 - 1.5	0.0 - 1.5	0.0	2-3-3
- 1			$ \setminus / $				0001	0.0 - 1.0	1.5	0.0	2-0-0
- 2			X								_
2			$ / \setminus $				SS02	1.5 - 3.0	.5 - 3.0	0.7	3-5-6
- 3	3.4	1101.7	/ \								-
	3.4	1101.7		LEAN CLAY TRACE GRAVEL, CL, 10)YR 5/6		SS03G	3.0 - 4.5	3.0 - 4.5	1.1	6-6-5
- 4				(yellowish brown) with 10Y 7/1 (light g	reenish gray),				4.5		-
- 5				low to medium plasticity, medium stiff					4.5		_
				moist, iron oxide staining, mottled, [FI	LLJ		SS04G	4.5 - 6.0	4.5 - 6.0	1.1	6-5-8
- 6											-
- 7							SS05G	6.0 - 7.5	6.0 - 7.5	1.3	6-8-11
- /									.55		_
- 8							SS06G	7.5 - 9.0	7.5-	1.5	4-7 - 9
							33000	7.3 - 9.0	- 9.0	1.5	4-7-9
- 9									9.1		_
- 10							SS07G	9.0 - 10.5	.0 - 10.5	1.4	3-5-7
- 11							SS08	10.5 - 12.0	10.5 - 12.0	0.0	5-7-8
- 12									12.0		_
12									12.0		
- 13							SS09G	12.0 - 13.5	0 - 13.5	1.4	4-5-11
	\downarrow								-		
- 14							SS10	13.5 - 15.0	3.5 - 15.0	0.2	8-9-10
- 15									5.0		_
	15.8	1089.3					SS11G	15.0 - 16.5	15.0-	1.5	6-15-17
- 16				WELL GRADED SAND WITH SILT, S			55116	10.0 - 10.0	5.0 - 16.5	1.5	0-10 - 11
- 17				3/1 (very dark gray), medium dense, r	noist, [CCR]				16.		_
17			-:-				SS12G	16.5 - 18.0	.5 - 18.	0.8	4-5-11
	1	I	1			1	l		10	1	



С	lient E	Borehole	ID N/A	\ \	Stantec Boring	No. JSF-	109Alt		
C	lient		Tennes	see Valley Authority	Boring Location		5 N; 2,885,989.9	99 E NAD27	Plant Local
Р	roject	Number	175568	225	Surface Elevat	tion <u>1105.1 ft</u>	Elevatior	n Datum <u>n</u>	IGVD29
		Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 18 - 19				WELL GRADED SAND WITH SILT, S 3/1 (very dark gray), medium dense, r (Continued)		SS13G	18.0 - 19.5	1.5	2-13-21
- 20	20.8	1084.3				SS14G	19.5 - 21.0	1.5	6-14-12
- 21 - 22				FAT CLAY LITTLE GRAVEL, CH, 10 (yellowish brown) and 10Y 8/1 (light g medium stiff, wet, iron oxide staining,	reenish gray),	SS15G	21.0 - 22.5	1.0	6-6-9 _
- 23	23.8	1081.3				SS16G	22.5 - 24.0	1.3	4-5-7
- 24 - 25				LEAN CLAY TRACE GRAVEL, CL, 7. (reddish yellow), medium to high plast stiff to stiff, moist, slight chemical odor	icity, medium	SS17G	24.0 - 25.5	1.5	3-3-5
- 26						SS18G	25.5 - 27.0	1.0	3-8-4
- 27 - 28						SS19G	27.0 - 28.5	0.5	4-9-9
- 29 - 30						SS20G	28.5 - 30.0	1.2	4-6-11 —
- 31	30.8	1074.3		SILTY LEAN CLAY TRACE SAND AN		SS21G	30.0 - 31.5	1.5	5-9-13
- 32 - 33				CL, 10YR 3/1 (very dark gray) and 10 yellowish brown), medium plasticity, n stiff, dry to moist		SS22G	31.5 - 33.0	1.1	5-12-14 -
- 34	34.5	1070.6				SS23	33.0 - 34.5	0.0	7-14-18
- 35 - 36				LEAN CLAY, CL, 10YR 3/1 (very dark 3/2 (very dark grayish brown), mediun plasticity, medium stiff to stiff, dry to m	n to high	SS24G	34.5 - 36.0	1.5	6-7-12
- 37						SS25G	36.0 - 37.5	0.5	6-9-16
- 38 - 39						SS26	37.5 - 39.0	0.5	4-5-7 _
- 40						SS27G	39.0 - 40.5	1.3	5-8-12 _
- 41 - 42						SS28G	40.5 - 42.0	1.4	5-6-8 _



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Client Borehole	D N/A	Stantec Boring No	. JSF-10	9Alt
Client	Tennessee Valley Authority	Boring Location	732,976.45 N	; 2,885,989.99 E NAD27 Plant Local
Project Number	175568225	Surface Elevation	1105.1 ft	Elevation Datum NGVD29

		Lithology			Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
	epth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 4	42.3	1062.8		SANDY LEAN CLAY, CL, 10YR 4/6 (dark brown), fine to medium, medium to high pl moist, iron oxide staining	•	-	SS29G		42.0 - 43.5	1.5	4-4-6 _
	4			,			SS30G	43.5 - 45.0	43.5 - 45.0	1.4	4-8-11
	5 6 46.2	1058.9					SS31G	45.0 - 46.5	45.0 - 46.5	1.5	5-4-9 -
- 4	7 47.6	1057.5		LEAN CLAY, CL, 10YR 4/3 (brown), mediuvery hard, moist, laminated Shale residuum at 47.0'	um stiff to		SS32G	46.5 - 47.6	46.5 - 47.6	1.1	6-4-50/1" -

Refusal /

Bottom of Hole at 47.6 Ft.

Top of Rock = 47.6 Ft.

Top of Rock Elevation = 1057.5 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



	Client E	Borehole	ID N/A		Stantec Boring	g N	o. JSF-	109Alt2			
	Client		Tennes	see Valley Authority	Boring Location	on	732,996.0	05 N; 2,885,961	.58	E NAD27	Plant Local
F	Project	Number	175568	225	Surface Eleva	tio	1101.2 ft	Elevatio	n E	oatum_n	1GVD29
F	Project	Name		•	Date Started	_	2/28/19	Comple	ted	3/4/19)
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Wate			Date/Ti			9 16:05
	•	or C.S		Logger _C. Sexton	Depth to Wate	_		Date/Ti	me	N/A	
	-			ntec Consulting Services Inc.	Drill Rig Type			55T#2, #711			
			_	Sampling Tools (Type and Size)		SSV	v/o liners				
		•	-	ling Tools (Type and Size) <u> N/A</u> and Size) 8-1/4" HSA	\			Overdrill	De	nth 4	12.5 ft
		_		Automatic Weight 140 l	b Drop 3	0"		Gverann Efficiency		ν/Α	
	•	le Azimu		N/A	Borehole Incli		ion (from	•	N/		
		ed By		ans	Approved By		P. Dunne	/			
		_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Der	oth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
	0.0	1101.2	Стартно	Top of Hole	Treest dete.		Tigo 70	ranre		1100.11	1100. 70
- 0	0.0		0303030	Rock Fill, no recovery							
- 1											-
- 2			0000000								_
- 3											-
	4.0	1097.2									
- 4				SILTY LEAN CLAY TRACE GRAVEL,	, CL, 10YR 5/6		SS01G	3.5 - 5.0	3.5 - 5.0	1.5	5-4-5
- 5				(yellowish brown) with 10Y 7/1 (light g						-	_
				low to medium plasticity, medium stiff moist, iron oxide staining, mottled, [FII			SS02G	5.0 - 6.5	5.0 - 6	1.0	4-5-7
- 6									3.5		_
- 7							SS03G	6.5 - 8.0	6.5-	0.5	4-6-7
							33030	0.5 - 0.0	8.0	0.5	4-0-7
- 8									8.0		-
- 9							SS04G	8.0 - 9.5	8.0 - 9.5	1.5	4-2-4
40									9		
- 10							SS05G	9.5 - 11.0	5 - 11.0	1.3	4-2-5
- 11										- 1	-
40							SS06G	11.0 - 12.5	11.0 - 1	1.2	5-7-7
- 12									2.5		_
- 13							SS07G	12.5 - 14.0	12.5-	1.4	3-6-8
44							33070	12.5 - 14.0	14.0	'.4	3-0-0
- 14									14.0	l l	
- 15							SS08G	14.0 - 15.5) - 15.5	1.1	4-5-7
_ 10									15		
- 16							SS09G	15.5 - 17.0	5 - 17.	1.5	4-6-9
- 17									0 17.0		_
40							SS10G	17.0 - 18.5) - 18.5	1.5	4-5-9



С	lient E	Borehole	ID N/A		Stantec Boring	No. JSF-	109Alt2		
С	lient		Tennes	see Valley Authority	Boring Location		05 N; 2,885,961.	58 E NAD27	Plant Local
Pı	roject	Number	175568	225	Surface Eleva	tion <u>1101.2 ft</u>	Elevation	n Datum_ N	IGVD29
	I	Lithology			Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Dept	th Ft ³	Elevation	Graphic	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 18				SILTY LEAN CLAY TRACE GRAVEL, (yellowish brown) with 10Y 7/1 (light gra				200	_
- 19 - 20				low to medium plasticity, medium stiff to moist, iron oxide staining, mottled, [FILI (Continued)	stiff, dry to	SS11G	18.5 - 20.0	1.3	3-2-6 —
- 21						SS12G	20.0 - 21.5	1.4	4-5-6
- 22 - 23						SS13G	21.5 - 23.0	1.3	5-10-11
- 24						SS14G	23.0 - 24.5	1.5	4-4-7
- 25 - 26						SS15G	24.5 - 26.0	1.5	5-8-11
- 27						SS16G	26.0 - 27.5	1.5	5-10-13
- 28	28.5	1072.7		SILTY LEAN CLAY TRACE SAND AND	GRAVEL	SS17G	27.5 - 29.0	1.3	3-6-10
- 29 - 30				CL, 10YR 3/1 (very dark gray) and 10Y yellowish brown), medium plasticity, mestiff, dry to moist	R 4/6 (dark	SS18G	29.0 - 30.5	1.5	8-12-15
- 31 - 32	<u>7</u>					SS19G	30.5 - 32.0	1.5	6-9-10 _
- 33						SS20G	32.0 - 33.5	1.5	5-7-9
- 34 - 35	34.0	1067.2		LEAN CLAY, CL, 10YR 3/1 (very dark g 3/2 (very dark grayish brown), medium	to high	SS21G	33.5 - 35.0	33.5-35.0	4-6-5 —
- 36				plasticity, medium stiff to stiff, dry to mo	ist	SS22G	35.0 - 36.5	1.5	4-7-9
- 37						SS23G	36.5 - 38.0	1.5	4-6-7
- 38 - 39	39.0	1062.2		SANDY LEAN CLAY, CL, 10YR 4/6 (da	irk vellowish	SS24G	38.0 - 39.5	38.0-39.5	2-2-4
- 40 - 41				brown), fine to medium, medium to high moist, iron oxide staining		SS25G	39.5 - 41.0	0.9	3-4-6
- 41 - 42	41.7	1059.5				SS26aG	41.0 - 41.7	1.5	12-9-11



Page: 3 of 3

С	lient E	Borehole	ID N/A	1	St	antec Borin	g N	lo. JSF-	109Alt2			
С	lient		Tennes	see Valley Authority	Во	oring Location	on	732,996.0	05 N; 2,885,961	.58 [E NAD27	Plant Local
Р	roject	Number	175568	225	Su	ırface Eleva	tio	n <u>1101.2 ft</u>	Elevatio	n D)atum_r	NGVD29
		Lithology				Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 43	43.9	1057.3		LEAN CLAY, CL, 10YR 4/3 (brown), very hard, moist, laminated (Continu		um stiff to		SS26bG SS27G	41.7 - 42.5 42.5 - 43.9	42.5 - 43.9	1.0	10-29-50/5"
				Refusal / Bottom of Hole at 43.9 Ft.								_
				Top of Rock = 43.9 Ft. Top of Rock Elevation = 1057.3 Ft.								
				Top of Nook Elevation - 1007.011.								_
			See in	stallation log for permanent well JSF-10	9 for	backfill						_
				Environmental Sample Custody (two Sp	olit Sp	oons may be r	equ	ired to obta	in sufficient sam	ıple))	_
			2: a,b,	Geotechnical Sample Custody c denote Split Spoon divided between E ths are reported in feet below ground su	nviro urface	nmental and G	eote	echnical Sai	mples			_
												_
												_
												_
												-
												_
												_
												_
												_
												_
												_
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												_



Page: 1 of 2

	Client E	Borehole	ID N/A		Sta	antec Borin	a N	lo. JSF-	110			
	Client			see Valley Authority	_	oring Location			53 N; 2,889,835	5.21	E NAD27	Plant Local
		Number				ırface Eleva						
	-	Name				ate Started		-	— Comple			
	-			wkins Co, Rogersville, Tennessee		epth to Wate	_		Date/Ti			19 11:28
	•			Logger C. Sexton		· epth to Wate	_		 Date/Ti		N/A	
				ntec Consulting Services Inc.		ill Rig Type	_		55T#2, #711			
	verbu	rden Dril	ling and	Sampling Tools (Type and Size	e)4	-1/4" HSA, 2"	and	3" SS w/o li	ners			
F	Rock D	rilling an	d Sampl	ling Tools (Type and Size) <u>N</u>	/A							
	Overdri	II Tooling	(Type a	and Size)8-1/4" HSA					Overdril	De	pth _	17.2 ft
S	Sample	r Hamm	er Type	Automatic Weight 140) lb	Drop <u>_</u> 3	80"		Efficiency	!	N/A	
		le Azimu		N/A	-			•	Vertical) _	N/	A	
F	Review	ed By _	B. Eva	ans	Ap	proved By	_	P. Dunne				
	l	_ithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1139.0		Top of Hole						Ш		
				Topsoil						o		
- 1	8.0	1138.2		SILTY LEAN CLAY, CL, 10YR 6/4 (II	iaht va	llowich		SS01G	0.0 - 1.5	0 - 1.5	1.5	1-1-4
				brown), low plasticity, soft to medium								
- 2				moist						_		_
_				Color change to 10Y 6/4 (pale olive) (light greenish gray) low to medium p				SS02G	1.5 - 3.0	.5 - 3.0	1.5	4-6-6
- 3				medium stiff to stiff, with trace gravel								_
3				Color change to 10YR 6/6 (brownish	yellov	v), medium				ω		
- 4				stiff at 3.0' Root blocking recovery in SS03				SS03G	3.0 - 4.5	.0 - 4.5	1.0	3-5-8
7				Noot blocking recovery in 3303								
- 5				Color change to 10YR 6/4 (light yello						4		_
3				10Y 7/1 (light greenish gray), very st 4.5'	iff, witl	h sand at		SS04G	4.5 - 6.0	.5 - 6.0	1.5	4-6-10
- 6				Color change to 10YR 6/6 (brownish	yellov	v), soft to						_
- 0				medium stiff, dry at 5.0'								
7				Stiff, dry to moist, with trace gravel a	it 6.0'			SS05G	6.0 - 7.5	5.0 - 7.	0.5	2-2-7
- 7										5		_
				With trace gravel at 7.5'								
- 8				3-inch SS used from 7.5' to refusal				SS06G	7.5 - 9.0	7.5 - 9.	1.1	6-11-13
										0		
- 9				Medium stiff with trace gravel at 9.0'				SS07aG	9.0 - 9.9			_
	9.9	1129.1						5507aG	9.0 - 9.9	9.0 - 10	1.2	4-6-11
- 10 <u>·</u>	₽			CLAYEY SAND SOME GRAVEL, SO			9.9	SS07bE	9.9 - 10.5).5		_
				(yellowish brown), medium, loose, dr Gravel is coarse to very coarse, rour		noist	y12.0-					
- 11				Loose to medium dense at 10.5'	lucu		20190	SS08E	10.5 - 12.0	0.5 - 1	0.9	4-7-10
	12.0	1127.0					29			2.0		
- 12	.2.0		1//	LEAN CLAY, CL, 10YR 6/6 (brownis	sh yello	ow), low]			1	_
				plasticity, very stiff, dry to moist, Mn				SS09G	12.0 - 13.5	2.0 - 1	1.5	10-7-12
– 13										3.5		_

4/2/21



							—					
C	lient E	Borehole	ID N/A	<u> </u>	Sta	antec Borinç	g N	lo. JSF-	110			
c	lient		Tennes	ssee Valley Authority	Во	ring Locatio	on	732,649.5	53 N; 2,889,835	5.21	E NAD27	Plant Local
P	roject	Number	175568	;225	Su	ırface Eleva	tio	n <u>1139.0 ft</u>	Elevatio	on E)atum_।	NGVD29
		Lithology				Overburden:	,	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 14 - 15	15.0	1124.0		LEAN CLAY, CL, 10YR 6/6 (brownish y plasticity, very stiff, dry to moist, Mn sta	-			SS10	13.5 - 15.0	13.5 - 15.0	0.0	4-7-10
- 15 - 16				(Continued) LEAN CLAY, CL, 10YR 6/4 (light yellow low plasticity, stiff to very stiff, dry to me. Mn staining				SS11G	15.0 - 16.5	15.0 - 16.5	1.5	9-9-18 -
- 17	17.6 18.0	1121.4 1121.0		Color change to 10G 5/1 (greenish gramedium plasticity, stiff with gravel at 16 Shale, dark gray		ow to		SS12G	16.5 - 18.0	16.5 - 18.0	0.2	6-50+-10
- 18	10.0	1121.0		Refusal / Bottom of Hole at 18.0 Ft.								
				Top of Rock = 17.6 Ft. Top of Rock Elevation = 1121.4 Ft.								_
												-
			See w	vell installation log for permanent well JSF-	-110	for backfill info	orm	ation.				-
			G = 2: a,b,	Environmental Sample Custody (two Split Geotechnical Sample Custody c denote Split Spoon divided between En- oths are reported in feet below ground surf	viron	nmental and G	•			nple))	-
												_



С	lient E	Borehole	ID N/A		S	tantec Borin	g N	o. JSF-	111			
С	lient		Tennes	see Valley Authority		oring Location			4 N; 2,889,595	5.83	E NAD27	Plant Local
Р	roject	Number	175568	225	S	urface Eleva	atior	1107.4 ft	Elevatio	on E)atum ı	NGVD29
P	roject	Name	JSF TD	EC Order	D	ate Started		2/5/19	 Comple	eted	2/5/19	9
	-			wkins Co, Rogersville, Tennessee		epth to Wate	_	N/A				
	-			Logger _C. Sexton		epth to Wate				me	N/A	
D	rilling	Contract	or Sta	ntec Consulting Services Inc.	D	rill Rig Type	and	ID CME	55T#2, #711			
0	verbu	rden Dril	ling and	Sampling Tools (Type and Size	e)	4-1/4" HSA, 2"	SS w	/o liners				
R	ock D	rilling an	d Sampl	ling Tools (Type and Size) N	A							
		_		and Size) <u>N/A</u>					Overdrill	De	pth _	N/A
				Automatic Weight 140					Efficiency	_	N/A	
		le Azimu				orehole Incli		•	Vertical)	N/	A	
R	eview	ed By _	B. Eva	ans	Α	pproved By		P. Dunne				
		₋ithology				Overburden:	S	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description		Rock Core:	ļ.,,	RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1107.4		Top of Hole								_
				Rock blocked auger; no sampling to 2	2.2'							
- 1												_
- 2	2.2	1105.2										_
- 3				LEAN CLAY, CL, 10YR 5/4 (yellowish		•		SS01G	2.0 - 3.5	2.0 - 3.	1.5	4-7-9
				medium plasticity, medium stiff to stiff	•					" -		
- 4				Color change to 10YR 5/6 (yellowish 2.5YR 5/8 (red), medium plasticity, st				SS02G	3.5 - 5.0	3.5 - 5.0	1.2	4-7-7
- 5				with organic matter at 3.5'		_				l°		_
- 6				Color change to 10YR 5/8 (yellowish 5GY 8/1 (light greenish gray), lamina				SS03G	5.0 - 6.5	5.0 - 6.5	1.4	3-4-7
				oo ro, r (light glochion gray), lamina	iou u					55		
- 7								SS04G	6.5 - 8.0	6.5 - 8.0	1.5	6-9-7
- 8				Color change to 10YR 4/3 (brown) wi	th 10	YR 3/3				.0		_
				(dark brown), medium stiff to stiff, mo				SS05G	8.0 - 9.5	8.0 - 9.5	1.5	3-3-6
- 9				oxide staining at 7.6'						9.5		_
- 10								SS06G	9.5 - 11.0	9.5 - 11.0	NR	3-3-5
- 11									0.00	1.0	''''	_
	11.5	1095.9 1095.7		7 01-1-				SS07G	11.0 - 11.7	11.0-1	0.7	3-50/2"
				Shale		/				1.7		_
				Refusal / Bottom of Hole at 11.7 Ft.								-
				2010111 01 11010 01 1 111 11								
				Top of Rock = 11.5 Ft. Top of Rock Elevation = 1095.9 Ft.								
				TOP OF ROCK Elevation – 1095.9 Ft.								_
												-
				orary 1" piezometer JSF-111ALT installe overdrilled during installation of perman						/19 a	and JSF-	111
			Doming	STORESHOOD CARRING INSTANCEOUT OF PERMAN		Journal Hould	ıg		· · ·			-
				Environmental Sample Custody (two Sp	olit S _l	poons may be r	requi	red to obtai	n sufficient san	nple))	=
				Geotechnical Sample Custody c denote Split Spoon divided between E	nviro	onmental and G	Seote	chnical San	nples			_
				ths are reported in feet below ground su					•			



							105	440414			
		Borehole	ID N/A	1	Stantec Boring		o. JSF-	-112Alt			
_	lient			see Valley Authority	Boring Location			04 N; 2,889,257			
	-	Number			Surface Eleva	tion	1109.1 ft	Elevatio	n E	Datum_r	NGVD29
	-	Name			Date Started	_	1/30/19	Comple			
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Wate			Date/Ti			19 08:39
	•	or C.S		Logger C. Sexton	Depth to Wate	_		Date/Ti	me	N/A	
	_			ntec Consulting Services Inc.	Drill Rig Type			551#2, #/11			
			•	Sampling Tools (Type and Size) ling Tools (Type and Size) N/A		55 W	//o liners				
		_	•	ling Tools (Type and Size) <u> N/A</u> and Size) N/A				Overdrill	De	nth N	N/A
		-		Automatic Weight 140 II	Drop 3	0"		Overdilli Efficiency		ν/Α	
		le Azimu	• •	N/A	Borehole Inclir		on (from	•	N/.		
		ed By		ans	Approved By		P. Dunne				
								D4b E43		D 54	Dlawa/DCI
D		Lithology	Carabia	5	Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Бер	th Ft ³	Elevation 1109.1	Grapnic	Description Top of Hole	Rock Core:		RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1108.6		Top of Flore Topsoil		+			Н		
	0.5	1100.0		SILTY LEAN CLAY, CL, 7.5YR 7/8 (re	ddiab vallow)		SS01G	0.0 - 1.5	0.0 - 1.5	1.1	1-2-3
- 1				medium plasticity, medium stiff, dry to	• '				.5		_
0				Color change to 7.5YR 6/8 (reddish ye	llow) with 10Y						
- 2				7/1 (light greenish gray), low to mediur	n plasticity,		SS02G	1.5 - 3.0	.5 - 3.0	1.2	3-5-7
- 3				stiff, blocky, with organic matter at 1.5'							_
Ü				Color change to 7.5YR 6/8 (reddish ye					3.0		
- 4				10GY 7/1 (light greenish gray), mediur medium stiff, Mn staining at 3.0'	n plasticity,		SS03G	3.0 - 4.5	3.0 - 4.5	1.2	4-4-6
				-							
- 5				Color change to 7.5YR 6/8 (reddish ye medium plasticity, stiff to very stiff, lam	·		SS04G	4.5 - 6.0	4.5	1.5	4-5-7
				modali plasticity, still to very still, lain	miatou, at 4.0		3304G	4.5 - 6.0	4.5 - 6.0	1.5	4-5-7
- 6				Color change to 10YR 6/8 (yellowish b	rown) medium					1	-
				stiff to stiff at 6.0'	rown), mediam		SS05G	6.0 - 7.5	6.0 - 7	1.5	4-7-8
- 7									.5		-
0											
- 8							SS06G	7.5 - 9.0	7.5 - 9.0	1.5	4-3-11
- 9											_
Ü				Color change to 10YR 4/4 (dark yellow	vish brown),				9.0		
- 10				medium plasticity, soft to stiff at 9.0'			SS07G	9.0 - 10.5	.0 - 10.5	1.5	3-7-9
										- 1	
- 11							SS08G	10.5 - 12.0	10.5	1.5	6-9-12
							3300G	10.5 - 12.0	.5 - 12.0	1.5	0-9-12
- 12											-
							SS09G	12.0 - 13.5	12.0 - 13.5	1.5	11-4-7
- 13				Wet from 12.9' to 13.3'					3.5		-
4.4									13		
- 14 - - -	\downarrow			Wet from 14.2' to 14.4'			SS10G	13.5 - 15.0	3.5 - 15.0	1.5	4-4-5
45				WG: 110111 14.2 to 14.4					0.		



Client B	orehole II) N/A		Stantec Boring	g N	lo. JSF-	112Alt			
Client		Tennes	see Valley Authority	Boring Location			4 N; 2,889,257.	88 E	NAD27	Plant Local
Project I	Number _	1755682	225	Surface Eleva	tio	n <u>1109.1 ft</u>	Elevation	n D	atum_r	NGVD29
Li	ithology			Overburden:	;	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation C	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 15 - 16 - 16.5 - 16.7	1092.6 1092.4		SILTY LEAN CLAY, CL, 7.5YR 7/8 (re medium plasticity, medium stiff, dry to (Continued) Very stiff at 15.0'			SS11G SS12	15.0 - 16.5 16.5 - 16.7	15.0 - 16.5	1.2	5-11-7 - 50+/2"
10.7	1092.4		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			1 0012		16.5 -	0.2	- 301/2
			Refusal / Bottom of Hole at 16.7 Ft.					16.7		_
			Top of Rock = 16.5 Ft. Top of Rock Elevation = 1092.6 Ft.							_
		Tempo	rary 1" piezometer JSF-112ALT installed	d in boring JSF-112	2AL	T. Piezomete	er removed on 5/	/15/:	2019 and	 t
		JSF-11	2ALT boring overdrilled during advance	ment of boring JSF	-20	7.				-
		G = 2: a,b,c	Environmental Sample Custody (two Spi Geotechnical Sample Custody c denote Split Spoon divided between Er ths are reported in feet below ground su	nvironmental and G				ple)		-
										_
										_
										_
										_
										_
										_
										_
										_
										_
										-
										_



(Client E	Borehole	ID N/A	1	St	antec Borin	g N	o. JSF-	113Alt			
	Client		Tennes	see Valley Authority		oring Location			44 N; 2,889,195	5.49	E NAD27	Plant Local
F	Project	Number	175568		Sı	urface Eleva	atior	1136.4 ft	Elevation	on [Datum i	NGVD29
F	Project	Name	JSF TD		D	ate Started		2/1/19	— Comple	eted	2/4/19	
	-			wkins Co, Rogersville, Tennessee	D	epth to Wate	er –	N/A				
ı	nspect	or C. S	exton	Logger C. Sexton		epth to Wate				me	N/A	
[Drilling	Contract	tor Sta	ntec Consulting Services Inc.	D	rill Rig Type	an	d ID CME	55T#2, #711			
(Overbu	ırden Dril	ling and	Sampling Tools (Type and Size	e)	I-1/4" HSA, 2"	SS v	v/o liners				
		_		ling Tools (Type and Size) N	A							
		_		and Size) <u>N/A</u>					Overdril	l De	pth _	N/A
				Automatic Weight 140					=	_	N/A	
		le Azimu						•	Vertical) _	N/	A	
P	Review	ed By	B. Eva	ans	ΑĮ	oproved By	_	P. Dunne				
		Lithology				Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
De	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 0	0.0	1136.4		Top of Hole						Ш		_
	0.6	1135.8		Topsoil				SS01G	0.0 - 1.5	0.0	1.5	1-WH-WH
- 1				LEAN CLAY, CL, 10YR 5/4 (yellowish	n bro	wn),		33010	0.0 - 1.5	1.5	1.5	
- 2		44044		medium plasticity, soft, moist								_
	2.3	1134.1		SILTY LEAN CLAY, CL, 10YR 6/4 (li	aht v	allowich		SS02G	1.5 - 3.0	5 - 3.0	1.5	2-4-7
- 3				brown) and 10Y 7/1 (light greenish gi							+	-
				medium plasticity, medium stiff to stif	f, dry	to moist,		SS03G	3.0 - 4.5	3.0 - 4	1.5	4-4-6
- 4				iron oxide staining, mottled Color change to 7.5YR 5/6 (strong br	own)	. medium				.55		_
- 5				plasticity, medium stiff at 3.4'				SS04G	4.5 - 6.0	4.5	1.5	4-7-8
				Low to medium plasticity, medium sti Color change to 7.5YR 5/6 (strong br				33046	4.5 - 0.0	6.0	1.5	4-7-0
- 6				7/2 (pinkish gray), soft to medium stif						6.		_
- 7				staining, with trace sand and gravel a				SS05G	6.0 - 7.5	0 - 7.5	1.5	5-8-9
				Color change to 10YR 5/6 (yellowish trace organics at 7.5'	brow	n), with						
- 8				Color change to 10YR 6/6 (brownish	vello	w to 10YR		SS06G	7.5 - 9.0	7.5 - 9	1.5	3-3-6
- 9				7/4 (very pale brown), medium stiff, v						0		_
	9.5	1126.9	1//	9.0'				SS07G	9.0 - 10.5	9.0-	1.5	4-8-21
- 10				CLAYEY SAND, SC, 10YR 6/3 (pale medium, loose to medium dense, mo				33076	9.0 - 10.5	10.5	1.5	4-0-21 _
- 11	11.2	1125.2		rounded and coarse to very coarse	ist, g	ravei				10.		_
	11.2	1120.2		$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	brow	n), medium	1	SS08G	10.5 - 12.0	5 - 12.0	1.5	10-22-11
- 12				\plasticity at 10.5'							-	-
40				LEAN CLAY, CL, 10YR 6/6 (brownish medium plasticity, stiff to very stiff, dr				SS09G	12.0 - 13.5	2.0 - 1	1.5	5-8-12
- 13				organics	y to i	noisi, irace				3.5		_
- 14				Color change to 10YR 5/6 (yellowish	brow	n), Mn		SS10G	13.5 - 15.0	13.5	1.5	8-12-15
				staining, at 12.0' Color change to 10YR 5/6 (yellowish	brow	n) with 10Y		33100	13.3 - 13.0	15.0	1.5	0-12-13
- 15				8/1 (light greenish gray) at 13.5'						15.		_
- 16				Color change to 10YR 5/4 (yellowish laminated, at 15.0'	brow	n),		SS11G	15.0 - 16.5	3 - 16.5	1.5	9-14-21
					brow	m) and				3		
- 17				Color change to 10YR 5/4 (yellowish 10YR 4/2 (dark grayish brown) at 16.		ni) anu		SS12G	16.5 - 18.0	6.5 - 18	1.5	9-18-27
18										.0		



Client	Borehole ID	N/A	Stantec Borin	g No. JSF-	-113Alt		
Client		nessee Valley Authority	Boring Location		44 N; 2,889,195.4	19 E NAD27	Plant Local
Project	Number 175	568225	Surface Eleva	ation 1136.4 ft	Elevation	Datum_	NGVD29
	Lithology		Overburden:	Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI
Depth Ft ³	Elevation Grap	nic Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %
- 18 18.7 18.9	1117.7			SS13G	18.0 - 18.9		9-50/5"
	ÇIII.	Shale Refusal /			Ċ	0	-
		Bottom of Hole at 18.9 Ft.					_
		Top of Rock = 18.7 Ft. Top of Rock Elevation = 11	117.7 Ft.				-
	Te JS	mporary 1" piezometer JSF-113A 113ALT boring overdrilled durir	LT installed in boring JSF-113 ng installation of permanent be	BALT. Piezomet edrock monitorir	er removed on 6/3 ng well JSF-209.	24/19 and	-
	1:	E = Environmental Sample Custo G = Geotechnical Sample Custod	dy (two Split Spoons may be r	required to obta	in sufficient samp	ole)	_
	2: 6	a,b,c denote Split Spoon divided I Depths are reported in feet below	between Environmental and G	Seotechnical Sa	mples		-
							-
							_
							-
							_
							-
							_
Į.							-
30.000							_
10 KI							_
							-
DEC OKDEK.G							-
188228 - 184							-
NG LOG 1/85							
NA EP BOK							_



Client Borehole ID N/A	Stantec Boring No. JSF-2	200
Client Tennessee Valley Authority	Boring Location N 733226	.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft	Elevation Datum NGVD29
Project Name TVA-JSF Vacatur	Date Started 8/24/18	Completed8/28/18
Project Location Hawkins County, Rogersville, Tennessee	Depth to Water N/A	Date/TimeN/A
Inspector K. Carey Logger B. Evans	Depth to Water N/A	Date/TimeN/A
Drilling Contractor Stantec Consulting Services Inc.	Drill Rig _ CME 75	Driller _ D. Jessie
Overburden Drilling and Sampling Tools (Type and Size)	3-1/4" HSA, 2" SS w/o liners, 3" Shelby	Tubes
Rock Drilling and Sampling Tools (Type and Size) NC	-3 Wireline, Split Barrel, Surface Set Bit	
Sampler Hammer Type Automatic Weight 140	bs Drop 30" Efficiency	ciency N/A
Borehole Azimuth N/A (Vertical)	Borehole Inclination (from Vertice	cal) N/A

		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 0	0.0	1142.9	Top of Hole						
	0.7	1142.2	Topsoil SANDY LEAN CLAY, CL, 2.5Y 4/4 (oliv	e brown)	SPT1	0.0 - 1.5	0.7	3-2-2	
- 1 - 2			low plasticity, soft to hard, moist, fine sar gravel			•	-		
- 2 - 3					SPT2	1.5 - 3.0	0.7	3-3-13	
- 4	4.2	1138.7	Color change to 2.5Y 5/4 (light olive brow medium plasticity, at 3.0'		SPT3	3.0 - 4.5	1.1	6-4-4	
- 5 - 6			CLAYEY SAND, SC, 7.5YR 5/8 (strong plasticity, loose to medium dense, moist, graded, fine sand, trace gravel		SPT4	4.5 - 6.0	1.1	9-6-6	
- 7					SPT5	6.0 - 7.5	1.3	9-2-4	
8 9	9.0	1133.9			SPT6	7.5 - 9.0	1.3	2-4-5	
10			SANDY LEAN CLAY, CL, 7.5YR 5/8 (st brown), low plasticity, firm, moist, poorly sand, trace gravel		SPT7	9.0 - 10.5	1.2	3-2-3	



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Client Borel	nole ID N/A	Stantec Boring No JSF-200
Client	Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Nun	nber 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

Blows/PSI Overburden: Depth Ft Rec. Ft Lithology Sample Depth Ft Elevation Rock Core: RQD % Run Ft Rec. Ft Rec. % Remarks Description 10 10.5 1132.4 CLAYEY SAND, SC, 7.5YR 4/6 (strong brown), low plasticity, medium dense, moist, poorly graded - 11 SPT8 10.5 - 12.0 1.5 3-7-17 GRAVELLY SAND, SP, 10YR 7/4 (very pale brown), dense, moist, fine sand, fine to course and - 12 subrounded to rounded gravel SPT9 12.0 - 13.5 0.9 5-21-17 1129.9 13.0 - 13 SILTY LEAN CLAY, CL-ML, 10YR 6/8 (brownish yellow), non-plastic to low plasticity, hard to very hard, moist, trace fine sand 14 SPT10 13.5 - 15.0 1.5 4-5-5 15 Color change to 10YR 5/4 (yellowish brown) at 15.0' SPT11 15.0 - 16.5 1.4 4-6-9 16 Color change to 10 YR 4/4 (dark yellowish brown), at 16.5' - 17 SPT12 16.5 - 18.0 1.5 3-7-7 - 18 SPT13 18.0 - 19.5 1.5 4-4-9 19 Change to some lamar structures, residuum of shale, at 19.5' 20 SPT14 19.5 - 21.0 1.5 10-15-18 21 Color change to 2.5Y 4/4 (olive brown), at 21.0' SPT15 21.0 - 22.5 1.5 8-13-14 22



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

			ı		1			 		
		Lithology			Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation		Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 23	23.9	1119.0		SILTY LEAN CLAY, CL-ML, 2.5Y 4/4 (c non-plastic to low plasticity, very hard, m fine sand, some lamar structures, residu	oist, trace	SPT16	22.5 - 24.0	1.5	12-10-50+	
- 24	20.0			Weathered Shale			<u>'</u>			
0.5						SPT17	24.0 - 25.1	0.3	50/4"	
- 25	25.3	1117.6	\vee			SPT18	25.1 - 25.3	0.2	50/2" Began Core	
- 26 - 27				Limestone With Interbedded Shale, very crystalline, moderately hard to very hard, bedded, 30° to 40° bedding angle, numer and fractures, fractures filled with clay, chave iron staining, multiple breaks on shadopen fracture, clay filled, at 26.4'	thin rous breaks alcite, or	66	25.3 - 27.5	2.2	100	Run 1 Breaks and Fractures present between 25.3 and 26.4
- 28				Open fracture, iron staining, at 27.7'						
- 29 - 30				Slightly open vertical fractures, between 29.2'	29.0' and					
– 31				Open fracture, iron staining, possible zor between 30.5' and 30.7' Very broken, clay filled, possible zone of between 31.0' and 31.2'		55	27.5 - 37.5	8.2	82	Breaks and Fractures present between 27.6 and 35.4. Very broken from 37.0 to 38.4 due to drilling issues
= 33				Very broken, some clay fill, possible zone between 33.0' and 33.2' Clay filled void, possible wash out or loss 34.1' and 34.4'						



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	_ Remarks
35		Limestone With Interbedded Shale, ver crystalline, moderately hard to very har bedded, 30° to 40° bedding angle, num and fractures, fractures filled with clay, have iron staining, multiple breaks on s (Continued)	ry fine to fine d, thin lerous breaks calcite, or					
37								
39								
40								
41		Slightly open fracture, at 41.0'						Breaks and Fracture present between 40. and 47.2
43				59	37.5 - 47.5	9.8	98	Run 3
44		Open fracture, iron staining, possible z between 43.2' and 43.4' Near vertical, slightly open fracture, be and 44.5'						
45								
47		Slightly open fracture, at 47.2'						



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number _ 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
		Limestone With Interbedded Sharrystalline, moderately hard to we bedded, 30° to 40° bedding angle and fractures, fractures filled with have iron staining, multiple breat (Continued) Open fracture, possible zone of and 52.5'	Rock Core: ale, very fine to fine ery hard, thin e, numerous breaks th clay, calcite, or ks on shale bedding					Remarks Run 4 Breaks and Fractures present between 52.0 and 56.2
- 58								



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Client Borehole	ID N/A	Stantec Boring No. JSF-200					
Client	Tennessee Valley Authority	Boring Location _	N 733226.45, E	2892576.23, NAD 27 Plant	t Local		
Project Number	175568225	Surface Elevation	1142.9 ft	Elevation Datum NO	GVD29		

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
· 60		Limestone With Interbedded Shale, v crystalline, moderately hard to very his bedded, 30° to 40° bedding angle, nu and fractures, fractures filled with cla have iron staining, multiple breaks on (Continued)	ard, thin Imerous breaks Iy, calcite, or					
62				98	57.5 - 67.5	10.0	100	Run 5
63		50° break on calcite filled fracture, op 63.3' and 63.6'	oen, between					
64								Breaks and Fractures present between 62.4 and 66.8
65								
66								
67		Slightly open fracture, at 66.8'						-
68								
69								
70 71 72								
71								
72								



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

	Lithology		Overburden	Comple	Depth Ft	Dog Et	Blows/PSI	
	Lithology		Overburden:	Sample	-	Rec. Ft		Damanta
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 73		Limestone With Interbedded Shale, very crystalline, moderately hard to very hard bedded, 30° to 40° bedding angle, nume and fractures, fractures filled with clay, chave iron staining, multiple breaks on sh	, thin erous breaks calcite, or	100	67.5 - 77.5	10.0	100	Run 6
- 74		(Continued)						Breaks and Fractures present between 70.8 and 76.2
- 75								
- 76		Near vertical, slightly open fracture, betv and 76.2'	veen 75.7'					
- 77								
- 78								
- 79								
- 80								
- 81								
- 82								Breaks and Fractures present between 81.7 and 82.2
- 82 - 83 - 84		Possible open fracture, at 83.2'		100	77.5 - 87.5	10.0	100	Run 7
- 84								
0.5								



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Client Borehol	e ID N/A	Stantec Boring No	JSF-200		_
Client	Tennessee Valley Authority	Boring Location _	N 733226.45,	E 2892576.23, NAD 27 Plant Local	
Project Number	er <u>175568225</u>	Surface Elevation	1142.9 ft	_ Elevation Datum_ NGVD29	_

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
85 86 87		Limestone With Interbedded Shale, very crystalline, moderately hard to very hard, bedded, 30° to 40° bedding angle, nume and fractures, fractures filled with clay, chave iron staining, multiple breaks on sh (Continued)	thin rous breaks alcite, or					
88			•					
89								
90								
91		Slightly open break on calcite filled crack	x, at 90.7'					Breaks and Fractures present between 89.6 and 96.6
93				80	87.5 - 97.5	9.8	98	Run 8
94		Very broken, soft shale, open, between 9 94.1'	94.0' and					
95		Very broken, soft shale, open, between 9	95.6' and					
97		95.7' Very broken, soft shale, partially open, b 96.5' and 96.6'	etween					



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Client Borehole ID N/A	Stantec Boring No. JSF-200					
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29					

	1.20	T	0 1 1	0 1	5 " 5		DI (DOI	1
	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 98		Limestone With Interbedded Shale, very crystalline, moderately hard to very hard, bedded, 30° to 40° bedding angle, numer and fractures, fractures filled with clay, chave iron staining, multiple breaks on shall continued.	thin rous breaks alcite, or					
- 99		(Continued)						
- 100								
- 101								Breaks and Fractures present between 98.5 and 105.8
- 102				99	97.5 - 107.5	9.9	99	Run 9
- 103								
- 104								
- 105								
- 106								
- 107								
- 108								
- 107 - 108 - 109		20° break on calcite filled crack, slightly of 108.7'	open, at					
110								



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

1 10,000	Number 17				evation 1142.9		LIOVALION B	atum_NGVD29
	Lithology	_	Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
110		Limestone With Interbedded Shale, we crystalline, moderately hard to very hedded, 30° to 40° bedding angle, nuand fractures, fractures filled with clathave iron staining, multiple breaks or (Continued) Very broken on calcite filled fracture,	ard, thin umerous breaks ay, calcite, or n shale bedding					Breaks and Fractures present between 108. and 117.3
112		between 110.6' and 110.7'		96	107.5 - 117.5	10.1	101	Run 10
113								
114								
115								
116								
117								_
118								
119								
120 121 122								
121								
122								



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Client Borehole ID N/A	Stantec Boring No. JSF-200					
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29					

	1.245 - 1	T	0	01-	D.::#: Et	D	DI /DOI	
	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	- Books and a
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 123		Limestone With Interbedded Shale, very fine to fine crystalline, moderately hard to very hard, thin bedded, 30° to 40° bedding angle, numerous breaks and fractures, fractures filled with clay, calcite, or have iron staining, multiple breaks on shale bedding		76	117.5 - 127.5	9.9	99	Run 11 Breaks and Fractures present between 118.2
- 124		(Continued) Very broken, possibly open, between 12: 123.7'	3.5' and					and 125.4
- 125								
- 126								
- 127								
- 128								
- 129								
- 130								
- 131		Possible zone of loss (open or washed o between 131.0' and 131.2'	out),					Breaks and Fractures present between 128.0 and 137.2
- 132				54	127.5 - 137.5	9.3	93	Run 12
- 133		Possible zone of loss (open or washed o between 132.8' and 133.0'	out),					
- 132 - 133 - 134								



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Client Borehole ID N/A	Stantec Boring No. JSF-200
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
135 136		Limestone With Interbedded Sh crystalline, moderately hard to v bedded, 30° to 40° bedding ang and fractures, fractures filled wi have iron staining, multiple brea (Continued) Very broken, clay seam washed of loss, between 136.0' and 136	ery hard, thin le, numerous breaks th clay, calcite, or ks on shale bedding out, possible zone					
138		Broken, slightly open, at 137.6'						
140								
141				61	137.5 - 147.5	10.1	101	Breaks and Fracture present between 13 and 147.2
143								
145								
46								



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Client Borehole ID N/A	Stantec Boring No. JSF-200					
Client Tennessee Valley Authority	Boring Location N 733226.45, E 2892576.23, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1142.9 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks

Bottom of Hole at 147.5 Ft.

Top of Rock = 25.3 Ft.
Top of Rock Elevation = 1117.6 Ft.
Begin Core = 25.3 Ft.

C 1755 STD LOGS_COMBINED.GPJ BC 1755 STD DATAL R0.GDL 12/7/22



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Client Borehole ID N/A	Stantec Boring No J	SF-201
Client Tennessee Valley Authority		34164.42, E 2891004.26, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 111	7.6 ft Elevation Datum NGVD29
Project Name TVA-JSF Vacatur	Date Started 8/20	0/18
Project Location Hawkins County, Rogersville, Tennessee	Depth to WaterN/A	Date/Time _ N/A
Inspector K. Carey Logger B. Evans	Depth to WaterN/A	Date/Time N/A
Drilling Contractor Stantec Consulting Services Inc.	Drill Rig CME 75	Driller D. Jessie
Overburden Drilling and Sampling Tools (Type and Siz	e)3-1/4" HSA, 2" SS w/o liners, 3" S	Shelby Tubes
Rock Drilling and Sampling Tools (Type and Size)	HQ-3 Wireline, Split Barrel, Surface Set	Bit
Sampler Hammer Type Automatic Weight14	10 lbs Drop 30"	Efficiency N/A
Borehole Azimuth N/A (Vertical)	Borehole Inclination (from	Vertical) N/A

		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 0	0.0	1117.6	Top of Hole						
ľ	0.3	1117.3	TOPSOIL						
- 1			SANDY LEAN CLAY, CL, 7.5YR 4/6 (s brown), hard, slightly damp, trace of ang Root hairs, at 1.0'		SPT01	0.0 - 1.5	1.4	3-5-4	
- 2	2.8	1114.8	Color change to 10YR 6/4 (light yellowis trace sand, non-plastic, crumbly, fissure		SPT02	1.5 - 3.0	1.0	3-4-7	
- 3	2.0	1114.0	SANDY SILT, ML, 10YR 5/4 (yellowish non-plastic, hard, slightly damp, very fine		SPT03	3.0 - 4.5	1.3	8-7-4	
- 4	4.4	1113.2							
- 5 - 6	7	1110.2	SANDY LEAN CLAY, CL, 10YR 5/8 (ye brown), low plasticity, hard, slightly dam sand		SPT04	4.5 - 6.0	1.5	5-5-6	
- 7					SPT05	6.0 - 7.5	1.5	6-5-8	
- 8 - 9			Color change to 10YR 5/6 (yellowish bro rock fragments, trace course gravel, at 7		SPT06	7.5 - 9.0	0.8	8-7-7	
- 10	9.8	1107.8	LEAN CLAY, CL, 10YR 5/8 (yellowish I		SPT07	9.0 - 10.5	1.5	6-4-5	
– 11	12.0	1105.6	mottled with N/8 (white), medium plastic damp Color changes to N/8 (white) mottled wit (yellowish brown), at 11.0'		SPT08	10.5 - 12.0	1.4	4-2-7	
12	12.0						111		



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Client Borehole ID N/A Stantec Boring No. JSF-201

Client Tennessee Valley Authority Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local

Project Number 175568225 Surface Elevation 1117.6 ft Elevation Datum NGVD29

		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dept	th Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 12			SILTY LEAN CLAY, CL-ML, 10YR 5/8 (brown), low plasticity, hard, moist to wet,	yellowish	SPT09	12.0 - 13.5	1.4	5-5-7	
- 13 - 14							<u> </u>		
- 15	14.5	1103.1	HIGHLY WEATHERED SHALE, 10YR standard, wet	5/3 (brown),	SPT10	13.5 - 15.0	0.7	4-3-6	
- 16			WEATHERED SHALE, 2.5Y 3/1 (very d		SPT11	15.0 - 16.5	1.3	2-2-4	
- 17 - 18			very soft, moist to wet, visible remnant be friable, at 16.3'	edding,	SPT12	16.5 - 18.0	1.0	3-5-11	
- 19					SPT13	18.0 - 19.5	1.0	5-8-8	
- 20 - 21					SPT14	19.5 - 21.0	0.9	4-6-10	
- 22					SPT15	21.0 - 22.3	1.3	12-31-50/4"	
- 23	22.9	1094.7	Limestone With Interbedded Shale, very crystalline, moderately hard to very hard,		SPT16	22.5 - 22.9	0.3	50/5" Begin Core	
- 24 - 25			bedded, 30° to 40° bedding angle, numer and fractures, fractures filled with calcite iron staining, multiple breaks on shale be	rous breaks or have	17	22.9 - 27.6	4.2	89	Breaks and Fractures present between 22.9 and 27.6
– 26 27			Open fracture, iron staining, at 25.9' Broken, open fracture, iron staining, betv	veen 26.8'					



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Client Borehole ID N/A	Stantec Boring No. JSF-201				
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local				
Project Number 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29				

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
27		Limestone With Interbedded Sha crystalline, moderately hard to ve bedded, 30° to 40° bedding angle and fractures, fractures filled with iron staining, multiple breaks on s	ry hard, thin e, numerous breaks n calcite or have					
29		(Continued)						
30		45 - 50° open fracture, clean, bet 29.5'	tween 29.4' and					
31								
32				42	27.6 - 37.6	9.3	93	Run 2
33		Very soft black shale, 50% wash of loss, between 32.7' and 34.0'	ed out, likely zone					
34								
35								Breaks and Fracture present between 27. and 37.6
36								
37		Soft shale, very broken or washe between 36.8' and 37.0'	d out, zone of loss,					
38								
39								
40								
41								



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Client Borehole ID N/A	Stantec Boring No. JSF-201					
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	- Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	- Remarks
- 42 - 43		Limestone With Interbedded Shale, very crystalline, moderately hard to very hard bedded, 30° to 40° bedding angle, numerand fractures, fractures filled with calcitiron staining, multiple breaks on shale be (Continued)	I, thin erous breaks e or have	54	37.6 - 47.6	8.3	83	Breaks and Fractures present between 37.6 and 45.6. Run 3
- 44 - 45		(Continued)						
- 46		Material loss from 45.9' to 47.6', likely s	oft shale					
- 47		that washed out						
- 48								
- 49 - 50								
- 51		Open fracture/void, iron staining, betwe	en 50.9' and					
- 52		51.5' Open fracture at 51.6' Open fracture, iron staining, at 52.0'		72	47.6 - 57.6	9.3	93	Dur 4
- 53				12	47.0 - 37.0	3.3	33	Run 4
- 53 - 54 - 55 - 56								Breaks and Fractures present between 48.5 and 57.5
- 55 56								
- 56 57								



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Client Borehole ID N/A	Stantec Boring No. JSF-201				
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local				
Project Number _ 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29				

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
57 58 59 60 61 62 63 64 65 66 67		Limestone With Interbedded Shale, crystalline, moderately hard to very libedded, 30° to 40° bedding angle, in and fractures, fractures filled with caliron staining, multiple breaks on shale (Continued) Very broken and weathered, iron stainling, likely zone of loss, between Much calcite at 60.0'	nard, thin umerous breaks alcite or have ale bedding	49	57.6 - 67.6	9.0	90	Run 5 Breaks and Fracture present between 57: and 66.7
68								
70								



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Client Borehole ID N/A	Stantec Boring No. JSF-201					
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 72 - 73		crystalline, moderately hard to very hard bedded, 30° to 40° bedding angle, num and fractures, fractures filled with calcit iron staining, multiple breaks on shale be	Limestone With Interbedded Shale, very fine to fine crystalline, moderately hard to very hard, thin bedded, 30° to 40° bedding angle, numerous breaks and fractures, fractures filled with calcite or have iron staining, multiple breaks on shale bedding			8.9	89	Run 6
- 74		(Continued) Possible void between 72.2' and 73.5'						Breaks and Fractures present between 68.3
- 75								and 77.3
- 76 - 77								
- 77 - 78								
- 79								
- 80								
- 81		Possible void or highly fractured with no between 80.4' and 81.4'	o recovery,					
- 82				63	77.6 - 87.6	9.2	92	Run 7
- 83								
- 84								Breaks and Fractures present between 77.6 and 84.2.
- 85								
- 83 - 84 - 85 - 86								



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Client Borehole ID N/A	Stantec Boring No. JSF-201
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local
Project Number _ 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
90 91 92 93 94 95 96	Elevation	Description Limestone With Interbedded Shale, we crystalline, moderately hard to very hedded, 30° to 40° bedding angle, nuand fractures, fractures filled with caliron staining, multiple breaks on shall (Continued) Open fracture, slightly weathered, at	very fine to fine ard, thin umerous breaks lcite or have e bedding	RQD %	Run Ft 87.6 - 97.6	Rec. Ft	Rec. %	Run 8 Breaks and Fractures present between 88.1 and 97.3
97 98 99								
100								



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Client Borehole ID N/A	Stantec Boring No. JSF-201					
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 102	1/2///2///	Limestone With Interbedded Sh crystalline, moderately hard to v bedded, 30° to 40° bedding ang and fractures, fractures filled wi	Limestone With Interbedded Shale, very fine to fine crystalline, moderately hard to very hard, thin bedded, 30° to 40° bedding angle, numerous breaks and fractures, fractures filled with calcite or have iron staining, multiple breaks on shale bedding		97.6 - 107.6	10.0	100	Run 9
- 104		(Continued)						Breaks and Fractures present between 97.7 and 107.2
- 105								
- 106								
- 107								
- 108								
- 109								
- 110		Horizontal fracture, slightly oper and 109.8'	n, between 109.7'					
- 111								
- 112				78	107.6 - 117.6	10.0	100	Run 10
- 113								
- 114								Breaks and Fractures present between 109.1
- 115		Horizontal fracture, slightly oper	n, at 115.2'					
- 116								



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Client Borehole ID N/A	Stantec Boring No. JSF-201
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local
Project Number _ 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 117 - 118 - 119 - 120 - 121 - 122 - 123 - 124 - 125 - 126 - 127		Limestone With Interbedded Sharystalline, moderately hard to we bedded, 30° to 40° bedding angund fractures, fractures filled wi iron staining, multiple breaks or (Continued) Extremely fractured zone, horizing open fractures, some calcite her 123.4' to 125.4'	very hard, thin le, numerous breaks ith calcite or have a shale bedding	78	117.6 - 127.6	10.0	100	Run 11 Breaks and Fractures present between 118.3 and 126.4
- 128 - 129								
130								



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Client Boreh	ole ID N/A	Stantec Boring NoJSF-201
Client	Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local
Droject Num	her 175568225	Surface Flevation 1117 6ft Flevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
132		Limestone With Interbedded Shale, very crystalline, moderately hard to very hard bedded, 30° to 40° bedding angle, numand fractures, fractures filled with calcit iron staining, multiple breaks on shale be	d, thin erous breaks te or have	90	127.6 - 137.6	9.8	98	Run 12
134		(Continued)						Breaks and Fractures present between 129. and 137.1
135								
136		Slightly open fracture, at 136.4'						
137		Calcite filled fracture, partially washed of 136.9' and 137.1'	out, between					
138								
139								
140		Slightly open fracture, at 140.1'						
141		Slightly open fractures, between 140.7' Calcite filled fracture, open, between 14 141.0'						
142				80	137.6 - 147.6	10.0	100	Run 13
144								Breaks and Fractures
								present between 137 and 146.3
145								
146								



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Client Borehole ID N/A	Stantec Boring No. JSF-201						
Client Tennessee Valley Authority	Boring Location N 734164.42, E 2891004.26, NAD 27 Plant Local						
Project Number 175568225	Surface Elevation 1117.6 ft Elevation Datum NGVD29						

		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	oth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 147			Limestone With Interbedded Shale, very crystalline, moderately hard to very hard						
- 148			bedded, 30° to 40° bedding angle, nume and fractures, fractures filled with calcite iron staining, multiple breaks on shale be (Continued)	rous breaks or have					
- 149			(Break at 149.0
- 150					98	147.6 - 152.6	4.9	98	Run 14
- 151									
- 152	152.6	965.0							

Bottom of Hole at 152.6 Ft.

Top of Rock = 22.9 Ft.

Top of Rock Elevation = 1094.7 Ft.

Begin Core = 22.9 Ft.



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Client Borehole ID N/A	Stantec Boring No	JSF-202	
Client Tennessee Valley Authority	Boring Location	N 734298.02, E	2892822.26, NAD 27 Plant Local
Project Number 175568225	Surface Elevation	1117.1 ft	Elevation Datum NGVD29
Project Name TVA-JSF Vacatur	Date Started	8/22/18	Completed 8/23/18
Project Location Hawkins County, Rogersville, Tennessee	Depth to Water	N/A	Date/Time N/A
Inspector K. Carey Logger B. Evans	Depth to Water	N/A	Date/Time N/A
Drilling Contractor Stantec Consulting Services Inc.	Drill Rig CME 75		Driller D. Jessie
Overburden Drilling and Sampling Tools (Type and S	Size)3-1/4" HSA, 2" SS w/o liners	s, 3" Shelby Tubes	
Rock Drilling and Sampling Tools (Type and Size)	HQ-3 Wireline, Split Barrel, Surface	e Set Bit	
Sampler Hammer Type Automatic Weight	140 lbs Drop 30"	_ Efficiency	N/A
Borehole Azimuth N/A (Vertical)	Borehole Inclination (fro	om Vertical)	N/A

		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 0	0.0	1117.1	Top of Hole						
- 1	0.8	1116.3	TOPSOIL SANDY LEAN CLAY, CL, 7.5YR 4/6 (st	rona	SPT01	0.0 - 1.5	0.8	2-2-4	
- 2 - 3			brown), low plasticity, firm to hard, moist trace gravel Color change to 7.5YR 5/6 (strong brown manganese staining in nodules, at 3.0'	, fine sand,	SPT02	1.5 - 3.0	0.2	7-4-6	
- 4	3.7	1113.4	SILTY LEAN CLAY, CL-ML, 2.5Y 7/4 (p non-plastic to low plasticity, hard to very trace fine sand, manganese staining		SPT03	3.0 - 4.5	1.5	3-4-6	
- 5			Color change to 10YR 6/6 (brownish yell plasticity, moist, at 4.5'	ow), low	SPT04	4.5 - 6.0	1.3	6-8-12	
- 6 - 7					SPT05	6.0 - 7.5	1.5	4-7-7	
- 8 - 9	9.0	1108.1	Color change to 10YR 5/3 (brown) at 7.5	, '	SPT06	7.5 - 9.0	0.7	8-8-8	
– 9 – 10			LEAN CLAY, CL, 10YR 5/6 (yellowish b to medium plasticity, hard to very hard, n		SPT07	9.0 - 10.5	1.4	5-8-6	
- 11 - 12	12.0	1105.1	Color change to 10YR 7/1 (light grey), la non-plastic, dry, at 11.2'	minated,	SPT08	10.5 - 12.0	1.5	7-18-30	



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Client Borehole ID N/A Stantec Boring No. JSF-202
Client Tennessee Valley Authority Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local

Project Number 175568225 Surface Elevation 1117.1 ft Elevation Datum NGVD29

-		Lithology			Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Den	th Ft	Elevation		Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
– 12	dire	Lievation		SILTY LEAN CLAY, CL-ML, 10YR 6/3 (pale	SPT09	12.0 - 13.0		7-50	Nemans
- 13				brown), non-plastic, very hard, slightly m sand Color change to 10YR 4/3 (brown), mino laminations, at 12.6'		3F109	12.0 - 13.0	1.1	7-30	
- 14 - 15	14.2	1102.9		SILT, ML, 10YR 6/3 (pale brown), very build slightly moist, trace laminations	hard,	SPT10	13.5 - 14.9	1.4	8-37-50/5"	
	15.6	1101.5		WEATHERED SHALE, very light grey, v	very dense	SPT11	15.0 - 15.9	0.9	15-50/5"	
- 16	16.5	1100.6	VIII	soft, laminated, fine crystalline					50+/4" Began Core	4" steel casing bit set and drove to 16.5'
- 17				Limestone With Interbedded Shale, mod- to very hard, thin bedded, 30° to 40° bed numerous breaks and fractures, fracture calcite, or have iron staining, multiple bre	ding angle, s filled with	36	16.5 - 17.6	1.1	100	Breaks and Fractures present between 16.9 and 17.6
- 18				shale bedding						Run 1
- 19										
- 20										
- 21										
- 22						77	17.6 - 27.6	10.0	100	Breaks and Fractures present between 17.6
- 23										and 24.4 Run 2
24 – 24										
- 25										
- 26										



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Client Borehole ID N/A	Stantec Boring No. JSF-202					
Client Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local					
Project Number _ 175568225	Surface Elevation 1117.1 ft Elevation Datum NGVD29					

	Number 175				vation 1117.1			atum_NGVD29
	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
27		Limestone With Interbedded Shale to very hard, thin bedded, 30° to 40 numerous breaks and fractures, fracalcite, or have iron staining, multip shale bedding (Continued) Horizontal to 30° breaks, calcite fill fracture, between 28.1' and 28.4' Open breaks on shale bedding, bet 30.9'	e, moderately hard of bedding angle, actures filled with ole breaks on ed fracture, open	97	27.6 - 37.6	10.0	100	Breaks and Fractures present between 28.1 and 36.2 Run 3
- 38								
- 40								



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Client Borel	nole ID _ N/A	Stantec Boring No. JSF-202
Client	Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local
Project Nun	her 175568225	Surface Flevation 1117.1 ft Flevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
42		Limestone With Interbedded Shale, to very hard, thin bedded, 30° to 40° numerous breaks and fractures, fraccalcite, or have iron staining, multiple shale bedding (Continued)	bedding angle, ctures filled with	98	37.6 - 47.6	10.0	100	Breaks and Fractures present between 37.8 and 46.5 Run 4
44								
45								
46		20° fracture, slightly open, at 46.1'						
47								_
48								
49								
50								
51								
52				96	47.6 - 57.6	10.0	100	Breaks and Fracture
53								present between 52. and 57.3 Run 5
54								
55								
56								



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Client Borehole ID N/A	Stantec Boring No. JSF-202					
Client Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local					
Project Number _ 175568225	Surface Elevation 1117.1 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
57 58 59 60 61 62 63 64 65 66		Limestone With Interbedded Shale to very hard, thin bedded, 30° to 40 numerous breaks and fractures, fracalcite, or have iron staining, multip shale bedding (Continued)	, moderately hard)° bedding angle, actures filled with	98	57.6 - 67.6	9.8	98	Breaks and Fracture: present between 57.0 and 67.6 Run 6
68								
70								



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SUBSURFACE LOG

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Client Boreh	ole ID N/A	Stantec Boring No. JSF-202
Client _	Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local

Project Number 175568225 Surface Elevation 1117.1 ft Elevation Datum NGVD29 Depth Ft Blows/PSI Lithology Overburden: Sample Rec. Ft Depth Ft Elevation Rock Core: RQD % Run Ft Rec. Ft Rec. % Remarks Description Limestone With Interbedded Shale, moderately hard to very hard, thin bedded, 30° to 40° bedding angle, Breaks and Fractures 82 67.6 - 77.6 10.1 101 present between 67.7 numerous breaks and fractures, fractures filled with and 77.3 Run 7 73 calcite, or have iron staining, multiple breaks on shale bedding (Continued) 74 75 76 77 78 79 80 81 82 Break present at 77.8 9.7 91 77.6 - 87.6 97 Run 8 83 84 85



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Client Borehole ID N/A	Stantec Boring No JSF-202					
Client Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1117.1 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 87 - 88 - 89 - 90 - 91 - 92 - 93 - 94 - 95 - 96		Limestone With Interbedded Shale, mod to very hard, thin bedded, 30° to 40° bed numerous breaks and fractures, fracture calcite, or have iron staining, multiple bre shale bedding (Continued) Slightly open fracture at calcite filled crace 93.1' and 93.3'	erately hard Iding angle, es filled with eaks on	81	87.6 - 97.6	10.4	104	Breaks and Fractures present between 87.7 and 97.6 Run 9
- 97 - 98		50° slightly open fracture at calcite filled between 98.1' and 98.2'	crack,					
- 99 - 100 - 101		Open fracture at 100.5' Slightly open fracture, calcite, at 101.9'						



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Client Borehole ID N/A	Stantec Boring No. JSF-202					
Client Tennessee Valley Authority	Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1117.1 ft Elevation Datum NGVD29					

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 102 - 103		Limestone With Interbedded Shale, mode to very hard, thin bedded, 30° to 40° bedden numerous breaks and fractures, fractures calcite, or have iron staining, multiple breakshale bedding (Continued)	ding angle, s filled with	80	97.6 - 107.6	9.6	96	Breaks and Fractures present between 97.6 and 105.5 Run 10
- 104		Very broken zone, possible open fracture 103.8' and 104.0'	, between					
– 105								
- 106								
- 107								
- 108								
– 109								
- 110								
- 111								
- 112				67	107.6 - 117.6	9.8	98	Breaks and Fractures present between 107.7
- 113		Very fractured and washed out possible, :	zone of					and 117.6 Run 11
– 114		loss, between 113.6' and 115.5'	20,10 01					
- 115								
- 113 - 114 - 115 - 116								



Page: 9 of 11

Client Borehole	ID N/A	Stantec Boring No. JSF-202						
Client	Tennessee Valley Authority	Boring Location _	N 734298.02, E	2892822.26, NAD 27 Plant Local				
Project Number	175568225	Surface Elevation	1117.1 ft	Elevation Datum_NGVD29				

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 117 - 118		Limestone With Interbedded Shato very hard, thin bedded, 30° to numerous breaks and fractures, calcite, or have iron staining, mushale bedding (Continued)	40° bedding angle, fractures filled with					
- 119								
- 120								
- 121								
- 122				72	117.6 - 127.6	9.7	97	Breaks and Fractures
- 123								present between 117.6 and 126.7. Run 12
- 124								
- 125								
- 126		Possible zone of loss between 1	26.1' and 126.5'					
- 127								
- 128								
- 129								
- 129 - 130 - 131								
- 131								



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Stantec Boring No. **JSF-202** Client Borehole ID N/A

Boring Location N 734298.02, E 2892822.26, NAD 27 Plant Local Client Tennessee Valley Authority

Project Number 175568225 Surface Elevation 1117.1 ft

Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 132 - 133		Limestone With Interbedded Shale, more to very hard, thin bedded, 30° to 40° be numerous breaks and fractures, fracture calcite, or have iron staining, multiple by shale bedding (Continued)	dding angle, es filled with	85	127.6 - 137.6	10.1	101	Breaks and Fractures present between 127.8 and 137.6 Run 13
- 134								
- 135								
- 136								
- 137								
- 138								
– 139								
- 140								
- 141								
- 142				102	137.6 - 146.6	9.8	109	Breaks and Fractures present between 137.6
- 143								and 147.2 Run 14
- 144								
- 145								
- 144 - 145 - 146								



Page: 11 of 11

Client	Borehole Number	Tenne	essee Valley Authority	Bo	ring Loca	ing No. JSF ation N 73429 vation 1117.1 f	98.02, E 2		D 27 Plant Local
	Lithology			Overhurden:	Sample	Denth Et	Rec Et	Rlows/PSI	
			Description		-	-	_		Remarks
	Lithology Elevation		Description Bottom of Hole at 147.6 Ft. Top of Rock = 16.5 Ft. Top of Rock Elevation = 1100.6 Ft. Begin Core = 16.5 Ft.	Overburden: Rock Core:	Sample RQD %	Depth Ft Run Ft	Rec. Ft	Blows/PSI	Remarks



Page: 1 of 4

С	lient E	Borehole	ID	N/A		Sta	antec Bor	ing No. JSF	-203		
	lient		_	essee Valley Authority		 Во	ring Loca	ation N 7342	10.08, E 2	891768.97, NA	D 27 Plant Local
Р	roject	Number	17	5568225			_	vation 1120.8			tum NGVD29
	-	Name		A-JSF Vacatur		 Da	ite Starte	d 12/4/18		Completed	
	-	Location		Hawkins County, Rogersville, Te	ennessee	 De	pth to Wa	ater 14.4 ft		Date/Time	12/12/18
	•	or K. Ca	_	Logger K. Ca	arey		epth to Wa			Date/Time	N/A
	•	Contract					-	Schramm T450W			
	•		_	and Sampling Tools (Type	and Siz		· · ·	pling conducted			
			-	mpling Tools (Type and S		8" Air Rotary, n					
		_		ype N/A Wei	, –		rop 30"		ficiency	N/A	_
	-			N/A (Vertical)	J			tion (from Ver	-	N/A	
_	010110			,							
		Lithology				Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation		Description		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
_	0.0	1120.8		Top of Hole							
0				JSF-203 boring advanced thro	ough overb	urden with					
				4 1/4" HSA to bedrock; no ove	erburden sa	ampling					
				conducted.							
1											
2											
3											
3											
4											
5											
_											
6											
7											
8											
0											
9											
			i .	İ					1		



Page: 2 of 4

Client Borehole ID N/A	Stantec Boring No. JSF-203
Client Tennessee Valley Authority	Boring Location N 734210.08, E 2891768.97, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1120.8 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
10		JSF-203 boring advanced through ove 4 1/4" HSA to bedrock; no overburden conducted. (Continued)						
11								
12								
13								
14								
15								
16								
17								
18								
19								
20.0	1100.8	JSF-203 boring blind drilled from bedre at 20 ft. to 38 ft. using Air Rotary drillin No samples were recovered for visual	ng methods.					
22								



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Client Boreh	ole ID N/A	Stantec Boring No. JSF-203	_
Client	Tennessee Valley Authority	Boring Location N 734210.08, E 2891768.97, NAD 27 Plant Local	
Project Num	ber <u>175568225</u>	Surface Elevation 1120.8 ft Elevation Datum NGVD29	_

			<u> </u>			1_ 1		
	Lithology	_	Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
23		JSF-203 boring blind drilled from bed at 20 ft. to 38 ft. using Air Rotary drill No samples were recovered for visua (Continued)	ing methods.					
24								
25								
26								
27								
28								
29								
30								
31								
32								
32 33 34								
34								
35								



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Client Borehole ID N/A Stantec Boring No. JSF-203

Client Tennessee Valley Authority Boring Location N 734210.08, E 2891768.97, NAD 27 Plant Local

Project Number 175568225 Surface Elevation 1120.8 ft Elevation Datum NGVD29

	L	ithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth	h Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 35 - 36			JSF-203 boring blind drilled from bedi at 20 ft. to 38 ft. using Air Rotary drilli No samples were recovered for visual (Continued)	rock interface ing methods.					
- 37									
- 38	38.0	1082.8							

No Refusal /

Bottom of Hole at 38.0 Ft.

Top of Rock = 20.0 Ft.

Top of Rock Elevation = 1100.8 Ft.

755 STD_LOGS_COMBINED.GPJ_BC 1755 STD DATAT R0.GDT_12/7/22



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С	lient B	Borehole I	ID	N/A		Sta	antec Bor	ing No. JS	F-204		
	lient		_	essee Valley Authority			ring Loca			2890174.62, NA	D 27 Plant Local
Pi	roject	Number	175	5568225			-	vation 1114.5	ft	Elevation Da	atum NGVD29
	-	Name		A-JSF Vacatur			ate Starte	-		Completed	
	-	Location		Hawkins County, Rogersville,	Tennessee	 De	epth to W	ater 18.8 ft		Date/Time	12/12/18
	•	or K. Ca	_	Logger K. C	Carey		epth to Wa			Date/Time	N/A
	•	Contract					•	Schramm T450W			
	•		_	and Sampling Tools (Typ	e and Siz	-	· · ·	pling conducted			
			-	mpling Tools (Type and		8" Air Rotary, n					_
		_		ype N/A We	, —		rop 30"		fficiency	N/A	_
	-			N/A (Vertical)	Jigin			tion (from Ve	-	N/A	
٠.	010110	io / vziiii di		(io irioliria		rtiour, _		
	l	Lithology				Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation		Description		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
j	0.0	1114.5		Top of Hole							
0				JSF-204 boring advanced th	rough overh	ırden with					
				4 1/4" HSA to bedrock; no o	-						
				conducted.							
1											
2											
2											
3											
4											
5											
6											
7											
7											
8											
9											
-											
40											



Page: 2 of 4

Client Borehole ID N/A	Stantec Boring No. JSF-204
Client Tennessee Valley Authority	Boring Location N 734085.70, E 2890174.62, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1114.5 ft Elevation Datum NGVD29

	1.20	T		0 1	5 " 5	5 5	DI (DOI	
	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
11		JSF-204 boring advanced through overt 4 1/4" HSA to bedrock; no overburden s conducted. (Continued)	ourden with ampling					
12								
13								
14								
15								
16								
17								
18								
19								
19202122								
21								
22								



Page: 3 of 4

Client Borehole ID N/A	Stantec Boring No. JSF-204					
Client Tennessee Valley Authority	Boring Location N 734085.70, E 2890174.62, NAD 27 Plant Local					
Project Number 175568225	Surface Elevation 1114.5 ft Elevation Datum NGVD29					

	,	-						1	
		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	oth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
23	23.0	1091.5							
23			JSF-204 boring blind drilled from	bedrock interface					
			at 23 ft. to 34 ft. using Air Rotary No samples were recovered for vi	drilling methods.					
24			TWO Samples were recovered for vi-	suai loggilig.					
27									
25									
26									
27									
28									
29									
30									
24									
31									
32									
02									
33									
-34	34.0	1080.5							
			No Refusal / Bottom of Hole at 34.0 Ft.						
			Top of Rock = 23.0 Ft.						



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Client Borehole ID N/A	Stantec Boring No. JSF-204
Client Tennessee Valley Authority	Boring Location N 734085.70, E 2890174.62, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1114.5 ft Elevation Datum NGVD29

	Lithology		Overb	ourden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock	Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks

Top of Rock Elevation = 1091.5 Ft.

C 1755 STD LOGS_COMBINED.GPJ BC 1755 STD DATAT R0.GDT 12/7/22



(Client E	Borehole I	D	N/A		Sta	antec Bor	ing No. JSF	-205		
	Client		_	essee Valley Authority			ring Loca			890410.48, NA	D 27 Plant Local
		Number					_	vation 1132.7			atum NGVD29
		Name		A-JSF Vacatur			ite Starte			Completed	12/11/18
	-	Location		Hawkins County, Rogersville, Ter	nessee		pth to Wa			Date/Time	12/12/18
	-	or K. Ca	_	Logger K. Car			pth to Wa			Date/Time	N/A
	-	Contracto		M&W Drilling, LLC			-	Schramm T450W			
	_		_	and Sampling Tools (Type	and Si		· -	pling conducted		Dillioi	
			_	mpling Tools (Type and Si		8" Air Rotary, n					
		er Hamme			, –		rop 30"		ficiency	N/A	
	•	le Azimut	-	•	Jiil	-		tion (from Ver	-	N/A	
	DOLETIO	ie Azimui	–	TVA (Voltical)		Bolello		uon (nom vei	ucai) _	14/74	
		Lithology				Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
De	epth Ft	Elevation		Description		Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
	0.0	1132.7		Top of Hole							
- 0				JSF-205 boring advanced throu	ugh overb	ourden with					
				4 1/4" HSA to bedrock; no over							
				conducted.							
- 1											
- 2											
•											
- 3											
- 4											
- 5											
_											
- 6											
- 7											
	\downarrow										
	†										
- 8											
_											
- 9											
10											



Client Borehole ID N/A	Stantec Boring No. JSF-205
Client Tennessee Valley Authority	Boring Location N 732651.34, E 2890410.48, NAD 27 Plant Local
Project Number 175568225	Surface Elevation 1132.7 ft Elevation Datum NGVD29

				 			1	Т	
		Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Dep	th Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
10			JSF-205 boring advanced through overl 4 1/4" HSA to bedrock; no overburden s conducted. (Continued)						
12	12.0	1120.7	JSF-205 boring blind drilled from bedro	ck interface					
13			at 12 ft. to 38 ft. using Air Rotary drilling No samples were recovered for visual lo	g methods.					
14									
15									
16									
17									
18									
19									
20									
21									
20 21 22									



Client Borehole ID N/A	Stantec Boring No. JSF-205
Client Tennessee Valley Authority	Boring Location N 732651.34, E 2890410.48, NAD 27 Plant Local
Project Number _ 175568225	Surface Elevation 1132.7 ft Elevation Datum NGVD29

						1_ 1		
	Lithology	_	Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
23		JSF-205 boring blind drilled from bed at 12 ft. to 38 ft. using Air Rotary drill No samples were recovered for visua (Continued)	ing methods.					
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
32 33 34								
35								



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Client Borehole ID N/A Stantec Boring No. JSF-205

Client Tennessee Valley Authority Boring Location N 732651.34, E 2890410.48, NAD 27 Plant Local

Project Number 175568225 Surface Elevation 1132.7 ft Elevation Datum NGVD29

	Lithology		Overburden:	Sample	Depth Ft	Rec. Ft	Blows/PSI	
Depth Ft	Elevation	Description	Rock Core:	RQD %	Run Ft	Rec. Ft	Rec. %	Remarks
- 35		JSF-205 boring blind drilled from bedroc at 12 ft. to 38 ft. using Air Rotary drilling No samples were recovered for visual log (Continued)	methods.					
- 37	1094.7							

No Refusal /

Bottom of Hole at 38.0 Ft.

Top of Rock = 12.0 Ft.

Top of Rock Elevation = 1120.7 Ft.

733 STD LOGS_COMBINED.GPJ BC 1733 STD DATAT NO.GDT 12/1722



		Borehole				antec Boring						
	Client			see Valley Authority	Bor	ring Locatio	n	732,667.	53 N; 2,889,831	.36	E NAD27	Plant Local
	•	Number			Sur	rface Eleva	tio	n 1139.0 ft	Elevatio	on D	atum_	NGVD29
	-	Name		-		te Started	_	5/21/19	Comple		5/22/	19
	•	Location		wkins Co, Rogersville, Tennessee		pth to Wate	_		Date/Ti		N/A	
				Logger _C. Sexton		pth to Wate			Date/Ti	me	N/A	
	_			ntec Consulting Services Inc.		0 ,.			850XR, #953			
			•	Sampling Tools (Type and Size	·—	reline, Split Ba						
		_	•	ling Tools (Type and Size) <u>HG</u> and Size) 8" Air Rotary	3-2 VVII	Tellile, Split Da	alle	ii, Suriace S	Overdrill		nth	50.0 ft
		_		N/A Weight N/A		Drop N	I/A		Overdriii Efficiency		ν/Α	<u> </u>
		le Azimu		N/A					Vertical)	N/A		
		ed By				proved By		P. Dunne				
									D41- E43		D 54	Dlawa/DCI
D		Lithology	Casabia	D	- +	Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Dep	oth Ft ³	Elevation 1139.0	Grapnic	Description Top of Hole		Rock Core:	Т	RQD %	Run Ft	П	Rec. Ft	Rec. %
- 0	0.0	1139.0	///	Top of Hole SILTY LEAN CLAY, CL, 10YR 6/4 (light	aht vel	lowich						_
- 1				brown) to 2.5YR 6/4 (light reddish brown)				SS01	0.0 - 1.5	0.0 - 1.	N/A	N/A
ı.				plasticity, soft to medium stiff, moist						5		
- 2								SS02	1.5 - 3.0	1.5-	N/A	N/A
- 3								5552		3.0		_
_ 3	3.3	1135.7	///	SANDY LEAN CLAY WITH SILT, CL	7 5VI	D 5/9			00.45	3.0	l	
- 4				(strong brown), low plasticity, stiff, dry				SS03	3.0 - 4.5	- 4.5	N/A	N/A _
- 5										4	1	_
- 3								SS04	4.5 - 6.0	.5 - 6.0	N/A	N/A
- 6											1	-
- 7								SS05	6.0 - 7.5	6.0 - 7.	N/A	N/A
_ ′										55		
- 8	8.3	1130.7						SS06	7.5 - 9.0	7.5-	N/A	N/A
– 9			[[+[+[+]	SILTY SAND SOME CLAY, SM, 7.5Y					7.10 0.10	9.0	'''	_
– 9				brown), medium to coarse, loose, mo staining	oist, iro	n oxide				9.0]	-
- 10			[+]+]+]	Ciaming				SS07	9.0 - 10.5	- 10.5	N/A	N/A
11										10	1	
- 11								SS08	10.5 - 12.0	5- 12	N/A	N/A
- 12										0	-	_
								SS09	12.0 - 13.5	12.0 - 1	N/A	N/A
– 13	13.5	1125.5								3.5		_
- 14				SILTY LEAN CLAY, CL, 7.5YR 5/6 (s				0040	40 5 45 0	13.5	NI/A	NI/A -
				low to medium plasticity, medium stiff	f to stif	f, moist		SS10	13.5 - 15.0	- 15.0	N/A	N/A
– 15										15.1	1	_
- 16								SS11	15.0 - 16.5	0 - 16.5	N/A	N/A _
								SS12	16.5 - 17.2	16.	N/A	N/A
- 17	17.2	1121.8					+	3312	10.0 - 11.2	5 - 17.3	13/74	Began Core -
40										2		



Client F	Borehole	ID N/A		Stantec Borin	a N	Jo JSF-	206			
Client	Jorenole		see Valley Authority	Boring Location				36	E NAD27	Diant Local
	Number			Surface Eleva						
FTOJECI	Number	173300	225	Surface Lieva				/II L	Jatuii i	NGVD29
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18									1	_
			Shale, very finely crystalline, hard, ma 30° to 60° bedding angle (Continued							
- 19 			(First 0.2' of 17.2' - 21.6' core run was	•						_
- 20			setting core bit; material not recoveral							_
			barrel)							
- 21							47.0.004	17.3		-
- 22						94	17.2 - 26.1 8.9	2 - 26.1	8.6	97 –
- 23										_
- 24										_
- 25										_
- 26										_
20										
- 27										_
- 28										_
20						100	26.1 - 31.0	26.1-	4.9	100
- 29							4.9	31.0		-
20		$ $								
- 30										_
- 31								╂		_
00										
- 32										_
- 33								31		_
						88	31.0 - 36.1 5.1	.0 - 36.	5.1	100
- 34							5.1			_
- 35										_
- 36								1		
- 37										-
_		$ $								
- 38										=
- 39										-
		$ \check{} \cup $								
- 40										_
- 41						94	36.1 - 46.1	36.1-	10.0	100 -
							10.0	46.1		
- 42										_



Client E	Borehole II	D N/A		Stantec Borin	g N	lo. JSF-	206			
Client		Tenness	see Valley Authority	Boring Location			3 N; 2,889,831	.36	E NAD27	Plant Local
Project	Number_	1755682	225	Surface Eleva	atio	n 1139.0 ft	Elevatio	n [Datum_r	NGVD29
	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 43			Shale, very finely crystalline, hard, ma 30° to 60° bedding angle (Continued)							-
- 44										_
- 45										_
- 46								┦		_
- 47										_
- 48										_
- 49										_
- 50						70	40.4 55.0	46.1	7.0	_
- 51						76	46.1 - 55.0 8.9	- 55.0	7.8	88 –
- 52										_
- 53		\checkmark								
- 54		\smile								
55.0	1084.0									
55 00.0	100.10		Bottom of Hole at 55.0 Ft.							
			Top of Rock = 17.2 Ft. Top of Rock Elevation = 1121.8 Ft. Begin Core = 17.2 Ft.							- -
		Monitor constru	ing Well JSF-210 was installed in boring ction details.	g JSF-206 on 6/25/	'19.	Refer to the	JSF-210 well i	nsta	allation de	tail for —
		G = 0 2: a,b,c	Environmental Sample Custody (two Spl Geotechnical Sample Custody denote Split Spoon divided between En hs are reported in feet below ground sur	vironmental and G				nple)	_
										_
										_
										_
										_



	liont E	Porobolo	ID N/A	1	Stantec Boring	- \	lo JSF-	2065		
	lient	Borehole		ssee Valley Authority	Boring Location				2 E NAD	27 Plant Local
		 Number			Surface Eleva					
	-	Name		DEC Order	Date Started	ıuO	6/26/19	Elevation Complete	•	6/19
	-	Location		wkins Co, Rogersville, Tennessee	Depth to Wate	- >r		Complete Date/Tim		
	-			Logger C. Sexton	Depth to Wate	_		Date/Tim		
	•			W Drilling, LLC	Drill Rig Type	_			·	<u>·</u>
	-			I Sampling Tools (Type and Size)	• • • •	u.,				
			-	ling Tools (Type and Size)						
		_		and Size) 8" Air Rotary				Overdrill [Depth	N/A
		_		N/A Weight N/A	Drop _N	I/A		Efficiency	N/A	
В	oreho	le Azimut	th	N/A	Borehole Incli	nat	tion (from	Vertical)	N/A	
F	Review	ed By _	B. Ev	ans	Approved By		P. Dunne			
	ı	_ithology			Overburden:		Sample ^{1,2}	Depth Ft ³	Rec. I	-t Blows/PSI
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	Rec. I	t Rec. %
- 0	0.0	1138.6		Top of Hole	<u> </u>					
- 0				Boring blind drilled from surface to a to	argeted					
- 1				monitoring well (JSF-206) total depth	of 32' bgs using					
				air rotary drilling methods. No soil or l samples recovered for visual logging;						
- 2				adjacent soil boring JSF-206 for locati						
- 3										
- 4										
- 5										
- 6										
- 7										
- 8										
- 9										
Ū										
- 10										
- 11										
- 12										
- 12										
- 13										
- 14										
4.5										
- 15										
- 16										
	17.0	1121.6								
- 17				Approximate soil/bedrock interface						
				TP. S. M. Maria Composition (Moridoo)						



Client Borehole ID N/A Stantec Boring No. JSF-206S Client Tennessee Valley Authority Boring Location 732,659.08 N; 2,889,831.5		7 Plant Local			
l B : (N)	_				
Project Number 175568225 Surface Elevation 1138.6 ft Elevation	Surface Elevation 1138.6 ft Elevation Datum				
Lithology Overburden: Sample ^{1,2} Depth Ft ³	Rec. Ft	Blows/PSI			
Depth Ft ³ Elevation Graphic Description Rock Core: RQD % Run Ft	Rec. Ft	Rec. %			
_ 18					
- 19					
- 20		_			
- 21					
- 22					
- 23					
- 24					
- 25		_			
- 26					
- 27					
- 28					
- 29					
- 30		_			
- 31					
32 32.0 1106.6					
No Refusal / Bottom of Hole at 32.0 Ft.					
		-			
Monitoring Well JSF-206 was installed in boring JSF-206S on 6/26/19. Refer to the JSF-206 well in for construction details.	nstallation	detail			
1: E = Environmental Sample Custody (two Split Spoons may be required to obtain sufficient samp	اهار				
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 N/A Stantec Boring No. JSF-207 Client Tennessee Valley Authority Boring Location 733,197.04 N; 2,889,257.88 E NAI Project Number 175568225 Surface Elevation 1109.1 ft Elevation Datur Project Name JSF TDEC Order Date Started 5/15/19 Completed 5/2 Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time N/2 Inspector C. Sexton Logger C. Sexton Depth to Water N/A Date/Time N/2 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR, #953 Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth Sampler Hammer Type N/A Weight N/A Drop N/A Efficiency N/A	n NGVD29 21/19 A A 40.0 ft
Project Number 175568225 Surface Elevation 1109.1 ft Elevation Dature Project Name JSF TDEC Order Date Started 5/15/19 Completed 5/15/19 Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time N/1 Drilling Contractor Logger C. Sexton Depth to Water N/A Date/Time N/1 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR, #953 Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	n NGVD29 21/19 A A 40.0 ft
Project Name JSF TDEC Order Date Started 5/15/19 Completed 5/15/19 Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time N/1 Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR, #953 Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	21/19 A A A 40.0 ft
Project Location Hawkins Co, Rogersville, Tennessee Depth to Water N/A Date/Time 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) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	A A 40.0 ft
Inspector C. Sexton Logger C. Sexton Depth to Water N/A Date/Time N/Drilling Contractor Stantec Consulting Services Inc. Drill Rig Type and ID CME 850XR, #953 Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	40.0 ft
Drilling Contractor Stantec Consulting Services Inc. Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	40.0 ft
Overburden Drilling and Sampling Tools (Type and Size) 4-1/4" HSA Rock Drilling and Sampling Tools (Type and Size) HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	
Rock Drilling and Sampling Tools (Type and Size) Overdrill Tooling (Type and Size) 8" Air Rotary HQ-3 Wireline, Split Barrel, Surface Set Bit Overdrill Depth	
Overdrill Tooling (Type and Size) 8" Air Rotary Overdrill Depth	
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 B. Evans Approved By P. Dunne	
Lithology Overburden: Sample ^{1,2} Depth Ft ³ Rec.	Ft Blows/PSI
Depth Ft ³ Elevation Graphic Description Rock Core: RQD % Run Ft Rec.	Ft Rec. %
0.0 1109.1 Top of Hole	_
JSF-207 boring advanced into bedrock by removing	
temporary overburden piezometer JSF-112Alt via overdrilling with 4 1/4" HSA; advanced augers then	_
used to facilitate placement of 4" temporary casing	_
for bedrock coring. No overburden sampling conducted. See JSF-112Alt boring log for	
overburden soil descriptions at boring JSF-207.	_
	_
- 5	_
	_
- 7	_
- 9	_
	_
- 11	_
	_
_ 13	_
	_
_ 15	_
	-
- ¹⁷ 17.3 1091.8	_
	Began Core



Client Borehole ID N/A			Stantec Boring No. JSF-207							
Client		Tennes	see Valley Authority				04 N; 2,889,257	.88	E NAD27	Plant Local
Projed	t Number	175568	225	Surface Elevation 1109.1 ft Elevation Datum NO						NGVD29
	Lithology			Overburden:	9,	Sample ^{1,2}	Depth Ft ³		Rec. Ft Blows/PSI	
Depth Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %
- 18 - 19			Shale, medium crystalline, hard, mas slightly weathered, iron oxide staining							-
- 20			bedding angle (Continued)							_
- 21			Induced fracture, 30°, calcite coating, planar, smooth, matte surface, at 20.							-
- 22						46	17.5 - 26.9	17.5 -	8.5	90 -
- 23							9.4	26.9	0.0	-
- 24										-
- 25										_
- 26										-
- 27								╁		-
- 28										=
- 29										_
- 30										_
- 31								2		-
- 32						42	26.9 - 36.7 9.8	6.9 - 36.7	6.4	65
- 33										=
- 34										-
- 35										_
- 36										_
- 37								 		_
- 38										_
- 39										-
- 40										_
- 41 - 42						77	36.7 - 46.7	36.7 - 46	9.0	90



С	Client Borehole ID N/A				Stantec Boring No. JSF-207							
С	lient		Tennes	see Valley Authority				97.04 N; 2,889,257.88 E NAD27 Plant Local				
Ρ	roject	Number	175568	225	Surface Eleva	1109.1 ft	Elevation Datum_NGVD29					
	I	Lithology			Overburden:	5	Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
- 43 - 44				Shale, medium crystalline, hard, mas slightly weathered, iron oxide staining bedding angle (Continued)				10.0	Ī		-	
- 45											_	
- 46											_	
- 47									╁		_	
- 48											_	
- 49											_	
- 50											_	
- 51							72	46.7 - 56.7	46.7 - 5	9.5	95	
- 52								10.0	6.7		_	
- 53 - 54											_	
- 55											_	
- 56											_	
	56.7	1052.4		Bottom of Hole at 56.7 Ft.								
				Begin Core = 17.5 Ft.							_	
											_	
											_	
			Monito constru	ring Well JSF-207 was installed in borir action details.	ng JSF-207 on 6/27/	19.	Refer to the	e JSF-207 well i	nsta	ıllation de	tail for -	
			1: E =	Environmental Sample Custody (two Sp	olit Spoons may be r	requ	ired to obtai	in sufficient sam	ple))	_	
			G = 2: a,b,d	Geotechnical Sample Custody c denote Split Spoon divided between E ths are reported in feet below ground si	Environmental and G						_	
			P								_	
											-	



	lient F	Borehole	ID N/A	1	Stantec Boring No. JSF-208								
	Client	001011010		ssee Valley Authority	Boring Locat			14 N; 2,889,595.83	F NAD27	Plant Local			
		Number		· · · · · · · · · · · · · · · · · · ·	Surface Elev								
	-	Name			Date Started 6/27/19 Completed 6/28/19					-			
	•	Location		wkins Co, Rogersville, Tennessee	Depth to Water N/A Date/Time N/A								
	•	or C. Se		Logger C. Sexton	Depth to Wat	_		Date/Time					
	•			.W Drilling, LLC	•	_		amm T450WS Roto					
C)verbu	rden Drill	ling and	Sampling Tools (Type and Size									
F	lock D	rilling and	d Samp	ling Tools (Type and Size)8"	' Air Rotary; blind dı	ill							
C	verdri	II Tooling	(Type	and Size)8" Air Rotary				Overdrill De	epth _	N/A			
S	ample	er Hamme	er Type	N/A Weight N/A	Drop _	N/A		Efficiency _	N/A				
В	oreho	le Azimu	th	N/A	Borehole Inc		tion (from	Vertical) N	A				
F	Review	ed By _	B. Ev	ans	Approved By	_	P. Dunne						
	l	₋ithology			Overburden		Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI			
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:	<u> </u>	RQD %	Run Ft	Rec. Ft	Rec. %			
- 0	0.0	1107.4		Top of Hole									
				Boring JSF-208 was advanced by ov JSF-111 boring. The JSF-111 boring	-								
- 1				to the bedrock contact and a tempora						_			
- 2					talled in the overburden. Refer to the JSF-111								
				0 0	ring log dated 02/05/2019 for overburden (soil)								
- 3										-			
- 4				When insufficient groundwater was f overburden, the JSF-111 temporary	When insufficient groundwater was found in the								
				removed, the JSF-111 boring was ov	•								
- 5				bedrock, and	-i 10F 000					_			
- 6				the boring re-designated bedrock bo	ring JSF-208.					_			
0													
- 7										-			
- 8										_			
U													
- 9										-			
- 10										_			
- 10													
- 11										-			
40	11.7	1095.7				$+ \parallel$							
- 12				Boring JSF-208 blind drilled from bed 50.0' bgs on 06/27/2019 using 8-inch						_			
- 13				air-rotary drilling methods. No sampl						-			
				recovered for visual logging.									
- 14										_			
- 15										_			
- 16										-			
- 17										_			
40													



Clie	ent B	orehole	ID N/A		Stantec Boring No. JSF-208							
Clie	ent		Tennes	see Valley Authority	Boring Location			14 N; 2,889,595.8	3 E NAD27	' Plant Local		
Pro	ject	Number	175568	225	Surface Eleva	tio	1107.4 ft	Elevation	Datum_	NGVD29		
	L	ithology			Overburden:		Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth	Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	Rec. Ft	Rec. %		
- 18				Boring JSF-208 blind drilled from bedi 50.0' bgs on 06/27/2019 using 8-inch						-		
- 19 - 20				air-rotary drilling methods. No sample recovered for visual logging. (Contin	s were							
- 21										-		
- 22										-		
- 23										-		
- 24										-		
- 25										_		
- 26										-		
- 27										=		
- 28										-		
- 29										_		
- 30 - 31												
- 32										_		
- 33										_		
- 34										-		
- 35										_		
- 36										-		
- 37										-		
- 38										-		
- 39										-		
- 40										_		
- 41 - 42										-		



Client	Borehole ID) N/A		Stantec Boring No. JSF-208								
Client		Tenness	see Valley Authority	Boring Location 733,186.14 N; 2,889,595.83 E NAD27 Plant Local								
Projec	t Number _	1755682	225	Surface Elevation 1107.4 ft Elevation Datum NGVD29								
	Lithology			C	Overburden:		Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI		
Depth Ft ³	Elevation G	Graphic	Description		Rock Core: RQD % Run Ft		Rec. Ft	Rec. %				
- 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50	1057.4		Boring JSF-208 blind drilled from bedi 50.0' bgs on 06/27/2019 using 8-inch air-rotary drilling methods. No sample recovered for visual logging. <i>(Contin Refusal / Bottom of Hole at 50.0 Ft.)</i>	diamet es were	ter,					- - - -		
		1: E = I G = 0 2: a,b,c	Top of Rock Elevation = 1095.7 Ft. ring Well JSF-208 was installed in boring a cition details. Environmental Sample Custody (two Sp Geotechnical Sample Custody and denote Split Spoon divided between Enths are reported in feet below ground su	olit Spoo	ons may be re	equ	iired to obtair	n sufficient sampl		tail for		



							_	. ICE	200				
		Borehole			Stantec Boring No. JSF-209								
	Client	—		ssee Valley Authority	Boring Location 732,777.44 N; 2,889,195.49 E NAD27 Plant Local								
	-	Number			Surface Elevation 1136.4 ft Elevation Datum NGVI								
	-	Name		DEC Order	_	Date Started 6/24/19 Completed 6/24/19					9		
	-	Location		wkins Co, Rogersville, Tennessee	_	epth to Wate	_	N/A	Date/Tin		N/A N/A		
	•	or <u>C. Se</u>		Logger <u>C. Sexton</u> .W Drilling, LLC	_	epth to Wate	_		Date/Tin amm T450WS R				
	_			Sampling Tools (Type and Siz	_					0100	ui III		
			-			totary; blind dril		701 1107 1110	14104 27 17 10				
		_		and Size) 8" Air Hammer					Overdrill	De	pth 3	35.0 ft	
				N/A Weight N/A	A	Drop N	I/A		— Efficiency		 N/A		
	•	le Azimut		N/A	Bo	orehole Incli	nat	ion (from	Vertical)	N/A	Ą		
F	Reviewed By B. Evans Approved By P. Dunne												
	l	ithology				Overburden:		Sample ^{1,2}	Depth Ft ³		Rec. Ft	Blows/PSI	
De	oth Ft ³	Elevation	Graphic	Description		Rock Core:		RQD %	Run Ft		Rec. Ft	Rec. %	
- 0	0.0	1136.4		Top of Hole								_	
U				Boring JSF-209 was advanced by o	verdril	ling boring							
- 1				JSF-113Alt. The temporary PZ was over-drilling. See boring log for JSF								-	
- 2				02/01/2019 for soil descriptions from								_	
				bedrock interface.									
- 3												_	
- 4												_	
- 5												_	
- 6												-	
- 7												_	
- 8												-	
0													
- 9												_	
- 10												_	
- 11												_	
•													
- 12												-	
- 13												_	
- 14												-	
- 15												_	
- 16												-	
- 17												-	
- 18												-	



C	lient E	Borehole	ID N/A	1	Stantec Boring No. JSF-209								
С	lient		Tennes	see Valley Authority	Boring Location 732,777.44 N; 2,889,195.49 E NAD27 Plant Local								
Project Number 175568225 Surface Elevation 1136.4						n <u>1136.4</u> ft	Elevation	Datum_	NGVD29				
	I	Lithology			Overburden:		Sample ^{1,2}	Depth Ft ³	Rec. Ft	Blows/PSI			
Dep	th Ft ³	Elevation	Graphic	Description	Rock Core:		RQD %	Run Ft	Rec. Ft	Rec. %			
	-18. <i>7</i> -	1117.7											
- 19				Boring JSF-209 blind drilled from bedr 35.0' bgs on 06/24/2019 using air-rota	ry drilling					_			
- 20				methods. No samples were recovered logging.	methods. No samples were recovered for visual								
- 21										_			
- 22										_			
- 23										_			
- 24										_			
- 25										_			
- 26										-			
- 27										_			
- 28										_			
- 29										-			
- 30										_			
- 31										_			
- 32										_			
- 33										_			
- 34										_			
35	35.0	1101.4											
00				No Refusal / Bottom of Hole at 35.0 Ft.						_			
				Top of Rock = 18.7 Ft.						_			
				Top of Rock Elevation = 1117.7 Ft.						_			
										_			
				oring Well JSF-209 was installed in borinç uction details.	g JSF-209 on 6/24/	19.	Refer to the	e JSF-209 well inst	allation de	etail for			
			G =	Environmental Sample Custody (two Spl Geotechnical Sample Custody					e)	_			
			2: a,b, 3: Dep	c denote Split Spoon divided between Er oths are reported in feet below ground sur	nvironmental and G rface	ieot	echnical Sai	mples		_			
										_			