

ENTERGY WHITE BLUFF PLANT LANDFILL CELLS 1 – 4

DEMONSTRATION OF COMPLIANCE WITH EPA CCR RULE SITING CRITERIA §257.64, UNSTABLE AREAS

PREPARED IN COMPLIANCE WITH THE
EPA FINAL RULE FOR THE DISPOSAL OF
COAL COMBUSTION RESIDUALS
TITLE 40 CODE OF FEDERAL REGULATIONS PART 257



OCTOBER 17, 2018

ENTERGY WHITE BLUFF PLANT LANDFILL CELLS 1 – 4

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Prepared for

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Prepared by

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FTN No. R07920-1873-001

PROFESSIONAL ENGINEER'S CERTIFICATION

With this certification, I certify that I, as a Professional Engineer in the State of Arkansas, am a qualified professional engineer as defined in §257.53 of Title 40 Code of Federal Regulations (40 CFR) Part 257, that this report has been prepared under my direction in accordance with generally accepted good engineering practices, that the findings are accurate to the best of my knowledge, and that the CCR unit that is subject to this certification meets the location restriction requirements under §257.64 of 40 CFR Part 257.



Dana L. Derrington, Arkansas PE #16372

10/17/2018 Date

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1.0 INTRODUCTION

Entergy Arkansas, Inc. (Entergy), operates the White Bluff plant located approximately 2.5 miles southeast of Redfield, Arkansas. The plant utilizes four landfill disposal cells, Cells 1 through 4, hereafter also referred to as the landfill, for the disposal of coal combustion residuals (CCRs) generated from the combustion of coal at the plant. Pursuant to §257.64 of Title 40 Code of Federal Regulations (40 CFR) Part 257, existing CCR landfills must not be located in an unstable area. An unstable area is defined by §257.53 as a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains. This report presents the findings of an evaluation of Cells 1 through 4 in support of the location restriction requirements of §257.64.

2.0 SITE DESCRIPTION

Per the CCR rule, an existing CCR unit is defined as a unit that "receives CCR both before and after October 19, 2015 or for which construction commenced prior to October 14, 2015." Cells 1 through 3 received CCR before and after October 19, 2015, and no lateral expansions occurred after October 19, 2015. Construction of Cell 4 commenced prior to October 1, 2015. Thus, the Cells 1 through 4 are an existing landfill as defined by the CCR rule.

The combined area of Cells 1 through 4 is approximately 31 acres with a maximum elevation of 408 ft North American Vertical Datum of 1988 (NAVD88) as of the date of the last survey, which was completed in November 2017. Natural topography surrounding the landfill is gently to steeply sloping terrain, with ground surface elevations ranging from approximately 390 to 300 ft NAVD88, as shown on Figures 1 and 2 (Appendix A).

3.0 UNSTABLE AREA EVALUATION

Pursuant to §257.64(b), the owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

- 1. Onsite or local soil conditions that may result in significant differential settling;
- 2. Onsite or local geologic or geomorphologic features; and
- 3. Onsite or local human-made features or events (both surface and subsurface).

FTN Associates, Ltd. (FTN) performed a review of site-specific boring logs, geotechnical data, US Geological Survey (USGS) publications, and a settlement analysis prepared by FTN (FTN 2018). Findings from this review are discussed below within the context of the factors listed in §257.64(b).

3.1 Review of Onsite or Local Soil Conditions

Several subsurface investigations have been performed in the vicinity of the landfill. Available soil boring logs and geotechnical data (Appendix B) show that onsite soils are comprised of low- to high-plasticity clays, low- to high plasticity silts, and clayey to silty fine-grained sands. A review of the subsurface data included in Appendix B shows that no organic soils, which are prone to settlement due to their high compressibility, were encountered in any of the borings. There were also no apparent lateral changes in the underlying lithology that would indicate a notable change in the compressibility of foundation soils, as can be seen from the soil boring logs. These factors, coupled with a review of the landfill settlement analysis (FTN 2018), indicate that significant differential settling is unlikely.

3.2 Review of Onsite or Local Geologic or Geomorphologic Features

Surficial deposits in the vicinity of the landfill are generally comprised of Tertiary-age deposits belonging to the Jackson Group, as shown by the geological map included as Figure 3. The Jackson Group is reportedly up to 300 ft thick in Arkansas and is classified as a regional confining unit comprised mostly of unconsolidated clays (Kresse et al. 2014; Petersen, Broom,

and Bush 1985). A review of the area topography (Figures 1 and 2) and the geological map show no evidence of karst features or areas susceptible to mass movement (i.e., landslides) in the vicinity of the landfill.

3.3 Review of Onsite or Local Human-Made Features or Events (Both Surface and Subsurface)

The landfill is situated within an erosional ravine, the former axis of which slopes toward the east-southeast. A remnant of the former stream that carved the ravine still remains and carries stormwater that collects within the limits of the ravine to the plant's surge pond located to the southwest of the landfill. The surge pond is regulated by the plant's Arkansas Department of Environmental Quality (ADEQ) National Pollutant Discharge Elimination System (NPDES) permit. Due to the sloping terrain east of Cells 1 through 4, surface water runoff can cause rill erosion in areas with poorly established vegetation. However, these areas are repaired as needed by Entergy and do not affect the stability of the landfill.

Cells 1 through 4 were constructed on top of prior CCR disposal. The CCR placed in and under Cells 1 through 4 is almost exclusively comprised of ash from the combustion of low-sulfur subbituminous coal, which is sourced primarily from the Powder River Basin in Wyoming and Montana. Ash produced from the combustion of subbituminous coal or lignite is designated as Class C fly ash, which contains lime and other chemical compounds that give it self-cementing properties (Mine Safety and Health Administration [MSHA] 2009, Electric Power Research Institute, Inc. [EPRI] 1995). This, coupled with a review of the settlement evaluation performed by FTN (2018), indicates that the foundation of Cells 1 through 4 is stable with respect to settlement.

As described in Section 3.2, the underlying lithology belongs to the Jackson Group and is classified as a regional confining unit. Groundwater in the Jackson Group is limited to thin, interbedded sandy units. Due to the high clay content of the formation, groundwater yield from the sandy units is insufficient in both quantity and quality for domestic, public, or industrial use (Kresse et al. 2014). As such, land subsidence due to groundwater removal is considered unlikely.

4.0 CONCLUSIONS

Based on a review of the available documentation in this report, Cells 1 through 4 at the Entergy White Bluff plant are not located in an unstable area and therefore meet the location restriction requirements of §257.64.

5.0 REFERENCES

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USGS [US Geological Survey]. 2017. "USGS US Topo 7.5-Minute Map for Redfield, AR 2017." Rolla, MO and Denver, CO: National Geospatial Technical Operations Center, US Geological Survey. Available online at https://www.sciencebase.gov/catalog/item/59647cabe4b0d1f9f059f935.



Figures

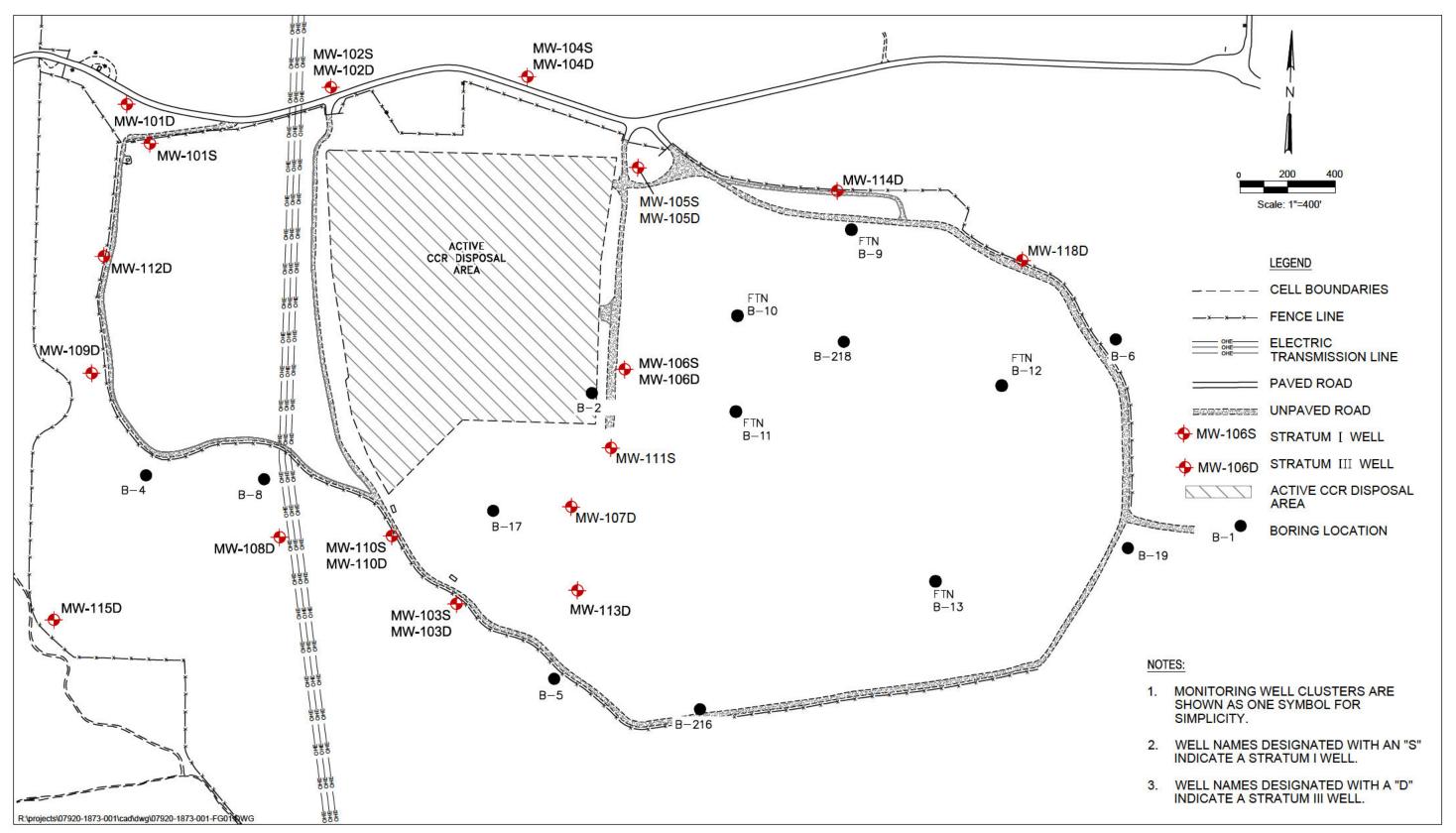


Figure 1. Site map, Entergy White Bluff landfill.

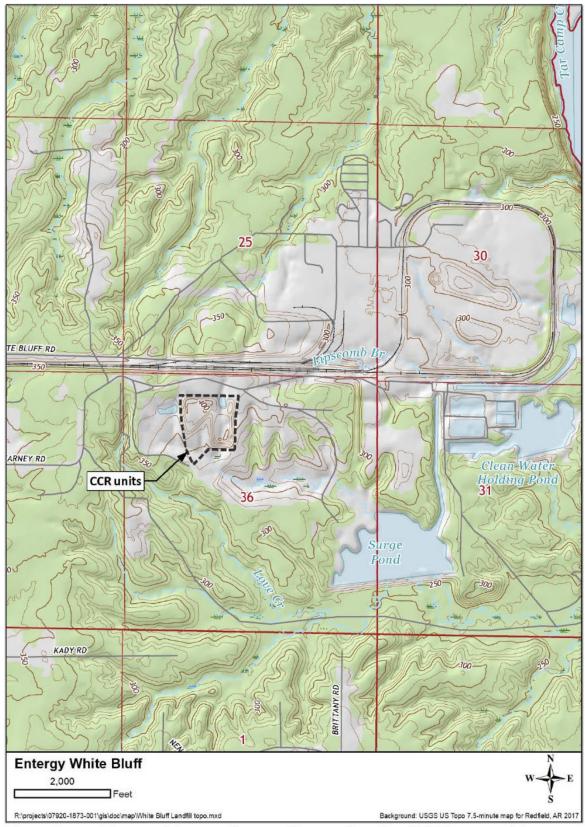


Figure 2. Topographic map of surrounding area based on USGS topographic quadrangle Redfield, AR (2017).

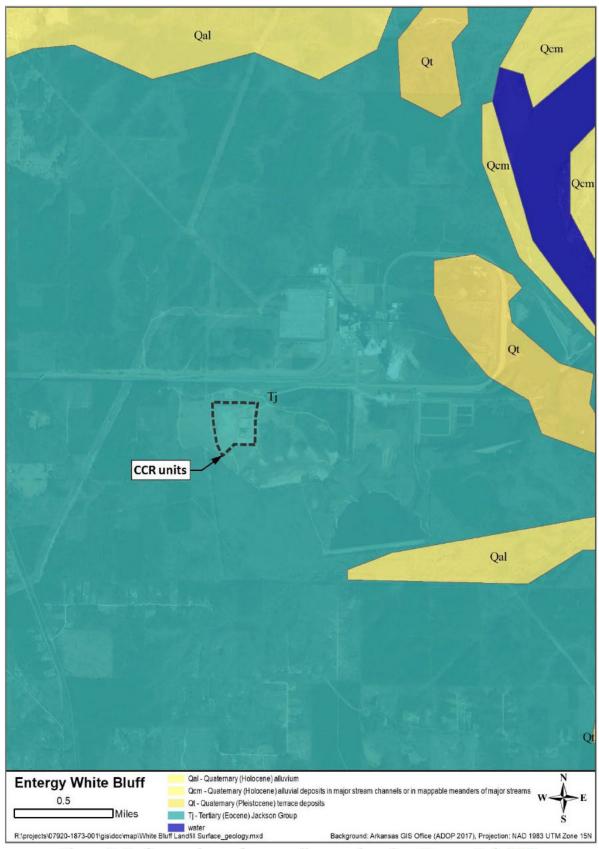
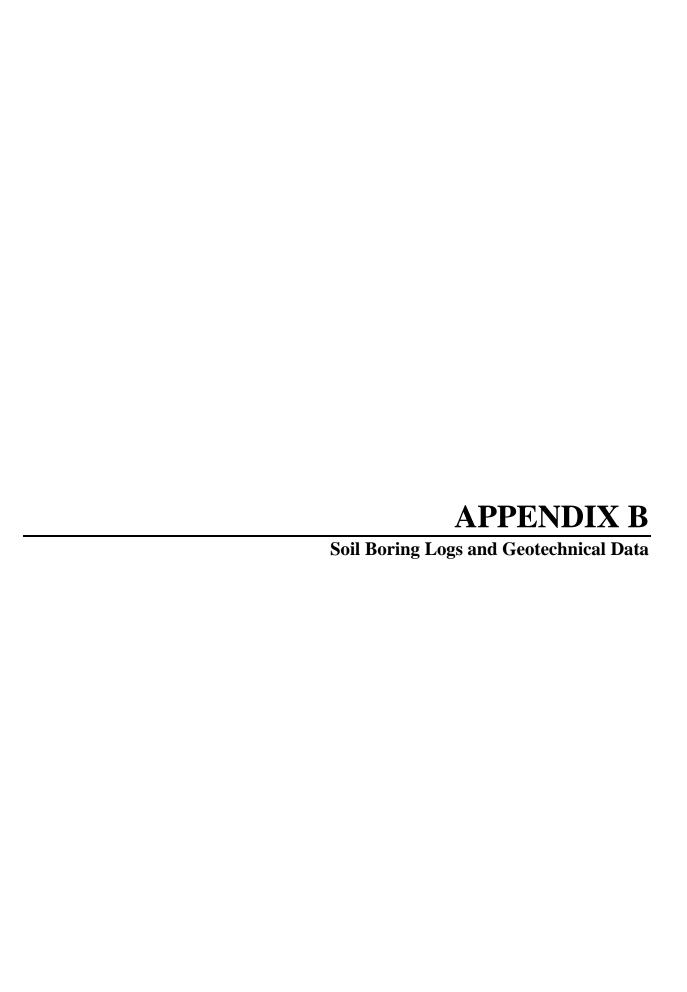
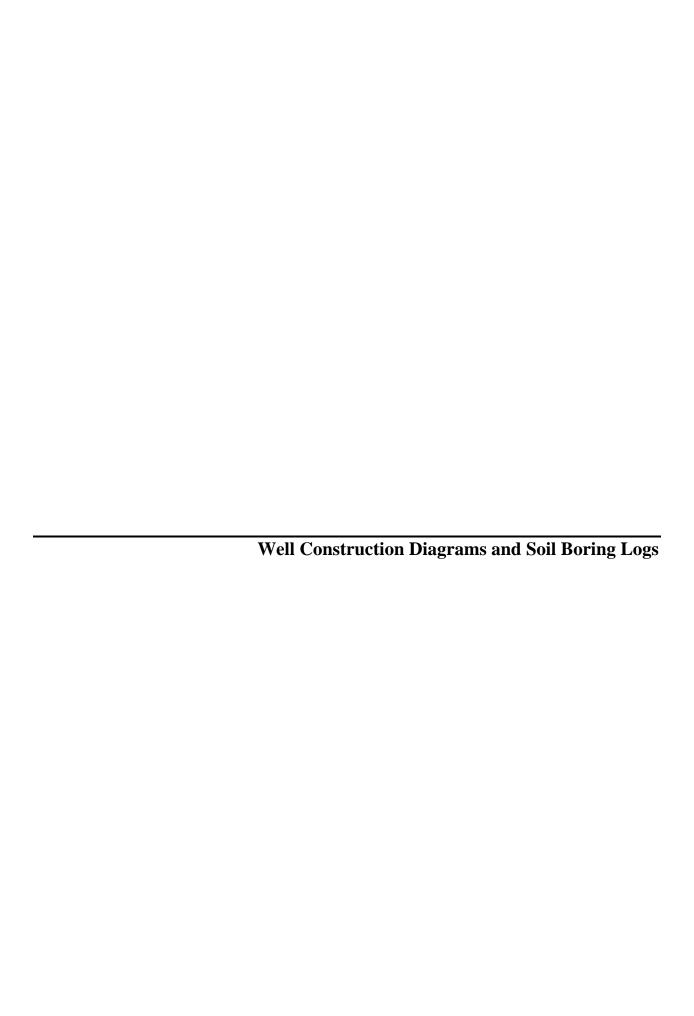


Figure 3. Surface geology of surrounding area based on Stoeser et al. 2005.





ASH POND

APAL WHITE BLUFF PLANT

			AP&L WHIT												
REDFIELD, ARKANSAS LOCATION: See Plate 1															
	TYPE:		Wash	_	T	I			SION,		sq	FT			
				E	≱_			-		>			1.4	.	%
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ЕРТН,	SYMBOL	AMPLES	DESCRIPTION OF MATERIAL	вгомѕ	1 D	PL	MIT		CONT	TER TENT	-/-		LIQUI		0
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		1	SURF. EL: 279.2	+-	-	8	0 2	0 3			Ť	Ť	Ť		
	H		Soft brown sandy silt with	}	-	100			0						
	//	扣	roots	1		K=	2.38	x10-	l ⊗ 6 cπ	/se	C	•		1	
	/		Stiff light brown fine sandy				-		8	 	i -	\neg			
- 5	1	П	clay with roots		101		10	0		0	1				
	/		-light gray with organic				l					1	3	- 1	
	//		matter and tan stains below			_			-	8	+-	+	-+		
10	1/1/	11	4 ft -fine gravel and coarse sand											,	
-	/		with clay from 8 to 11 ft							1			1		
	/	5	-gray silty clay layer at 14 ft		1	-	=		=		+	#	=		
15	1/	1	Gray clayey fine sand	1	1	1									
	//	1	222, 222, 2,	1	İ	1				1					
	1	a		1	1			0	8	-	+	-		_	
20	/			-	-	-	-	-	+	-	+	+			
-	W		Very stiff greenish gray silty	1			1							-	
	ТИ	H	clay with organic matter				1	+-	<u> </u>)	‡=	-#	⊗		
25	ИŁ	Ĩ	in a seed montests to	ŀ											
	YИ	1	-silt partings and pockets to 38 ft					١.	3			-			
	มน	4	38 It								_	¢	8		
30	\mathcal{M}	И								1					
	W						1								
	111	IJ										_		⊗-	
- 35	11	M													
	Υl	И	-fine sand pockets below 38 f	.				× .				,	8 _		
	W.	Щ	-ine sand pockets below so						d				⊗		1
- 40	H	H												1	
	ĭW					H				- 1					
	11/	1		-				0						⊗-	1
- 45	1/5/	1	Very stiff gray fine sandy												1
	\mathbb{Z}		clay with organic matter												
	/													⊗-	
50	1/					-									
- 50	=													1	
													2		
		<u></u>	ETION DEPTH: 50 ft	DEPT	H TO	WATE	R R								
1	DAT		ETION DEPTH: 50 ft 6-4-74		ORING		roun	d le	vel	0,	ATE:	6-	4-7	4	-
1			v												

ASH POND

AP&L WHITE BLUFF PLANT

REDFIELD,				
TYPE: Wash		CATIO	on: See Plate 1	
SYMBOL SYMBOL SYMBOL SYMBOL SYMBOL	BLOWS PER FT	UNIT DRY WT	COHESION, TON/SQ FT O.2 0.4 0.6 0.8 1.0 1.2 1.4 PLASTIC WATER LIQUID CONTENT, % LIMIT	
SURF. EL: 324.3	<u> </u>	ס	10 20 30 40 50 60 70	
Stiff gray and tan fine sandy Stiff tan silty clay with fine sand pockets ferrous partings yellow seams below 10 ft very stiff and blocky below 10 ft Very stiff tan and brown clay with silt partings few ferrous partings few ferrous partings	11			66
Very stiff grayish green clay - 35- -become sandy with fine sand pocket and organic specks below 37 ft				
50				
		H TO V	WATER G: 17 ft DATE: 8/27/74	

ASH POND AP&L WHITE BLUFF PLANT REDFIELD, ARKANSAS

	TYPE:		REDFIE: Wash	LD, Lo	CATIO	NSA N:		See I	Plate	1				
1, FT	30L	PLES	DESCRIPTION OF MATERIAL	PER FT	RY WT	. 0.		-	SION, T		- 1,2		.4	200 %
DEPTH, FT	SYMBOL	SAMP	SURF. EL: 339.0	BLOWS	UNIT DRY WT LB/CU FT	LI	ASTIC MIT +		WAT CONT	ENT, %		LIQU LIMI +		- NO. 2
	1	8	Stiff light brown sandy silt with organic matter				0	6		*				
- 5		1	Very stiff brown and light gray fine sandy clay -stiff with organic matter below 6 ft					0	8			8		
10			Medium dense light brown clayey fine sand with organic matter -tan stains from 11 to 22 ft			×	8							
- 20			-brown silty clay partings from 19 to 22 ft			K=	5.9	2×10	-6 cm	n/sec				36
	Х		-silt layer from 22 to 23 ft Very stiff dark gray silty	1	-			+	H	- +				
- 25			clay -organic matter below 28 ft									į.	⊗-	
30				g-1						8				
40		1	-fine sand and silt pockets below 38 ft									¥.	⊗ →	
45													⊗	
50		1		_							-		⊗	
	COM		ETION DEPTH: 50 ft 6-4-74	DEPTH IN BO	H TO V	WATER 10	Ca	ved t	at	DATE	: '	7-5-	-74	

OF BORING NO. 215 LOG ASH POND AP&L WHITE BLUFF PLANT REDFIELD; ARKANSAS LOCATION: See Plate 1 Wash TYPE: COHESION, TON/SQ FT UNIT DRY WT BLOWS PER 1.4 Н 1.0 1.2 0.8 0.2 -NO. 200 SYMBOL DEPTH. DESCRIPTION OF MATERIAL LIQUID PLASTIC LIMIT LIMIT CONTENT, % --0-+----70 40 SURF. EL: 308.9 Loose tan fine sandy silt with 7 organic material 16 -tan & gray sandy clay 3-5 ft Note Scale Change 8 Very stiff red and tan silty clay -blocky and slickened to 28 ft 8 + 0+ -tan below 8.5 ft 10 -redish tan partings below 8 13.5 ft 15 8 Q -yellow silt pockets below 20 18.5 ft -yellow partings below 23.5 ft 25 -silty below 28.5 ft 8 30 -occasional tan silt pockets below 33.5 ft 8 35 Very stiff gray fine sandy ⊗ clay 40 DATE: 8-17-74 40 ft DEPTH TO WATER COMPLETION DEPTH: IN BORING: 20 ft DATE: 8-16-74

ARKANSAS FOWER AND LIGHT COMPANY WHITE BLUFF

	717	ε:	Auger to 2 ft - Wash	LOS	ATIO	N: See						
	EPTH, FT SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	S PER FT	UNIT DRY WY	0.2	0.4 0.	510N, TO	1.0	1,2 L10		% '002
	DEP	SAI	SURF. EL: 375 ±	BLOWS	חאוג	+	. 	CGNTE	NT. %	+ 60		ر گ
		25.73	Loose gray fine sandy silt with organic matter to 1 ft	ML		-	⊗					
SCALE CHANGE	. 5		Stiff tan with light gray and reddish tan fine sandy clay with light gray clay pockets	CL	107	K = 1.7	⊗ 7 × 10		NON-	PLAST	i,C	21
NOTE SC			Medium dense tan with reddish tan and light gray silty sand Laminated very stiff light gray clay and silty fine	cifso		ac 4.	5 to	5 ft	-	+		
	10		sand with tan ferrous stains	\	88	K = 6.2	2 × 10	1 10 1	/sec		&	56
	.15		Very stiff dark gray silty clay with light gray silt partings and some lightic seams -with light gray silty	CŁ				Θ 			8-	
	20		fine sand partings below 15 ft -with more silty fine sand below 20 ft				3			8		
	30		-predominantly silty fine sand from 22 to 24 ft				3		_	_	&→	
			÷						·	_		
									_			
	CO.			FTH FCP		ATER]		CATE:			

ARKANSAS POWER AND LIGHT COMPANY WHITE BLUFF

	7475:	Auger to 2 fc - Wash	10	04710	N:	9	ee l	late	1				
		Auget to 1 to - wasti	<u> </u>	-						ca FT			ۍ ⁶
	SYMBOL SAMPLES	DESCRIPTION OF MATERIAL SUBF. EL: 345 ±	BLOWS PER	UNIT DRY WT	ـــــــــــــــــــــــــــــــــــــ	2571C			TER ENT, 1			ייי	- MN. 200
		Loose light gray and tan fine sandy silt with organic matter to 0.5 ft	•	ML		3							
SCALE CHANGE	5	Very stiff light gray fine sandy clay with tan ferrous stains		CL			Ð		٠		ž,	⊗-	
NOTE SC	10	Very stiff light brown and light gray silty clay with light gray silt partings and yellowish tan ferrous stains		CL 88		1.3	x 10		n/se	c at		 	77
	15	Medium dense to dense brown silty fine sand with lignite seams and pockets		SM	Á		9					3-	
	20	Dense gray silty fine sand with tan ferrous stains		SM			<u>ə</u> _						
	25	Laminated very stiff dark gray silty clay, light		CL	_	<u> </u>		<u></u>				8	
	30	gray silt and light gray silty fine sand		M L SM	<u></u>			3			<u>_</u>	&-	
	35						-	<u>၁</u> _				@+	
		35 Et 35 6/4/72	∵;"	 ∷∵	 : = :				: _ :-	. i	-		

LOG OF BORING NO. 3 ARKANSAS POWER AND LIGHT COMPANY WRITE BLUFF

Į				•											- 1
		748I:		Auger to 2 ft - Wash	LO	01740	٧: 			late					
	DEPTH, FT	SYMOOL	SAMPLES	DESCRIPTION OF MATERIAL SURF. EL: 377 ±	BLOWS PER FT	UNIT DAY YIT	ا م	2 0 14:T	4 0.	S.C.Y. 7 S. O. 8 S.	9 L 1 ER 2 NT, 7	0 1.	2 1. LIGU L:M:	10	- ND. 200, %
35				Soft tan sandy clay with some organic matter to 0.5 ft		cı	8								
TE SCALE CHANGE	5		180 280	Stiff light gray and reddish tan silty clay with some fine sand		CL			9						
D.T.ON	10			Laminated medium dense light gray fine sandy silt and gray silty clay Very stiff dark gray silty clay with light gray silt partings -with light gray fine sand partings and seams and a trace of lighte below 15 ft		ML CL 85			x l 5 to	3 10 f	ma/se	⊗		&	74
				√ 1.45 s: 30 €€ 5/5/79		72.3					3 27 -				

LOG OF BORING NO. 4 ARKANSAS POWER AND LIGHT COMPANY WRITE BLUFF

	SYMBOL STATES	Auger to 2 ft - Wash DESCRIPTION OF MATERIAL SURF. EL: 357 Locse tan fine sandy silt with organic matter and gravel Firm tan silty clay	BLOWS PER FT C	UNIT BRY WT 12	0.2 PLASTI LIMIT ÷	0.4 0	21ate 51CN, TO 0.5 0.8 7/275 CONTEN	1.0 1.1	+ FIWIT		- NO. 200, %
NOTE SCALE CHANGE	5	Laminated stiff light gray silty clay and silty fine sand		99 CL SM		2 x 10 to 5	0-8 cm	/sec at	*	6	56
	-15 -20 -25 -30	Very stiff dark gray silty clay with light gray silt partings Dense light brown and tan silty fine sand with organic matter -occasional brown clay partings and seams below 20 ft Laminated very stiff gray silty clay and light gray fine sandy silt with some lightic seams	a m	SM 88				ASTIC		⊗ →	46
	35	55 fc 570,73		8						<u>&</u>	

LOG OF BORING NO. 5 ARKANSAS POWER AND LIGHT COMPANY WHITE BLUFF

	,	T 185		Auger to 2 ft - Wash	LO	02713	N:		Sec 1	Place	1			_	
	DEPTII, FT	SYMBOL	SANIPLES	DESCRIPTION OF MATERIAL SURF. EL: 333 + Loose to medium dense tan fine sandy silt with some organic matter	BLOWS PER FT	WINT DRY WY	,91 L	2 0. 2 5710 MIT	¢ C.		9 L.	 :	LIGUI LINIT +	0	", NO. 2 DO. "
	5		Day was	Very stiff gray and tan silty clay with some fine sand and a trace of embedded gravel		CL			э			8			
·	10		(3.2) (3.2) (3.2) (3.2) (3.2) (3.2)	Very stiff light brown and light gray silty clay with light gray and yellowish tan silt partings and seams -with ferrous seams below 10 ft -dark brown with dark gray silty clay with light gray silt partings		82 CL	Ka	= 5 t 9.	+ 5 to	10.7 10 1 2	7 cm/	t sec		S~ S~	98
	35			Very stiff dark gray silty clay with light gray silt partings		C L	K	= 4	.1 x 34.5	-O	: : : - :	/sec.		&~ +_	96
		: ; ·			ļ :	· .	: :-	i,			!				

ARKANSAS POWER AND LIGHT COMPANY WHITE BLUFF

	7	(495)		Auger to 2 ft - Wash	LO	CATIO	N: 		ee P					··—-	·
	ОЕРТИ, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURF. EL: 316 ±	BLOWS PER FT	UNIT DRY WT LIL/CO FT	ار م ا	2 0 2 571C		7/A 5 0 7/A 7/CO	.8 1. :: TER (EN (.):	.0 1.	2 : LIOU LIM	.4 !'0	- NO. 200, %
				Loose to medium dense fine sandy silt with some organic matter				3						⊗ →	
E SCALE CHANGE	- 5		tarywes.	Very stiff light gray and tan silty clay with some fine sand and a trace of fine gravel		105	К =		+© - 1 × 1 4.5 t	0-8		⊗ sec a	it		57
NOTE	- 10 - 15 - 20 - 25 - 30 - 30 - 30 - 30 - 30 - 30 - 30 - 3			Very stiff light brown silty clay with light gray, yellowish tan and tan fine sandy silt partings and seams					0	9	•				
	- 35		Kozi	Laminated very stiff dark gray silty clay and gray silty fine sand						·					
	<u> </u>	12 12 13		1 15 25 17 40 Et 3 6/5/79	. (5 - 7 / 1 - 4 (=		<u>.</u> 3			• •	241	: ::			

	DDO IFOT	DODING ID.		
	PROJECT:	BORING ID:		
<u>±</u>	Entergy White Bluff Class 3N Landfill - GHI	FTN-B9		
=	LOCATION:	WELL ID:		
	Jefferson Co., Arkansas	n/a		
	DRILLING CONTRACTOR:	NORTH: (Site Coordinates)	EAST: (Site Coordinate	es)
	Tri-State Testing Services	-761.80	-871.85	
Associates L	DRILLING EQUIPMENT:	GROUND ELEVATION: (ft NGVD)	TOC ELEVATION: (ft	NGVD)
water resources / environmental consultan	CME 750x (SN: 299708)	345.3	n/a	
	DRILLING METHOD:	TOTAL DEPTH of BORING:	DEPTH TO WATER	from TOC:
FTN Project #	8.25" Hollow Stem Auger (HSA)	73 ft bgs	n/a	iioiii 100.
R06040-0143-001	SAMPLING METHOD:	DATE STARTED:	DATE COMPLETED	.
LOGGED BY:	10000000000000000000000000000000000000	12 CONTRACT TO THE MANAGEMENT OF THE PARTY O	Programme to the medical control of the control	
D. Derrington, PG	5-foot continous soil sampler	11/20/2013	11/20/2013	
Depth (feet) USCS Graphic Log	Descr	iption		% REC ST SPT
1900				
0 - CL /////	LEAN CLAY, silty, light brown, medium stiff, moist.			80
CL/CH	LEAN to FAT CLAY, mottled light brown and grey, medium stiff, moist.			in the second se
ML ////	LEAN CLAY, silty, brownish tan with orange mottles, with very fine-grained sand, S LT with very fine-grained sand, brownish tan with orange mottles, wet, soft.	, medium stiff, moist.		100
10 — SM [:]:::::	S LTY SAND, very fine-grained, loose, brownish tan with brownish orange mottle SANDY S LT, very fine-grained sand, tan, soft, very moist to wet. Clay lenses in			80
ML	2 O E1, 1017 Into granted during tall, 301, 1017 Intoise to more oray letises in			2003
SM SM	SITY SAND very fine arrived leave bequality for with becoming	ne wat		100
20 - ML	S LTY SAND, very fine-grained, loose, brownish tan with brownish orange mottle S LT with very fine-grained sand, light grey, medium stiff, moist.	is, wet.		ST 18-20'
- 100	CLAY and S LT, highly and thinly laminated, clay is olive grey, silt is light grey, s	stiff, moist.		100
30 - CL/CL	LEAN to FAT CLAY, laminated with very light grey very fine-grained sand. Less I	aminated from 31 to 33 ft bgs.		
30 CL/CH	FAT CLAY, olive grey, laminated with light grey silt, very stiff, moist.			100
- /////	FAT CLAT, onve grey, iaminated with light grey silt, very still, moist.			100
40 -				ST 38-40'
	@ 43 ft, with light grey silt and very fine-grained silt partings.			100
- (////				100
50				7 -7- 12
50 - CH	@ 53 ft bgs, sand is very light grey, increasing sand with depth, blocky texture.			100
- (/////				100
60 —	@ 63 ft bgs, sandy fat clay, very stiff to hard.			100
	@ 65 to 67 ft bgs, laminated with very fine-grained sand.			100
				100
70 - sc	CLAYEY SAND, very fine-grained, dark grey to olive grey, dense, moist.			100
7.7.7.7.7	7			
80 —				
90 —				
Notes Col				
1				
100 —				
6 -1				
110				
110 —				
				1
1 1				
120				

_			DDO IFOT	Depuis in		
			PROJECT:	BORING ID:		
9	<u> </u>		Entergy White Bluff Class 3N Landfill - GHI	FTN-B10		
9			LOCATION:	WELL ID:		
			Jefferson Co., Arkansas	n/a		
	= 7	TN	DRILLING CONTRACTOR:	NORTH: (Site Coordinates)	EAST: (Site Coordinate	es)
			Tri-State Testing Services	-1137.59	-1341.03	
1	Ass	oclates Ltd.	DRILLING EQUIPMENT:	GROUND ELEVATION: (ft NGVD)	TOC ELEVATION: (ft	NGVD)
water reso	ources / environ	mental consultants	CME 750x (SN: 299708)	335.4	n/a	
			DRILLING METHOD:	TOTAL DEPTH of BORING:	DEPTH TO WATER	from TOC:
	Project # 40-0143-	004	8.25" Hollow Stem Auger (HSA)	74 ft bgs	n/a	iloiii 100.
	NERO GORGO	001	SAMPLING METHOD:	DATE STARTED:	DATE COMPLETED	I- 1
	ED BY: rickm a	n DC	5-foot continous soil sampler	11/12/2013	11/12/2013	
D/8-1-14-2	ICKIIIC	III, FG	3-100t continous son sumpler	11/12/2013	11/12/2013	
Depth (feet)	nscs	Graphic Log	Descri	iption		% REC ST SPT
0 -	FILL	,,,,,,,,	FILL, light gray, dry			400
	CH		FAT CLAY, tan to pinkish tan, medium stiff, moist. @ 3 ft bgs, with fine grained sand.			100
33	SC		CLAYEY SAND, tan to pinkish, sand is fine-grained, medium dense, moist.			65
10 -	2		0379004848 907 2			400
			S LTY SAND, light grey, sand is fine-grained, loose to medium dense, dry to mois @ 14 to 16 ft bgs, saturated.	st.		100
*	SM		@ 16.5 ft bgs, with black silt lamina, dry.			ST 14-16'
20 -			S LT and FAT CLAY with very fine-grained sand, grey with light grey silt lamina, d	Insta maiet	5	12050
			SET and LAT CLAT with very line-granted same, grey with high city suctamina, u	ny to moist.		100
20	ML/CH		EAT CLAY with some fire prairied and dade are bad do to prairie			100
30 -	1		FAT CLAY with some fine-grained sand, dark grey, hard, dry to moist. @ 34 ft bgs, laminated.			100
25	-		@ 38.5 ft bgs, with more fine grained sand.			100
40 -			@ 39 ft bgs, hard.			9 -10- 16
-10			@ 41 to 41.2 ft bgs, saturated.			100
89	CH					100
EO	90		@ 50 to 50.2 ft bgs, saturated. @ 51.1 to 51.3 ft bgs, saturated.			100
50 -						100
55	4		@ 58 ft bgs, increased amounts of fine-grained sand and brown platy crystals. (A was too hard and tube returned to surface collapsed.)	attempted to collect a Shelby Tube sample at 59	to 61 ft bgs. The ground	400
12/12/1				D. 52 1055		100
60 -			SANDY FAT CLAY, dark grey with green mineralization and silver platy crystals, h @ 64 ft bgs, less mineralization and fewer crystals.	nard, moist.		ST 59-61'
25	CH					
						100
70 -	SC		CLAYEY SAND, dark grey, sand is very fine-grained, dense, moist.			75
	1. Trackets	1.7.7.7.7.7.7.7				(2,07%)
	9)					
80 -	9					
£						
90 -	-					
8						
100 -						
92						
110 -	-					
	.02					
55						
120						
	NOTES:	ST - She by	/ Tube. SPT - Standard Penetration Test			

_			PDO IFOT	PODING IS					
			PROJECT:	BORING ID:					
	<u>ė</u> ,		Entergy White Bluff Class 3N Landfill - GHI	FTN-B11					
_			LOCATION: WELL ID:						
-	72	4-	Jefferson Co., Arkansas n/a						
	■ f	TN	DRILLING CONTRACTOR:	NORTH: (Site Coordinates)	EAST: (Site Coordinate	es)			
=			Tri-State Testing Services	-1538.12	-1329.87				
umbar sanar	ASSOCIATES LTD. DRILLING EQUIPMENT: GROUND ELEVATION: (# NGVD) TOC ELEVATION:								
water resou	water resources / environmental consultants CME 750x (SN: 299708) 330.1 n/a								
ETNID	DRILLING METHOD: TOTAL DEPTH of BORING: DEPTH TO WATER								
	roject # 0-0143-(001	8.25" Hollow Stem Auger (HSA)	69 ft bgs	n/a				
LOGGE	D BY	200	SAMPLING METHOD:	DATE STARTED:	DATE COMPLETED	:			
		n, PG	5-foot continous soil sampler	11/14/2013	11/14/2013				
7/8:35						242.000			
Depth (feet)	nscs	Graphic Log	Descri	ntion		% REC ST SPT			
epth	ns	Gra	Descri	ption		ST SP			
ă		500,000				Salve to the control of the			
0 —	SP	,,,,,,,,	S LT, brown, loose to medium stiff, moist, with organics. SAND tan sand is fine-grained loose dry.			100			
1.	СН		FAT SANDY CLAY, tan with orange mottling, sand is fine-grained, medium stiff, m		o modium dansa wat O.S.	3000			
1900	SC		CLAYEY SAND, tan to grey, sand is fine-grained, medium dense to dense, dry to ft bgs, with orange mottling.	moist. @ ੪.ɔ to ਝ π bgs, with less clay, loose t	o medium dense, wet. @ 9	100			
10 —			100 March 100 Ma	2 (0)200		100			
8-5	SM		S LTY SAND, light grey with orange inter-layers, sand is fine-grained, dense, dry t			400			
	N.O.		S LT with some sand, light brown grading to dark grey at 16.5 ft bgs, sand is fine-	grained, medium stiff to stiff, dry.		100			
20 —	ML					100			
1/2			S LT and FAT CLAY, dark grey, hard, dry to moist.		\$	400			
2000000			@ 27.5 ft bgs, with light grey silt lamina.			100			
30 —						ST 28-30'			
	ML/CH					100			
						100			
40 —						100			
						ST 43-45'			
			FAT CLAY with some fine-grained sand, dark grey, hard, dry to moist.			75			
50 —			@ 49 ft bgs, grayish-green with white and brown platy crystals, dark brown organi @ 50.5 ft bgs, with increasing amounts of green sand.	cs, extremely hard.		12 -13- 24			
	CH					100			
-						100			
60 —	CII		SANDY FAT CLAY, dark grey with green mineralization and silver platy crystals, h	ard, moist.	-	400			
Acceptance of	CH		CLAYEY SAND, dark grey-green, sand is very fine-grained, dense, moist.			100			
1. The state of th	SC		SANDY FAT CLAY, dark grey with green mineralization and silver platy crystals, v	very hard, moiet		100			
70 —	CH		Solder For Cook I, dain grey with green militeralization and silver platy crystals, v	ory natu, most.					
8.5									
80 —									
erroller (d. t.)									
(* <u>*</u>									
90 —									
100/07/5									
· ·									
100 —									
100									
9.5									
110 —									
110									
\$1 <u>2</u>									
120									
	NOTES:	ST - She by	Tube. SPT - Standard Penetration Test						

			PROJECT:	BORING ID:				
	į.		Entergy White Bluff Class 3N Landfill - GHI	FTN-B12				
	<u>É</u>		LOCATION:	WELL ID:				
			SS 1854 AV	n/a				
	= 3	4	DRILLING CONTRACTOR:	BB.FS.				
				NORTH: (Site Coordinates) EAST: (Site Coordinates)				
	Acc	nclates Ital	Tri-State Testing Services	-1397.60 -220.72				
water resou	ASSOCICTES LTC, DRILLING EQUIPMENT: GROUND ELEVATION: (# NGVD) TOC ELEVATION: water resources / environmental consultants							
24444000			CME 750x (SN: 299708)	298.7	n/a	NAME AND ADDRESS OF THE PARTY O		
	roject#		DRILLING METHOD:	TOTAL DEPTH of BORING:	DEPTH TO WATER	from TOC:		
R0604	0-0143-	001	8.25" Hollow Stem Auger (HSA)	43 ft bgs	n/a	000		
LOGGE			SAMPLING METHOD:	DATE STARTED:	DATE COMPLETED			
200000	rickma	an, PG	5-foot continous soil sampler	11/11/2013	11/11/2013			
Depth (feet)	nscs	Graphic	Descr	iption		% REC ST SPT		
1000								
0 -	FOLL	7///////	FILL, light gray, dry LEAN CLAY with organics black to dark brown stiff to very stiff dry.			100		
· -			FAT CLAY, orange to dark red, blocky texture, medium stiff, moist. @ 3 ft bgs, gray with 10% orange to yellow mottling.			100		
45			@ 6 to 6.2 ft bgs, with iron oxidation. @ 7.5 to 8 ft bgs, with orange iron oxidation, minor amount of fine sand, loose.			ST 8-10'		
10 —	СН		@ 9 to 13 ft bgs, light brown grading to dark brown with yellow and orange oxidat @ 13 to 18 ft bgs, dark brown to black to green with some green and white crysta	ion seams. als, stiff, moist, with minor amounts of sand.		100		
45			@ 18 to 19.5 ft bgs, abundant green and white crystals. @ 19 ft bgs, black, with organics.	Z Z Z		100		
20 —			Trans. Heapfall die Die			5 -8- 8		
20 —						100		
V-	1		FAT CLAYEY SAND, dark grey with green tint, sand is very fine-grained, medium	dense, moist to wet.		100		
30 —	152020		@ 30.5 ft bgs, black organics.			100		
30	SC		@ 32 ft bgs, wet. @ 33 ft bgs, saturated.					
1	-					70		
40 —	СН		FAT CLAY, dark grey laminated with light grey, stiff to hard, dry.			85		
67								
50 —								
100.00.0								
12								
60 -								
-	1							
70 —	_							
80 —	-							
property.								
90 —	-							
1								
455								
100 —	1							
4.5								
140								
110 —								
82	-							
120								
	NOTES:	ST - She by	/ Tube. SPT - Standard Penetration Test					

NOTES: ST - She by Tube. SPT - Standard Penetration Test

Horizontal and vertical data based on survey conducted by Harmon Surveying, February 2014 (referenced to site coordinate system) Boring backfilled with bentonite pellets.

			PDO IFOT	DODING ID					
			PROJECT:	BORING ID:					
	<u> </u>		Entergy White Bluff Class 3N Landfill - GHI	FTN-B13					
			LOCATION:	WELL ID:					
-		4-	Jefferson Co., Arkansas	n/a					
	= [DRILLING CONTRACTOR:	NORTH: (Site Coordinates)	EAST: (Site Coordinate	es)			
		colotos Ital	Tri-State Testing Services	-2228.01	-473.70				
water reen	ASSOCIATES LTCI DRILLING EQUIPMENT: GROUND ELEVATION: (#t NGVD) TOC ELEV.								
mutor resor	CME 750x (SN: 299708) 283.7 h/a								
FTN P	roject#		DRILLING METHOD:	TOTAL DEPTH of BORING:	DEPTH TO WATER	from TOC:			
	0-0143-	001	8.25" Hollow Stem Auger (HSA)	29 ft bgs	n/a				
LOGGE	ED BY:		SAMPLING METHOD:	DATE STARTED:	DATE COMPLETED				
E.B	rickma	an, PG	5-foot continous soil sampler	11/13/2013	11/13/2013				
Depth (feet)	(n	<u>.</u> 2				O			
th (f	nscs	Graphic Log	Descr	iption		% REC ST SPT			
Depl)	<u>گ</u> ق	Description						
0 -			FILL, tan with black particles, stiff to hard, dry to moist.			\$155 EXT			
0000	FILL	*******	FAT CLAY, grey with 10% orange mottles, stiff, moist.			80			
-	1		@ 3.7 ft bgs, with fine-grained sand. @ 6 ft bgs, black grading to dark grey.			50			
10 -	СН		 @ 8.7 ft bgs, medium stiff, with organics and roots. @ 9 ft bgs, grey with orange mottles, with fine-grained sand, wet to saturated, with 	h abundant roots		100			
	CH		@ 13 ft bgs, medium stiff to stiff, moist to wet, with fine to course angular and rou @ 17.5 ft bgs, grey with orange and red mottling/oxidation, with fine-grained sand	nded river gravel, less amounts of sand.		ST 11-13' 3 -6- 5			
8-5	1		January and the state of the st	· construction of the construction		100			
20 -	00		CLAYEY SAND, dark grey, sand is fine-grained, medium dense, wet to saturated		<u></u>	400			
	SC					100			
λ-	CH		FAT CLAY, dark grey, laminated, stiff to hard, moist.			ST 24-26' 70			
30 -	1					70			
0.000.0									
). -	1								
40 -	-								
95									
50 -	-								
82	1								
60 -	1								
SCHOOL STATE									
1.5	1								
70 -	1								
25	1								
80 -	-								
100	1								
90 -	-								
A									
-	1								
100 -	-								
9.5	1								
110 -	1								
92	†								
120									
	NOTES	ST - She by	Tube. SPT - Standard Penetration Test						

Associates Ltd., water resources environmental consultants	PROJECT: Monitoring Well Installations LOCATION: Entergy White Bluff Landfill DRILLING CONTRACTOR: McCray Drilling, LLC DRILLING EQUIPMENT: CME 750x DRILLING METHOD: 8.25" Hollow Stem Auger SAMPLING METHOD: Auger Cuttings	BORING ID: MW-101S WELL ID: MW-101S NORTHING: 1949570.7 ft GROUND SURFACE ELEV.: 383.6 ft TOTAL DEPTH: 49.1 ft below TOC DATE STARTED: 7/28/2015 DATE COMPLETED: 7/28/2015			
Depth (feet) % REC USCS	Description	Constr			
0 - 100 CL CH SM 11111111111111111111111111111111111	TOP SOIL SANDY FAT CLAY, reddish brown. Increased sand co with depth. SILTY SAND, tan. SILT and CLAY, with sand, olive grey. @ 20 ft bgs, carbonaceous/lignitic material. CLAYEY SANDY SILT, dark brown, moist. LEAN SILTY CLAY, dark brown, moist. SILTY SAND, very fine-grained, very moist to moist.	ntent	Above ground completion including 2X2 ft concrete pad, four pipe bollards, and locking outer steel casing 38.7 ft of 2 in dia., Sch. 40 PVC solid riser including 2.2 ft of stickup Cement/bentonite grout from 0 ft bgs to 12.9 ft bgs Bentonite pellet seal from 12.9 ft bgs to 36 ft bgs Silica size 10/20 filter pack from 36 ft bgs to 50 ft bgs 10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen from 36.5 to 46.5 ft bgs 0.35 ft, 2 in dia., Sch. 40 PVC end cap 50 ft BOH		

					2020		2000 VIII			
				PROJE		USISSEMBLO I	ING ID:			
					nitoring Well Installations		W-102S			
	<u> </u>			LOCA		WELL ID:				
=					ergy White Bluff Landfill	MW-102S				
		4_		A CONTRACTOR	ING CONTRACTOR:		THING:	EASTING:		
	= 1 €"	ТГ	1	Mc(Cray Drilling, LLC		19808.0 ft	1266397.3 ft		
	Asso	plates	I to		ING EQUIPMENT:		UND SURFACE ELEV.			
water recou	rces / environn	OCIDIOS montal consu	LIQ.	CM	E 750x	378	3.6 ft	381.17 ft		
Water resou	II 669 L BHAR GHI	mental consu	pane	DRILL	ING METHOD:	TOT	AL DEPTH:	DEPTH TO WATER: (10/3/2015)		
				8.25	5" Hollow Stem Auger	52.	6 ft below TOC	32.94 ft below TOC		
LOGGE	D BY:			SAMP	LING METHOD:	DATI	E STARTED:	DATE COMPLETED:		
DLD)/RSH		_	Auc	er Cuttings	7/2	7/2015	7/27/2015		
Depth (feet)	% REC	nscs		Graphic Log	Description			Well struction		
								Above ground completion		
0 —		CL ML CH	\mathcal{H}	HH	TOP SOIL S LT with very fine-grained sand, grey and yellowish orange, soft, moist			including 2X2 ft concrete pad, four pipe bollards, and locking		
\$1 <u>24</u>		CH SP			FAT CLAY with very fine-grained sand, grey, blocky, very stiff, moist. POORLY GRADED SAND with silt, very fine-grained, yellowish orange.	and	·	outer steel casing		
10 —		31	///	////	grey, dense, dry to moist. @ 7 to 8 ft bgs, laminated with fat clay, sand in LEAN CLAY, with silt laminations and very fine-grained sand, tan, stiff, r		l 📖 📖 I	_ 42.2 ft of 2 in dia., Sch. 40		
-		CL			@ 10 ft, color changes to greenish grey. S LTY SAND, very fine-grained, olive grey, medium dense, moist.			PVC solid riser, including 2.6 ft of stickup		
20 —		SM			@ 16 to 16.8, carbonaceous and fossiliferous material. @ 18 to 25 ft bgs, occasional clay laminations.			Cement/bentonite grout from 0 ft bgs to 13.6 ft bgs		
-		ML			CLAYEY SILT, olive grey to grey, highly and thinly laminated with grey s very-fine grained sand, medium stiff, moist. @ 27 to 28 ft, brownish grey Occasional carbonaceous material.	silt and		Bentonite pellet seal from 13.6 ft bgs to 37.5 ft bgs		
30 —					S LTY SAND, very fine-grained, olive grey, medium dense, moist. @ 28 to 30 ft bgs, greyish brown with carbonaceous material. @ 30 to 31 ft bgs, laminated with fat clay. @ 35 to 38 ft bgs, medium dense to dense, very moist to wet.			Silica size 10/20 filter pack from 37.5 ft bgs to 50 ft bgs		
40 —		SM			@ 40 to 40.5 ft bgs, saturated. @ 42 to 42.5 ft bgs, saturated.			10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen from 39.6 to 49.6 ft bgs		
100					@ 48 to 50 ft bgs, very moist to wet.			0.35 ft, 2 in dia., Sch. 40 PVC		
50 —			1-1-1					end cap 50 ft BOH		
60 —					Soil descriptions are based on observations from continuous sampling using a 5-ft split barrel sampler during the	:				
V -					borehole advancement for FTN PZ-2 on 11-18-2013 an located 7 ft from MW-2S. Auger cuttings were used to that MW-2S was advanced in similar soils logged for F	verify		-		
70 –					PZ-2.			_		
80 —								_		
1.								-		
90 —										
100 —										
* <u>~</u>								-		
110 —								_		
120										

				PROJE			ING ID:			
				Mor	itoring Well Installations	MV	/-103S			
				LOCAT	ION:	WEL	WELL ID:			
				Ente	ergy White Bluff Landfill	MV	MW-103S			
		4		DRILLI	NG CONTRACTOR:	NOR	THING:	EASTING:		
				McC	Cray Drilling, LLC	194	7644.1 ft	1266927.3 ft		
		ы		DRILLI	NG EQUIPMENT:	GRO	UND SURFACE ELEV.:			
	Asso	<u>ociates</u>	Ltd.	CMI	750x	336	6.7 ft	339.34 ft		
water resou	rces / environ	mental consu	tants	The second second	NG METHOD:	100000000000000000000000000000000000000	AL DEPTH:	DEPTH TO WATER: (10/3/2015)		
				Section 1	" Hollow Stem Auger	23	2 ft below TOC	20.13 ft below TOC		
Control State Control	March Control World				ING METHOD:		STARTED:	DATE COMPLETED:		
LOGGE				Self-British	er Cuttings		9/2015	7/29/2015		
	/RSI			Auc	er cuttings	112	3/2013	1129/2013		
Depth (feet)	REC	S		ie.			V	Vell		
th (% R	nscs		Graphic Log	Description		Cons	truction		
Pe	0			O Z			Cons	uction		
								Above ground completion		
0 -		CH		////	TOP SOIL FAT CLAY, with very fine-grained sand, reddish to orangish bro	um voncetiff to		including 2X2 ft concrete pad,		
82		SC	(((1111	hard dry to moist.	Mi 3502		four pipe bollards, and locking outer steel casing		
19541					CLAYEY SAND, very fine-grained, becoming silty with depth, light orange, dense, dry.			ENGELS-Advice COSTANIA DISPERSANDES VI		
10 -		SM			SILTY SAND, very fine-grained, light grey, medium dense to de @ 8 to 10 ft bgs, oxidation staining.	rise, very dry.		12.8 ft of 2 in dia., Sch. 40 PVC solid riser, including 2.6 ft		
_					@ 15 to 18 ft bgs, laminated with hard fat clay, color changed to	light brownish		of stickup		
28027		ML/CL			tan. SILT and LEAN CLAY, laminated, with very fine grained sand, or	dry to moist		Cement/bentonite grout from 0		
20 —		WIL/CL		////	Clay is platy.	ary to moist.		ft bgs to 6 ft bgs		
-							_	Bentonite pellet seal from 6 ft bgs to 8 ft bgs		
30 —								Silica size 10/20 filter pack from 8 ft bgs to 20 ft bgs		
40 —					Soil descriptions are based on observations fron soil sampling using a 5-ft split barrel sampler dur		_	10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen from 10.2 to 20.2 ft bgs		
1 T					bore hole advancement for FTN PZ-3 on 11-7-20	013 and		Volume and state of the state o		
50 —					located 19 ft from MW-3S. Auger cuttings were verify that MW-3S was advanced in similar soils FTN PZ-3.	used to logged for	-	0.35 ft, 2 in dia., Sch. 40 PVC end cap		
2,-								20 ft BOH		
60 -							_	=		
7/-										
70 -								=		
[200]										
80 —								=		
2,-										
90 —							4	<u>목</u>		
100 —								-		
942										
46.11000000000										
110 —								=		
120										
120		l			1:					

				PROJE		N. C.	ING ID:			
					itoring Well Installations	100000	MW-104S			
	<u> </u>			LOCAT		WEL	WELL ID:			
					ergy White Bluff Landfill	MW-104S				
			_	DRILLI	NG CONTRACTOR:	NOR	THING:	EASTING:		
	≓ ₽				Cray Drilling, LLC	194	19852.1 ft	1267212.6 ft		
	=			DRILLI	NG EQUIPMENT:	GRO	UND SURFACE ELEV	/.: TOC ELEVATION:		
	ASS	<u>oclates</u>	Ltd.	CME	₹ 750x	374	I.2 ft	377.08 ft		
water resou	rces / environ	nmental consul	rants	DRILLI	NG METHOD:	TOT	AL DEPTH:	DEPTH TO WATER: (10/3/2015)		
				8.25	" Hollow Stem Auger	42.	8 ft below TO	30.66 ft below TOC		
LOGGE	D BY		_		ING METHOD:	DAT	E STARTED:	DATE COMPLETED:		
	/RSI	1		Aug	er Cuttings	7/2	8/2015	7/28/2015		
et)	O			3				Well		
h (fe	REC	USCS	4		Description		_	New Control of the Co		
Depth (feet)	%	Š	Ċ	Description			Cor	struction		
				16						
0 -		CL	,,,,,,	***	TOPSOIL			Above ground completion		
			Π	ΠΠ	LEAN CLAY, silty, with very fine-grained sand, light brown with iron ox staining, very stiff, dry.	ide	 	including 2X2 ft concrete pad,		
2,5		ML			SANDY SILT, light grey, sand is very fine-grained, stiff, dry. @ 6 ft, with organic matter.		 	four pipe bollards, and locking outer steel casing		
10 -		CL	///	////	SANDY CLAY with trace subrounded gravel (up to 1 inch), sand is fine light grey, stiff, moist.	-grained,	***			
172		CH	111	1111	FAT CLAY, light grey with brown mottles, some organic matter, stiff, n	noist.	***	32.4 ft of 2 in dia., Sch. 40 PVC solid riser, including 2.9 ft		
		SM			S LTY SAND, fine-grained, light grey, dense. @ 19 to 20.1 ft, saturated.			of stickup		
20 -		CL/ML	7//		CLAY and S LT laminations, with very fine-grained sand, laminations a	re hard,	· 📖 📖	Cement/bentonite grout from 0		
10.2		CLIVIL	11111		clay and silt are light grey to 22 6 ft, then color changes to light brown tt, color changes to light grey with carbonaceous material.	CASTA CHEST		ft bgs to 22 ft bgs		
12721					S LTY SAND, fine-grained, with clay laminations, light brown, dense, m @ 26 ft, color changes to light grey, minor amounts of clay laminations			Bentonite pellet seal from 22 ft		
30 —		SM			moist. @ 29 to 30.2 ft, with clay laminations.			bgs to 27 ft bgs		
4 .5					@ 29 to 34 ft, very moist to saturated.			- Silica size 10/20 filter pack		
40					@ 34 to 39 ft, minor clay laminations.			from 27 ft bgs to 39.5 ft bgs		
40 –								10 ft of 2 in dia., 0.010 in slot,		
V -					C-3 d	8		Sch. 40 PVC screen form 29.5 to 39.5 ft bgs		
50 -					Soil descriptions are based on observations from cont soil sampling using a 5-ft split barrel sampler during the			070007949 007013 0070 = 007		
30					hole advancement for MW-4D on 7-13-2015 and locat			0.35 ft, 2 in dia., Sch. 40 PVC end cap		
61 <u>-21</u>					ft from MW-4S. Auger cuttings were used to verify the MW-4S was advanced in similar soils logged for MW-			- "		
60 -								40 ft BOH		
55.58										
\$1 ₀								† I		
70 -								-		
N .	1							Γ		
80 -								-		
1/2								L		
90 —								-		
								L		
100 —								<u> </u>		
2.								ļ- l		
								477		
110 –								Γ		
1/-								-		
120										
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			70							
			PROJE		0.0000000000000000000000000000000000000	NG ID:				
				itoring Well Installations		/-105S				
	<u>.</u>		LOCAT		1,000,000,000	WELL ID:				
				rgy White Bluff Landfill	MW	MW-105S				
	-	4		NG CONTRACTOR:		THING:	EASTING:			
	■ F	ТГ		ray Drilling, LLC	194	9475.6 ft	1267683.6 ft			
		a lates	1.4.4	NG EQUIPMENT:		UND SURFACE ELEV				
water recou	ASSI ros I anulron	OCICIOS mental consul	fante	750x	367	'.9 ft	370.54 ft			
water resour	reco r cirvil on	michial enion	DRILLI	NG METHOD:	TOTA	AL DEPTH:	DEPTH TO WATER: (10/3/15)			
			8.25	" Hollow Stem Auger	46.	6 ft below TO	27.22 ft below TOC			
LOGGE	D BY:		SAMPL	ING METHOD:	DATE	STARTED:	DATE COMPLETED:			
DLD	/RSI		Aug	er Cuttings	7/29	9/2015	7/29/2015			
Depth (feet)	% REC	nscs	Graphic Log	Description			Well struction			
8	359151		01							
0 -			*****	TOPSOIL			ACCOUNTS			
		ML	???????	SANDY SILT, sand is very fine-grained, yellowish orange, stiff, on LEAN CLAY, silty, with very fine-grained sand.	dry.	- XXX	Above ground completion including 2X2 ft concrete pad,			
_		CL		LEAN CLAT, Sitty, with very line-grained sailu.		XXX XXX	four pipe bollards, and locking outer steel casing			
10 -		OII		FAT CLAY, dark grey, hard, laminated with silt and very fine-gra	ained sand	- XXX XXX				
		СН		@ 11.7 ft color changes to brown. @ 12.7 ft clay is lean to fat. S LTY SAND, very fine-grained, tan, medium dense, moist.		***	36.2 ft of 2 in dia., Sch. 40 PVC solid riser, including 2.6 ft			
\$- 5		SM		o z. r. o. ate, ter, me granos, tan, mestam estice, mesta		- XXX XXX	of stickup			
20 —		CH/ML		FAT CLAY and S LT, clay is dark grey, hard, highly laminated w fine-grained sand, moist.	vith silt and very		Cement/bentonite grout from 0			
x -		SC		SANDY FAT CLAY, sand is very fine-grained, dark brown, lamir moist.	nated, stiff,		▼ ft bgs to 18.6 ft bgs			
				S LTY SAND, very fine-grained, light grey, moist. @ 28 ft, .saturated.			Bentonite pellet seal from 18.6			
30 —				@ 33 ft, moist. @ 35 ft, laminated with minor thin clay laminations.			ft bgs to 31 ft bgs			
12		SM		@ 38 ft, saturated.			- Silica size 10/20 filter pack			
40 —							from 31 ft bgs to 43 ft bgs			
-							10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen from 33.6 to 43.6			
50 —				Soil descriptions are based on observations from soil sampling using a 5-ft split barrel samplers du			0.35 ft, 2 in dia., Sch. 40 PVC			
				bore hole advancement for MW-5D on 7-15-2015	5 and located		end cap			
				13 ft from MW-5S. Auger cuttings were used to MW-5S was advanced in similar soils logged for			44 ft BOH			
60 —							100			
74							-			
70 —										
70										
10. <u>00</u>							-			
80 —							_			
1.00.00										
2,-										
90 —							_			
							L			
100 —							<u> </u>			
_							-			
110										
110 —										
4.5							-			
120										

				PROJE			ING ID:			
				Mon	itoring Well Installations	MW-106S				
				LOCAT	ION:	WEL	L ID:			
				Ente	rgy White Bluff Landfill	MV	V-106S			
		4			NG CONTRACTOR:		THING:	EASTING:		
	= 51			McC	ray Drilling, LLC	194	18626.6 ft	1267626.8 ft		
	= F	ы			NG EQUIPMENT:	_	UND SURFACE ELEV.:			
	Asso	clates	1.1.1		750x		3.3 ft	341.03 ft		
water resou	rces / environr	mental consu	Bante -		NG METHOD:	1.000	AL DEPTH:	DEPTH TO WATER: (10/3/15)		
						0.0000000000000000000000000000000000000		DESCRIPTION OF A PRODUCTION OF THE PROPERTY OF		
					' Hollow Stem Auger	12 No.	0 ft below TOC	14.26 ft below TOC		
LOGGE					ING METHOD:		E STARTED:	DATE COMPLETED:		
DLD	/RSH		,	Aug	er Cuttings	7/2	9/2015	7/29/2015		
(set	O			o			1	Vell		
h (fe	REC	nscs		Graphic	Description		_			
Depth (feet)	%	Š		5 3	Becomplien		Construction			
0 -		FILL	722	,,,,	Road base			Above ground accordation		
		CH			SANDY CLAY, light grey with orange mottles, sand is fine-grained, stiff,	moist.		Above ground completion including 2X2 ft concrete pad,		
\$1 <u>21</u>		ML		1111	SANDY SILT, light grey with orange mottles, sand is very fine-grained, s very moist to wet. @ 8-9 ft, decreasing silt content, saturated.	soft,		four protective pipe bollards,		
10 —	,				S LTY SAND, very fine-grained, light grey with orange mottles, medium	dense,		and locking steel casing.		
10					very moist to saturated, with some light grey clay laminations. @14ft por recovery likely saturated. @21ft increased clay content, dark grey			15.6 ft of 2 in dia., Sch. 40		
4 5		SM						PVC solid riser, including 2.7 ft		
20 —								of stick up		
20 -								Cement/bentonite grout from 0 ft bgs to 7 ft bgs		
30 —							-	Bentonite pellet seal from 7 ft bgs to 11.1 ft bgs		
<u> 82</u>							-	Silica size 10/20 filter pack from 11.1 ft bgs to 23 ft bgs		
40 —							-	10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen from 12.9		
50 —					Soil descriptions are based on observations from continuous soil sampling using a 5-ft split barrel samplers during the		_	to 22.9 ft bgs 0.35 ft, 2 in dia., Sch. 40 PVC		
1					bore hole advancement for MW-6D on 7-17-2015 and I 10 ft from MW-6S. Auger cuttings were used to verify t MW-6S was advanced in similar soils logged for MW-6	ocated that	-	end cap 23 ft BOH		
60 —					WWV-05 was advanced in similar soils logged for MWV-0	D.		5		
70										
70 —										
16 <u>22</u>			1							
00			1							
80 —			1							
1,7			1							
			1					73		
90 —										
92			1							
100										
100 —										
16. <u>22</u>										
110 —			1							
110 -										
9.0							-			
120										

MONITORING Well Installations Movi-1088 LOCATION: Entergy White Bluff Landfill DRILLING COMITICACIDE Walker-Hill Environmental, Inc. DRILLING COMITICACIDE Walker-Hill Environmental, Inc. DRILLING FROM ENDO: DRILLING RETIROD: DRILLING FROM ENDO: DRILLING FROM ENDO: DRILLING METHOD: DRILLING MET			55			B.11.0.1B		
DICATION Emergy White Bluff Landfill MW-108 MW-108 MW-108 EASTING: 12650967.1 1265				PROJECT:	10000000			
Entergy White Bluff Landfill MW-1088 MORTHING: MORTHING: 1265967.4	1				1	NOTES AND ADDRESS OF THE PARTY		
DRILLING CONTRACTOR: 1948275.2 1285806.1 12858	_	=		LOCATION:	WE	ELL ID:		
Malker-Hill Environmental, Inc. 1948275.2 1265967.1			4_	Entergy White Bluff Landfill	N	1W-108S		
ASSOCIOS IC. Geoprobe 8150LS DRILLING METHOD: DRIVELLING METHOD: Sonic with 4x6 core and case DRILLING METHOD: Sonic with 4x6 core and case Cocycle by Sonic with 4x6 core and case Cocycle by Sonic with 4x6 core and case Description Description Description Description Description Description Description O CL CH SITY CALY, primate income, bit is plat town, with remarked grand (r-1 in), and in included grand (r-1 in), and in include		= 7	TN	DRILLING CONTRACTOR:	NO	RTHING:	EASTING:	
Comprise 8150LS 349.1 ft 351.95 ft DPITH TO WATER (4/3/2017) SONIC With 4 AX Gore and case 23.0 ft below TOC 6.48 ft below TOC 6.48 ft below TOC Continuous with 10 ft 4 in diameter core barrel 2/9/2017 2/13/2017				Walker-Hill Environmental, Inc.	1	948275.2	1265967.1	
Secretic # Secretic # Stock Secretic # S	_	Ass	ociates Ltd.	DRILLING EQUIPMENT:	GR	OUND ELEVATION:	TOC ELEVATION:	
## Sonic with 4x6 core and case 23.0 ft below TOC 6.48 ft below TOC 7.48 ft bel	water resour	rces / environ	mental consultants	Geoprobe 8150LS	3	49.1 ft	351.95 ft	
Sonic with 4x6 core and case Sonic with 4x6 core and case SAMPLING METHOD: Continuous with 10 ft 4 in diameter core barrel DATE STARTED: 29/2017 Well Construction OCL CH CH STYCLAY, yelecular crops to light brown, with rounded gravet (~1 ft), text to be constructed and the core discussed and complete in includes a core of the core of t				DRILLING METHOD:	TO	TAL WELL DEPTH:	DEPTH TO WATER: (4/3/2017)	
DATE STARTED: 2912017 DATE COMPLETED: 29			001	Sonic with 4x6 core and case	2	3.0 ft below TOC	The state of the s	
A POLICY Policy Policy Po				SAMPLING METHOD:	DA	TE STARTED:	DATE COMPLETED:	
Section Description Desc				Continuous with 10 ft 4 in diameter core barrel	2	/9/2017	2/13/2017	
Above ground completion includes CL CH CH CH CH CH CH CH	8 7 7					0.40		
Above ground completion includes CL CH CH CH CH CH CH CH	(fee	SS	Pic	Description	E	V	Vell	
Above ground completion includes CL CH CH CH CH CH CH CH	pth	nsc	3rap	Description	% R	Cons	truction	
20 - CL CHALL 20 - ML ML CLAY, white manage to light brown, with counded gravel (~2 in), word by necessary and most. 31 SLTY SLRV, yellowish crange to light brown, with counded gravel (~2 in), very slift. 32 SM ST and CLAY, in with red ion casicle statistics, with rounded gravel (~2 in), very slift. 35 SM ST and CLAY, in with red ion casicle statistics, with rounded gravel (~2 in), very slift. 36 10 Pt. with increased sit content, tan with orange notites, very moist. 36 10 Pt. with increased sit content, tan with orange notites, very moist. 36 10 Pt. with increased sit content, tan with orange notites, very moist. 37 ST and CLAY, greenish gray, with some fam clay leases, medium slift to soft, moist. 40 - CHANL 30 Pt. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 40 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 40 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 50 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 50 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 50 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 50 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 50 Pt. St. T and CLAY, greenish gray, learnested with light gray slift, slift, dry. 51 Pt. T and LAY, learnested slift or le	å	20.000	0_		0.	CONO		
CL CH								
CH Or CLAY, Take-with red iron coads blasting, with rounded grave (*-2 in), very stiff. SITY SAND, yet fine-grained, flar, not fine medium stiff, dry to most. Or 100 Or 10 N, with increased all content, the with orange motiles, very moist. Or 100 Or 10 N, with part seased all content, the with orange motiles, very moist. Or 100 Or 100 Or 10 N, with part seased all content, the with orange motiles, very moist. Or 100	0 —	CL	///////		9	■	bollards, and locking outer	
STYSAND, very fine grained, lan, solf to medium stiff, day to moist.		2005200			35		SOUR DESCRIPTION OF THE PROPERTY OF THE PROPER	
### 100 ### 10	100	OII		S LTY SAND very fine-grained tan soft to medium stiff dry to moist	- 55			
SM	10 —	Si .		Property on Access (1909) 2019 - 2019 - 10 10 10 10 10 10 10 10 10 10 10 10 10		<u> </u>		
## 100 ##	600	SM			100		Cement/bentonite grout from 0 to 4	
MIL MIL SLT, greenish gray, with some thin clay kinese, medium stiff to soft, moist. 20 Bentontie scal from 4 to 7 ft. bgs SLT and CLAY, taminated, light gray to olive gray, stiff, dry. 100 CH/ML SLT and CLAY, taminated with light gray stiff, dry. 100 CH/ML SLT and CLAY, taminated with light gray stiff, dry. 100 101 ft of 2 in dia. 0.010 in slot, Sch 40 PVC end cap 20 Dnilling terminated at 30 ft bgs 20 Matter at				@ 19 ft with few clay lenses	100		ft bgs	
MLC SLT and CLAY, immated, light gray to olive gray, stift, dry. 100 -	20 —	8		0-00-00-00-00-00-00-00-00-00-00-00-00-0	8	_ 20	Bentonite seal from 4 to 7 ft. bgs	
MLCL. FAT CLAY, greenish gray, laminated with light gray all, outf, dy. FAT CLAY, greenish gray, laminated with light gray all, outf, dy. FAT CLAY, greenish gray, laminated with light gray all, outf, dy. 100 - 10		MONTH			400		Silica size 20/40 filter pack from 7	
30 — 50 mile 224 mile 0.010 in slot, Sch 40 PVC end cap 40 PVC end cap 50 — 50 — 50 — 50 — 50 — 50 — 50 — 50	-			Company Company & Company	100			
40 -	30 —	CH/ML		FAT CLAY, greenish gray, laminated with light gray sill, still, dry.	2	_ 30	10 ft of 2 in dia. 0.010 in slot, Sch	
40 -							40 PVC	
40 — — 40 Drilling terminated at 30 ft bgs - 50 — — 50 - 60 — — 60 - 70 — — 70 - 80 — — 80 - 90 — — 90 - 110 — — 110 - 110 - 120	-	ž.				-		
50 - 50 - 50 - 50 - 60 - 70 - 70 - 70 - 70 - 70 - 70 - 7	40 —	16				- 40	TOTAL CONTRACTOR OF THE CONTRA	
60 -							Drilling terminated at 30 ft bgs	
60 -		ŝ						
60 -	50 —	6				_ 50		
70 -	00							
70 -	==	Si .				-		
70 -	60 —	8				_ 60		
80 80 90 90 100 110 110 - 120	00							
80 80 90 90 100 110 110 - 120	=	N.						
80 80 90 90 100 110 110 - 120	70	91				70		
90 90 100 - 110 - 110 - 120	70	12				_ 70		
90 90 100 - 110 - 110 - 120	-	Š				- 7		
90 90 100 - 110 - 110 - 120	00							
- 100 — - 110 — - 120	80 —	8				80		
- 100 — - 110 — - 120	-	j4.				-1		
- 100 — - 110 — - 120						11,000,000,000		
110 — - 110 - 120	90 —	ŝ				□ 90		
110 — - 110 - 120	_	0				h		
110 — - 110 - 120								
120	100 —	5				<u> </u>		
120		3.						
120								
	110 —	N.				─ 110		
		8						
	400							
NOTE OF HORZONIA AND VORTICAL DATA PRODUCT OF THE COMMON PRODUCT OF THE PARTY OF TH		IOTES	Uorizo-t-!	and vertical data are based on the Harmon Committee and the	nd 14			

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

Borehole and/or well IDs were updated to reflect the nomenclature used for EPA CCR Rule network.

				PRO.				BORING ID:				
				Mo	n	itoring Well Installations	MV	V-110S				
_	_			LOCA			WEL					
						rgy White Bluff Landfill	11000000	MW-110S				
_	7	4_		1727770		IG CONTRACTOR:		THING:		EASTING:		
	= f'	ТГ	1			ray Drilling, LLC	100,000	17932.5 ft		1266637.4 ft		
		olator	Ital	(988)		IG EQUIPMENT:	A7267.330300	UND SURFACE ELEV	25	TOC ELEVATION:		
water resour	rces / environ	DCIGIES mental consu	LIU.	CN	1E	550x		I.3 ft		337.36 ft		
Water Toolean	aca r constituent	menus genera	BUI III	100000000000000000000000000000000000000		IG METHOD:	- 600	AL DEPTH:	0.0	DEPTH TO WATER: (1/27/2016)		
				Ho	llo	ow Stem Auger 8.25" O.D.	23.	5 ft below TOC		10.15 ft below TOC		
LOGGE	LOGGED BY:			SAMPLING METHOD: D				E STARTED:		DATE COMPLETED:		
RSH		Is .		5-foot continuous split barrel sampler 1				1/2016		1/12/2016		
eet)	REC	"		0				100	We	TI .		
th (f	% RE	nscs		Graphic Log		Description						
Depth (feet)	8			ت ق		·		Con	Suc	ruction		
								-				
										Above ground completion including 2x2 ft concrete pad, four pipe bollards, and locking outer steel casing		
0 -		E11.1	***	***		No. 000 and have		(***)	_	locking outer steel casing		
.588	70	FILL	XXX	ĬĬĬĬ	Ť	Non CCR roadbase. SILT, light brown, soft, very moist, with rootlets.				13.1 ft of 2 in dia., Sch. 40 PVC solid riser, including 3.1 ft of stickup		
ga ga		СН		////	1	SANDY FAT CLAY, fine-grained sand, light grey with orange mottling, s moist.	oft,		-	,		
4 -	70					SILTY SAND with minor clay content, very fine-grained, light grey, medi dense to loose, moist.	um		<u></u>	Cement/bentonite grout from 0 ft bgs to 4.7 ft bgs		
2									_	Bentonite pellet seal from 4.7 ft bgs to		
8 –		SM				@7-12 ft bgs, with occasional light brown sandy clay laminations, tan, mery moist.	noist to		_ ▼	8 ft bgs		
1/4	91					very mora.				Silica size 10/20 filter pack from 8 ft bgs to 20.4 ft bgs		
12 -										10 ft of 2 in dia., 0.010 in slot,		
12		SM				CLAYEY SILTY SAND, very fine-grained, light grey with orange mottling light brown fat clay laminations, medium dense, moist to very moist.	g and			Sch. 40 PVC screen		
40	100	SIVI							- S			
16 —		CH			1	SANDY FAT CLAY with silt laminations, very fine-grained sand, olive gr moist.	880 1880					
1	100	ML				SILT with sand and clay laminations, fine-grained sand, light grey, stiff, increasing clay content with depth.	moist,		-			
20 -		CH	1111		1	FAT CLAY with thin silt laminations, olive grey, very stiff, moist.		888	<u> </u>	0.35 ft, 2 in dia., Sch. 40 PVC end cap		
74										20.4 ft bgs BOH		
24 -												
7- <u>2</u>									4			
20												
28 –												
8.5									7			
32 -									_			
7-									_			
36 —									17.50			
100									-			
40 —									-			
44 –							Prince -					
NOTES	: Horiz	zontal a	nd ve	ertical	data	a on based on survey conducted by Harmon Surveying	, Febru	ary 2016 (AR State Pla	ne N	AD83 and NAVD88).		

				PRO				BORING ID:				
				Mc	on	itoring Well Installations	MV	<i>I</i> -111S				
1	-			LOC	ATI	ON:	WEL					
-				En	ite	rgy White Bluff Landfill	MV	<i>I</i> -111S				
						NG CONTRACTOR:	NOR	THING:	EASTING:			
	= 7			Mo	C	ray Drilling, LLC	194	18298.5 ft	1267563.9 ft			
	=					NG EQUIPMENT:	GRO	UND SURFACE ELEV.:	TOC ELEVATION:			
	Asso	<u>ociates</u>	Ltd.	CN	ΛE	550x	333	3.4 ft	336.53 ft S			
water resour	ces / environ	mental consul	tants	DRII	LIN	NG METHOD:		AL DEPTH:	DEPTH TO WATER: (1/27/2016)			
						ow Stem Auger 8.25" O.D.	100000000000000000000000000000000000000	4 ft below TOC	13.41 ft below TOC			
	1 0 0 0 5 D DV					ING METHOD:		STARTED:	DATE COMPLETED:			
THE PERSON NAMED IN	LOGGED BY:							2/2016	1/12/2016			
RSI				3-1	O	ot continuous split barrel sampler	1/ 1.	2/2010	1/12/2016			
feet	REC	S		Sic				V	Vell			
Ę.	% REC			Graphic Log	i i	Description			truction			
Dep				0 3				Cons	ruction			
								-				
									Above ground completion including 2x2 ft concrete pad, four pipe bollards,			
0									and locking outer steel casing			
0 -	100	FILL CH GC		XXX	X	Non CCR roadbase. FAT CLAY with sand, fine-grained sand, light grey with orange mottling.	en#	XX XX	13.0 ft of 2 in dia., Sch. 40 PVC solid			
8.5		GC	1	2/		FAT CLAY with sand, fine-grained sand, light grey with orange mottling, moist. CLAYEY GRAVEL, fine- to coarse-grained (<30mm), subrounded, light	10 - 20		riser, including 3.1 ft of stickup			
4	100	CL				clay, moist.	200		Cement/bentonite grout from			
4 -	100	OL.			//	SANDY LEAN CLAY with trace gravel, very fine-grained sand, light grey iron oxide staining, stiff, moist, increasing sand content with depth.	y with		0 ft bgs to 5 ft bgs			
1		ML	ÍĹ	Ш	Í	SANDY SILT, fine-grained sand, light brown, soft, moist.			Bentonite pellet seal from			
						SILTY SAND, very-fine grained, yellowish orange to light grey, loose, m	oist.		5 ft bgs to 7 6 ft bgs			
8 –	100	100000				@7.8 ft bgs silty clay lense (0 2 ft), light grey, moist.			Silica size 10/20 filter pack from 7.6 ft bgs to 20.3 ft bgs			
V-		SM				@11.4-12.5 ft bgs saturated interval on top of light brown lignitic lamina increasing silt content with depth.	•	_	V			
40									10 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen			
12 -					:1:	SILT with sand, fine-grained sand, light grey with ferrous staining along			Sui. 40 PVC substi			
-	100					laminations, soft, moist to very moist.						
40		ML										
16 –						@15 9 ft bgs with silty clay laminations, light brown. @16.4-16.6 ft bgs light brown, occassional light brown lignitic lamination	ns.		-			
1	100			Щ		saturated. FAT CLAY with thin silt laminations, grey to olive grey, stiff, moist.	Alsos					
	100	CH				FAT CLAY with thin silt laminations, grey to onve grey, still, moist.			0.35 ft, 2 in dia., Sch. 40 PVC end cap			
20 —					22				20.3 ft bgs BOH			
V-								_				
24												
24 -												
								2				
20									ad			
28 –									-			
1.5												
22												
32 —									-			
7-								_				
26												
36 —									-			
12								_				
40												
40 —									.			
8.5												
4.4									50			
44 –												
NOTES	: Horiz	zontal ar	nd ve	rtical	dat	a on based on survey conducted by Harmon Surveying	Febru	ary 2016 (AR State Plan	ne NAD83 and NAVD88)			

			DDO IFOT	- DO	DINOID				
l			PROJECT:	BORING ID:					
			Monitoring Well Installations	00000000	MW-112S				
_=			LOCATION:	7,873	LL ID:				
	72	4_	Entergy White Bluff Landfill	MW-112S					
	=	TN	DRILLING CONTRACTOR:	NO	RTHING:	EASTING:			
-			Walker-Hill Environmental, Inc.	1	949103.2	1265439.6			
	ASS	ociates Lta.	DRILLING EQUIPMENT:	GR	OUND ELEVATION:	TOC ELEVATION:			
water resou	rces / environ	mental consultants	Geoprobe 8150LS	3	75.4 ft	378.2 ft			
ET			DRILLING METHOD:	TO	TAL WELL DEPTH:	DEPTH TO WATER: (4/3/2017)			
FTN Pr R0792	oject #)-1516-(001	Sonic with 4x6 core and case	4	9.8 ft below TOC	29.27 ft below TOC			
LOGGE	n gv-		SAMPLING METHOD:	DA	TE STARTED:	DATE COMPLETED:			
AJP	DDI.		Continuous with 10 ft 4 in diameter core barrel	2	/21/2017	2/22/2017			
8 1	*					Military and American			
Depth (feet)	SS	Graphic Log	Description	REC		Well			
bth	nscs	-og	Description	% R	Con	struction			
De		0_			0011				
						Above ground completion includes 2x2 ft concrete pad, four pipe			
0 —	FWL	7777777	F LL, consisting of nepheline syenite gravel.		0	bollards, and locking outer			
Ι.	CH		S LT, brownish tan, rootlets, soft, moist. LEAN CLAY, light brown with rootlets and rounded gravel (~ 1 in), medium stiff,	55		aluminum casing.			
	ML		\text{moist.} FAT CLAY, gray with reddish-brown mottles, very stiff, moist.			39.6 ft of 2 in Sch. 40 PVC including 2.8 ft of stickup (vented			
10 —	Simpres		S LT, light gray to tan with orange mottles, laminated with clayey silt and sandy silt, very stiff, dry to moist.			below cap)			
63	CH		FAT SANDY CLAY, light gray to olive gray, sand is very fine-grained, very stiff, moist. @ 12.5 to 13.5 ft, with organic matter. @ 13.5 ft, with dark brown sandy	100		Concrete cement from 0 to 2.5 ft			
	SM		lenses and greenish gray silt lenses, very stiff, moist. S LTY SAND, very fine-grained, light to dark brown, with iron oxide staining, few	100		bgs			
20 —	SIVI		thin clay lenses, loose to medium dense, moist. FAT CLAY and SANDY S LT, olive gray fat clay laminated with greenish grey	9		Cement/bentonite grout from 2.5 to 27 ft bgs			
	CH/ML		sandy silt. Clay layers are very stiff, silty sand layers are medium dense.	400		27 it bys			
-	SM		S LTY SAND, very fine-grained, with some clay, dark brown with dark brown organic matter, medium stiff, moist.	100					
30 —	CH		FAT CLAY, olive gray transitioning to greenish gray with depth some sandy lenses, with dark brown organic matter/old roots, very dense, moist.		30	Bentonite seal from 27 to 34 ft bgs			
70,3862			S LTY SAND, very fine-grained, tan to brown with some iron oxide staining, dense, moist.			Cilian aire 20/40 filter made from 24			
-	e.		E	80		Silica size 20/40 filter pack from 34 to 47 ft bgs			
40 —	SM		@ 35 ft, olive gray to light gray, with small amounts of organic matter. @ 39 ft, with some clay laminations.						
40			@ 39 it, with some day laminations.	100		10 ft of 2 in dia. 0.010 in slot, Sch 40 PVC			
- -	ML		S LT, with very fine-grained sand, light grey, decreasing sand with depth, soft to	100		0.18 ft 2 in dia. Sch 40 PVC end			
50 —	10/000		stiff, moist.	2	- 50				
30	A				30	Drilling terminated at 47 ft bgs			
2	Si				<u>~</u>	1000			
00									
60 —			Soils descriptions are based on the soil log for MW-12D,		<u></u> 60				
=	ξŧ		located 12 ft from MW-12S. Soils were continuously sampled and logged at MW-12D using a 4-in core barrel.		=3				
70			Samples from MW-12S were visually observed to verify						
70 —	N.		that MW-12S was advanced in similar soils logged for MW-12D.		- 70				
_	8				_				
HOME									
80 —	8				- 80				
-	16				L				
90 —	G:				- 90				
_									
	2								
100 —	S				- 10	00			
6.5					disal.				
110 —	Ę				- 11	0			
-	Si .								
120					12	20			

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

Borehole and/or well IDs were updated to reflect the nomenclature used for EPA CCR Rule network.

			PDG ISST	Booms	N ID				
			PROJECT:	BORING ID:					
	<u> </u>		Supplemental GHI	MW-	According to the Control of the Cont				
-			LOCATION:	WELL ID):				
			Entergy White Bluff Landfill	MW-	101D				
	= 4	Th	DRILLING CONTRACTOR:	NORTHI	NG			EASTING	
			Tri-State Testing Services	1949	735.5 ft			1265536.4 ft	
	Asso	<u>oclates Ltd.</u>	DRILLING EQUIPMENT:	GROUND ELEVATION:				TOC ELEVATION:	
water res	ources / envilron	mental consultants	CME 750x (SN: 299708)	384.3	ft			387.06 ft	
			DRILLING METHOD:	TOTAL	DEPTH fro	om TOC	:	DEPTH TO WATER from TOC:	
	Project #	004	8.25" Hollow Stem Auger (HSA)	114.2	ft			97.29 (2/12/2014)	
TO DETERMINE A TO	40-0143-0	JU1	SAMPLING METHOD:	100000000000000000000000000000000000000	TARTED:			DATE COMPLETED:	
	ED BY:		5-foot continous soil sampler	STOCKER TO SER	/2013			11/20/2013	
DLE	_		3-100t Continous son Sampler	11/18	72013			11/20/2013	
Depth (feet)	S	ic Si		O.			V	Vell	
Ę.	nscs	Graphic Log	Description	% REC ST SPT		Co		truction	
Dep		0 7	75	% W W		CO	1115	ruction	
					_	T	E		
0 -	Fall	******	TOP SOIL	100	- KXX	XXX	ıĒ		
	transportation 2		SANDY (FAT) CLAY, very fine-grained sand, reddish brown and grey, very stiff, moist.	100	- XX	\otimes	Œ		
2	- SM		CLAYEY SAND, very fine-grained, reddish brown and orange mottled, medium dense, moist.	80		\bowtie	ΙĒ	Above ground wellhead	
10 -	1		S LTY SAND, very fine-grained, grey with orange mottles, medium dense to loose, moist. Decreasing sand with depth.	80		\bowtie	Æ	completion including 2x2 ft concrete pad, four pipe bollards,	
			S LT with very fine-grained sand, light grey with orange mottles, medium stiff to soft, moist. Occasional lenses of tan to pinkish tan, very hard clay.			\bowtie	E	and locking outer steel casing	
8	- ML		@ 8.5 to 9 ft bgs, saturated.	100		\bowtie	ΙĒ		
20 -	9		@13 ft bgs, CLAYEY S LT with very fine grained sand, greenish grey, very hard, moist. Decreasing clay content with depth.	400		\bowtie	E	103.8 ft of 2-inch dia., Sch. 40	
20	SC ML		@ 21 to 21.8 ft bgs, carbonaceous/lignitic material.	100		\bowtie	ΙĒ	PVC solid riser including 2.8 ft of	
X	ML	1:1:1:1:1:1:1:	CLAYEY SAND, very fine-grained, greenish grey, laminated with carbonaceous/lignitic material, very hard, moist.	100		\otimes	ᄩ	stick up (vented below cap)	
00	SM		SANDY SILT, greenish grey, sand is very fine-grained, medium stiff to stiff, moist. S LTY SAND, very fine-grained, greenish grey, soft to medium stiff, moist.			\bowtie	ΙE		
30 -			Occasional lenses of clay and carbonaceous material.	100		\bowtie	E	Cement/Bentonite grout from 0 ft	
2	-		SANDY SILT, greenish grey, sand is very fine-grained, medium stiff to soft, moist. @ 33 8 to 34 5 ft bgs, carbonaceous/lignitic material, very hard.	100		\bowtie	ΙE	to 97.0 ft bgs	
	ML		@ 34.5 to 38 ft bgs, highly laminated with very hard brownish grey sandy silty clay, silt, and carbonaceous/lignitic material.	100		\bowtie	ΙĒ		
40 -	SM		@ 38 to 40 ft bgs, brownish grey platy hard clay laminated with silt and very fine-grained sand.	100		\bowtie	ΙĒ		
	565955		SLTY SAND, very fine-grained, greenish grey, dense, very moist to moist. SANDY SILT, greenish grey, very fine-grained sand, soft, very moist. Occasional	100		\bowtie	ΙĖ		
2	ML		lenses of clay.	100		\bowtie	E		
50 -	ML/CL		S LT to LEAN CLAY, olive grey, with very fine-grained light grey sand, soft, very moist.	100		\otimes	E		
S.			LEAN to FAT CLAY, olive grey, platy, very stiff to hard, with very fine-grained		- XX	\otimes	Œ		
2	CL/CH		light grey sand, slightly moist. @ 56 to 58 ft bgs, texture is more massive.	100		\bowtie	ΙĒ		
60 -	SC	//////////////////////////////////////	CLAYEY SAND, very fine-grained, olive grey, dense, moist.	100		\bowtie	ΙĒ		
	CL/CH		LEAN to FAT CLAY, olive grey, highly laminated with very light grey silt, very stiff, moist.			\bowtie	l		
5	ML		S LT, olive grey, with clay lenses, moist.	100		\bowtie	ΙE		
70 -	4		FAT CLAY, olive grey with occasional silt laminations, very stiff, moist. @ 68 to 70 ft bgs, clay is laminated with silt.	100		\bowtie	Æ		
			@ 70 ft bgs, clay has blocky texture. @ 73 to 80 ft bgs, clay is laminated with silt.	100		\bowtie	ΙĒ		
9	1			100		\otimes	ΙĒ		
80 -			@ 80 ft, clay has blocky texture.	400		\bowtie	Œ		
00	CH		2	100		\bowtie	Œ		
8	4		@ 87 ft bgs, with very light grey, very fine-grained sand.	100		\bowtie	E		
00						\bowtie	ΙĒ		
90 -	1			100	XX	<i>>>></i>	lF	Bentonite pellet seal from 97.0 ft	
×	4		@ 95.6 ft bgs, sand fat clay.	100			7	bgs to 100.1 ft bgs	
	00		CLAYEY SAND, very fine-grained, dark grey, dense, moist. @ 98.5 to 101 5 ft	100			ΙĒ		
100 -	SC		bgs, laminated with fat clay. FAT SANDY CLAY, sand is very fine-grained, dark grey, very stiff, moist.	100			Œ	Sillica size 10/20 filter pack from	
			CLAYEY to SILTY SAND, sand is very fine-grained, dark grey, moist. Decreasing	70			ΙĒ	100.1 ft bgs to 113 ft bgs 10.0 ft of 2-inch dia., 0.010-inch	
	SC/ SM		clay content with depth.	70			E	slotted Sch. 40 PVC screen	
110 -	SM/SP		S LTY SAND to POORLY GRADED SAND, very fine-grained, dark grey, saturated.	50			E		
5.	СН	فتخفظ فافافا	FAT CLAY, dark grey, highly laminated with light grey silt, very stiff, moist.				F	0.35 ft, 2-inch dia., Sch. 40 PVC end cap	
	7						E	Drilling terminated at 113 ft bgs	
120	1	L					IF.		

			PROJECT:	BORING	i ID.			
	II.		Supplemental GHI	MW-102D				
	<u>=</u> _		LOCATION:	WELL ID				
_			NEW PL ANDRONE WITH EARLING WINNEY	0.3004600000				
	-	4-	Entergy White Bluff Landfill	MW-1	Marie Control			
			DRILLING CONTRACTOR:	NORTHI				EASTING
-		a alerta a litel	Tri-State Testing Services	1949	805.8 ft			1266390.6 ft
umlarman	ASS	OCICIOS LICI. nmental consultants	DRILLING EQUIPMENT:	GROUN	ND ELEVA	TION:		TOC ELEVATION:
Water reso	urces / environ	imental consultants	CME 750x (SN: 299708)	378.7 ft 381.40 ft				381.40 ft
CTNIC			DRILLING METHOD:	TOTAL	DEPTH fro	om TO	D :	DEPTH TO WATER from TOC:
	roject # 10-0143-	001	8.25" Hollow Stem Auger (HSA)	112.0	ft			91.61 (5/8/2014)
LOGG	ED BY:		SAMPLING METHOD:	DATE ST	TARTED:			DATE COMPLETED:
	/MHR		5-foot continous soil sampler	4/25/2	2014			4/25/2014
2022			·					
Depth (feet)	nscs	Graphic Log	Description	% REC ST SPT			V	Vell
pth	S	Gra	Description	ST SPT		Co	ons	truction
ď	-							
6766					T	T	E	
0 -	FILL		TOP SOIL SLT with very fine-grained sand, grey and yellowish orange, soft, moist.	100	XX	XX	ıΕ	
3.4	CH		FAT CLAY with very fine-grained sand grey blocky very stiff moist.	100		\otimes	ΙĒ	20 10 10 10 10 10 10 10 10 10 10 10 10 10
	SP		POORLY GRADED SAND with silt, very fine-grained, yellowish orange and grey, dense, dry to moist. @ 7 to 8 ft bgs, laminated with fat clay and sand is moist.	100	<u> </u>	\otimes	Æ	Above ground wellhead completion including 2x2 ft
10 -			LEAN CLAY, with silt laminations and very fine-grained sand, tan, stiff, moist. @ 10 ft bgs, color changed to greenish grey.	100	- XX	\otimes	ΙĒ	concrete pad, four pipe bollards,
	CL		e to trage, coor oranged to greener grey.	950		\otimes	ΙĒ	and locking outer steel casing
			S LTY SAND, very fine-grained, olive grey, medium dense, moist. @ 16 to 16.8 ft bgs, carbonaceous and fossiliferous material.	100		\bowtie	ΙĒ	
20 -	SM		@ 18 to 25 ft bgs, occasional clay laminations.	100		\otimes	ΙĒ	
						\bowtie	ΙĖ	101.6 ft of 2-inch dia., Sch. 40
<i>b</i> -	ML		CLAYEY SILT, olive grey to grey, highly and thinly laminated with grey silt and very-fine grained sand, medium stiff, moist. @ 27 to 28 ft, brownish grey.	100		\bowtie	ΙE	PVC solid riser including 2.7 ft of
30 -	4		Occasional carbonaceous material. S LTY SAND, very fine grained, olive grey, medium dense, moist.	100		\bowtie	Æ	stick up (vented below cap)
			@ 28 to 30 ft bgs, grayish brown with carbonaceous material.	100	- XX	\otimes	ΙE	Cement/Bentonite grout from 0 ft to 86.0 ft bgs
2.5	+		@ 30 to 31 ft bgs, laminated with fat clay. @ 33 to 38 ft bgs, medium dense to dense, very moist to wet.	100		\otimes	ΙĒ	
40 -	SM		@ 40 to 40 C ft have not writed	100		\bowtie	Æ	
10			@ 40 to 40.5 ft bgs, saturated. @ 42 to 42.5 ft bgs, saturated.	100		\bowtie	ΙĒ	
65			@ 48 to 50 ft bgs, very moist to wet.	100		\bowtie	F	
50 -			Secretary Control of C	400		\bowtie	IF	
50 -	SM/ML		S LTY SAND to SILT, olive grey, very thinly laminated with light grey silt and lean clay, sand is very fine grained, stiff, moist.	100		888	ΙĒ	
63	CL/CH		LEAN to FAT SANDY CLAY, sand is very fine-grained, olive grey, platy, very stiff dry to moist.	100		\otimes	Æ	
00	СН		FAT CLAY, with very fine-grained sand, olive grey, platy to blocky texture, decreasing sand content with depth, very stiff, dry to moist.		XX	\otimes	ΙĒ	
60 -	7		@ 62 to 63 ft bgs, highly and thinly laminated with light grey silt and/or fine-grained sand.	100		\bowtie	IF	
3.5	ML/CL		LEAN CLAY and SILT, highly laminated, silt is very light grey, clay is dark grey to olive grey, very stiff, moist.	100		\bowtie	ΙE	
	CL/CH		LEAN to FAT CLAY, more plastic with depth, with light grey silt laminations, very	100		$\times\!\!\times$	ΙĒ	
70 -			stiff, moist. FAT CLAY, olive grey to dark grey, blocky texture, very stiff to moist.			\otimes	Æ	
0.0	1		@ 73 ft bgs, with very fine-grained sand.	100	\otimes	\bowtie	ΙĒ	
			@ 78 ft bgs, sand content increases with depth.	100	***	\bowtie	F	
80 -	CH			100		\bowtie	IF	
86				400	***	\bowtie	ΙĒ	Bentonite pellet seal from 86.0 ft
				100			E	bgs to 93.0 ft bgs
90 -	+		CLAYEY SAND, very fine-grained, dark grey, dense, moist.				ľ	
90.0	SC		@ 94 to 95 ft bgs, laminated with fat clay.				IF	
8	SC/SM		CLAYEY SAND to S LTY SAND, very fine-grained, dark grey, dense, moist.	100			ΙE	Sillica size 10/20 filter pack from
100 -	-		S LTY SAND, very fine-grained, dark grey, dense, moist. Silt content decreasing with depth.	100			Œ	93.0 ft bgs to 108 ft bgs 10.0 ft of 2-inch dia., 0.010-inch
	SM		September 1	, 55			IF	slotted Sch. 40 PVC screen
93				100			ľĖ	0.35 ft 2 inch dia Cab 40 DVO
110 -					IRRER	- 6556551	Œ	0.35 ft, 2-inch dia., Sch. 40 PVC end cap
or or other							E	Drilling terminated at 108 ft bgs
81							Œ	
120							IE.	
	NOTES:	Revised we	ll construction detail based on survey after the addition of the ab	ove groun	d wellhead	d comp	letion	during July 2015

			PROJECT:	BORING	BID:			
			Supplemental GHI	MW-	103D			
2	=		LOCATION:	WELL ID):			
		4	Entergy White Bluff Landfill	MW-	103D			
	= 5		DRILLING CONTRACTOR:	NORTHI	NG		EASTING	
-	= F		Tri-State Testing Services	1947	629.7 ft		1266915.2 ft	
	Asso	oclates Ltd.	DRILLING EQUIPMENT:	3	ND ELEVATION	TOC ELEVATION:		
water resou	rces / environ	mental consultants	CME 750x (SN: 299708)	0.0000000000000000000000000000000000000	335.0 ft 339.18 ft			
			DRILLING METHOD:	(2000) (CO) (CO) (CO) (CO) (CO) (CO) (CO) (CO	DEPTH from	TOC:	BURCHMARK ACTIONALISM	
	roject#		8.25" Hollow Stem Auger (HSA)	CONTRACTOR CONTRACTOR		100.	DEPTH TO WATER from TOC: 38.55 (2/12/2014)	
R0604	0-0143-0	001	SAMPLING METHOD:	84.6 ft DATE STARTED:			DATE COMPLETED:	
LOGGE			1 Telephone (1994)	22/2018/03/83/27/28/28/			Programme and Strategic Control of the Control of t	
DLD			5-foot continous soil sampler	11/7/	2013		11/7/2013	
Depth (feet)	S	. <u>e</u>		O		۱۸.	/ell	
÷	nscs	Graphic Log	Description	% REC ST SPT	10			
Dep		ت ق	5.	800		Const	ruction	
0 -	FILL	,,,,,,,	TOP SOIL	100	xx	x = F		
3690	CH SC		FAT CLAY, with very fine-grained sand, reddish to orangish brown, very stiff to hard, dry to moist.	100		X E		
	1. Pearway		CLAYEY SAND, very fine-grained, becoming silty with depth, light grey and	100	$-\infty$	X E	Above ground wellhead	
10 —	negran		orange, dense, dry. S LTY SAND, very fine-grained, light grey, medium dense to dense, very dry. @	80		8 =	completion including 2x2 ft concrete pad, four pipe bollards,	
	SM		8 to 10 ft bgs, oxidation staining. @18 to 18 ft bgs, laminated with hard fat clay, color changed to light brownish tan.	80		8 E	and locking outer steel casing	
100				80		8 =		
20 —	MUZ		S LT and LEAN CLAY, laminated, with very fine-grained sand, dry to slightly	ST 18-20'		8 E	69.2 ft of 2-inch dia., Sch. 40	
20	ML/CL		moist. Clay is platy. Upper 0 5 inches (Shelby tube slag) was saturated.	100		X E	PVC solid riser including 4.2 ft of stick up (vented below cap)	
1/-			FAT CLAY, with silt and very fine-grained sand, platy, very stiff, dry to slightly moist.	100			stick up (vented below cap)	
30 —			@ 28 ft bgs, laminated with very light grey silt.			8 E	38 00000 H1 3800 1000 1000	
30			~	100		8 E	Cement/Bentonite grout from 0 ft to 62.3 ft bgs	
3. -	-		@ 35 ft bgs, occasional light grey silt and/or very fine-grained sand laminations.	ST 33-35' 100		8 =	to 02.3 it bgs	
40 —			@ 38 ft bgs, with very fine-grained sand.	(EAST)		X E		
40				100		8 E		
9.00	CH			100		8 =		
50				6 -8- 11		8 E		
50 —				100		8 F		
8· <u>2</u>				100		X E		
00						8 E		
60 —	1		@ 63 ft bgs, sandy fat clay, dark grey, sand is very fine-grained, medium stiff, very moist.	100		8 =	Bentonite pellet seal (slow	
1-			853	100			release) from 62.3 ft bgs to 65.0 ft bgs	
	SC		CLAYEY SAND, very fine-grained, dark grey, dense, very moist. @ 68 to 68.5 ft bgs, saturated.			E		
70 —	CH		SANDY (FAT) CLAY, very fine-grained sand, dark grey, very stiff, moist.	80			Sillica size 10/20 filter pack from 65.0 ft bgs to 84 ft bgs	
4.5		//////	CLAYEY SAND, very fine-grained sand, dark grey, very stirr, moist. CLAYEY SAND, very fine-grained, dark grey, dense, moist to very moist.	100			CO.D It by S to OT It by S	
	SC						15.0 ft of 2-inch dia., 0.010-inch	
80 —	СН		FAT CLAY, dark grey, laminated with very light grey silt, some very fine-grained	100			slotted Sch. 40 PVC screen	
	Off		sand, very stiff, moist.				0.35 ft, 2-inch dia., Sch. 40 PVC	
2000							end cap Drilling terminated at 84 ft bgs	
90 —							Drining terminated at 04 it bys	
1 -						E		
100 —								
110 —								
9:00						-		
120						<u> </u>		

			PROJE			PRING ID:					
				itoring Well Installations	1 2 3 7 7 7	/-104D					
- 2	<u> </u>		LOCAT		WEL						
				ergy White Bluff Landfill		/-104D	7				
=	-	4_		NG CONTRACTOR:		THING:	EASTING:				
	≓ F	ТП		Cray Drilling, LLC	1000000	9850.4 ft	1267225.4 ft				
	Ann	aplaton	N.J.	NG EQUIPMENT:		UND SURFACE ELEV.:	TOC ELEVATION:				
water resou	rces l'environ	mental consults	ante	₹ 750x	374	l.1 ft	376.76 ft				
water reduc	1000101111101	montal consult	DRILLI	NG METHOD:		AL DEPTH:	DEPTH TO WATER: (10/3/2015)				
			8.25	" Hollow Stem Auger	106	5.7 ft below TOC	87.12 ft below TOC				
LOGGE							DATE COMPLETED:				
DLD	/RSI	<u> </u>	5-foo	ot continous split barrel	7/1	3/2015	7/14/2015				
eet)	ပ္ပ	·0	<u>o</u> .			\/\	/ell				
th (fe	, REC	nscs	Graphic Log	Description		Well					
Depth (feet)	%	ם ו	5 5			Construction					
			- 86								
0 —	100	CL	//////	TOPSOIL		XXX XXX	Above ground completion				
s	100	30.5357		LEAN CLAY, silty, with very fine-grained sand, light brown with staining, very stiff, dry.			including 2X2 ft concrete pad,				
1/4	74	ML		SANDY SILT, light grey, sand is very fine-grained, stiff, dry. @ organic matter.	6 ft, with		four pipe bollards, and locking outer steel casing				
10 -	100	CL		SANDY CLAY with trace subrounded gravel (up to 1 inch), sa fine-grained, light grey, stiff, moist.	nd is		hanness and a second of the se				
172		CH	1111111	FAT CLAY, light grey with brown mottles, some organic matte	r, stiff,	***	96.3 ft of 2 in dia., Sch. 80 PVC solid riser, including 2.7 ft				
	100	SM		moist. SILTY SAND, fine-grained, light grey, dense.			of stickup				
20 –	100	CL/ML	777	@19 to 20.1 ft, saturated. CLAY and SILT laminations, with very fine-grained sand, lami	nations are		Cement/bentonite grout from 0				
	400	J. J.		hard, clay and silt are light grey to 22 6 ft, then color changes brown. @ 23 ft, color changes to light grey with carbonaceou	to light		ft bgs to 49.5 ft bgs				
00	100			SILTY SAND, fine-grained, with clay laminations, light brown, moist. @ 26 ft, color changes to light grey, minor amounts of	dense,						
30 —	100	SM		laminations, dense, moist. @ 29 to 30 2 ft, with clay laminations. @ 29 to 34 ft, very mois	CANAL.						
45	100			saturated. @ 34 to 39 ft minor clay laminations.							
40 —	100			SILTY SAND, decreasing sand content with depth, sand is ve	D/						
40	100	SM/ML		fine-grained.	90 VON						
77 2	100	ML/CL		SILTY CLAY to CLAYEY SILT, laminated with very fine-grains partings, light grey. @ 43 to 44 ft, saturated. @ 44 ft, silt and of	clay						
50 —				laminations, light grey, moist to dry, clay is hard, platy. Silt is s FAT CLAY, olive grey, with light grey silt and very fine-graine	AND THE STREET						
	100			partings, clay is blocky to platy, hard, dry to moist. @54 ft, blocky texture, very stiff, minor amounts of light grey v	very						
-	100			fine-grained sand and/or silt partings.	250						
60 -	100			@ 61.5 to 62.5 ft, increased silt partings.			Bentonite pellet seal from 49.5				
, market 1823	100			@ 64 to 67 ft, clay is platy to blocky textured, then homogene	ous		ft bgs to 91.5 ft bgs				
\$1 5	88			G of a or it, day is placy to blocky textured, then florilogener	ous.						
70 —	100	CH									
7.4	100										
5.000	100										
80 —	n/a			@ 79 ft, plugged augers due to swelling clays. Soils logged b 104 ft.	y cuttings to		2000				
7/4	10000000						▼				
	n/a			@ 90 ft drillers noted lithology change							
90 —	n/a		///////////////////////////////////////	CLAYEY TO S LTY SAND. Assumed based on driller's descr auger cuttings.	iption and		Silica size 10/20 filter pack				
9 7 5				augei cumiya.			from 91.5 ft bgs to 104 ft bgs				
100	n/a	SC/SM									
100 — -	n/a						10 ft of 2 in dia., 0.010 in slot, Sch. 80 PVC screen from 93.6 ft bgs to 103.6 ft bgs				
110 —							0.35 ft, 2 in dia., Sch. 80 PVC end cap				
120							104 ft BOH				

			DDO IE		Ban	IN O ID				
			PROJE		NG ID:					
				itoring Well Installations		V-105D				
<u> 2</u>	_		LOCAT	ION:	WEL	L ID:				
100				ergy White Bluff Landfill	MV	N-105D				
	72	4	DRILLI	NG CONTRACTOR:	NOR	THING:	EASTING:			
	= ₽	TE	McC	cray Drilling, LLC	194	19463.1 ft	1267683.2 ft			
	ا ب		DRILLI	NG EQUIPMENT:	GRO	UND SURFACE ELEV.:	TOC ELEVATION:			
	Ass	<u>oclates</u>	LTC. CME	750x	367	7.8 ft	370.04 ft			
water resour	ces / environ	mental consu	DRILLI	NG METHOD:	TOT	AL DEPTH:	DEPTH TO WATER: (10/3/2015)			
			8.25	" Hollow Stem Auger	110	0.2 ft below TOC				
LOGGE	D BV-			ING METHOD:	E STARTED:	DATE COMPLETED:				
	/RSI	1	5-fo	ot continous split barrel	7/1	5/2015	7/16/2015			
					10	/all				
h (fe	RE	nscs	Graphic Log	Description		55.00	/ell			
Depth (feet)	%	S	Gra	Besonption		Cons	truction			
			. 83			10 P				
0 -	400	S.A.II		TOPSOIL			Above ground completion			
508.03	100	ML	///////	SANDY SILT, sand is very fine-grained, yellowish orange, stiff, dry. LEAN CLAY, silty, with very fine-grained sand, yellowish orange, st			Above ground completion including 2X2 ft concrete pad,			
1,=	100	CL		moist. @ 3 ft, increased silt content, soft, moist. @ 4 5 ft, color chail clay is silty, hard, laminated with very fine-grained sand. @ 5.5 ft, c	nges to tan,		four pipe bollards, and locking outer steel casing			
10 -	100	011		changes to pinkish tan FAT CLAY, dark grey, hard, laminated with silt and very fine-graine		- XXX XXX -	outer steer casing			
	\$190 E.S.	СН		11.7 ft, color changes to brown. @ 12.7 ft, clay is lean to fat. S LTY SAND, very fine-grained, tan, medium dense, moist. @ 15.5			99.8 ft of 2 in dia., Sch. 80			
17-2	100	SM		5 LTY SAND, very fine-grained, tan, medium dense, moist. @ 15.5 fat clay, brown, soft, moist (0.2 ft thick). @ 15.7 ft, lens of hard silty grey, (0.3 ft thick). @ 16 ft, saturated. @ 17 ft, sand is laminated wi	clay, dark		PVC solid riser, including 2.3 ft of stickup			
20 -	100	CH/ML	: : : : : : : ////	to hard tan fat clay. FAT CLAY and S LT, clay is dark grey, hard, highly laminated with	(STA)	. XXX XX I	POTENTIAL DE UNE			
15-500-1		SC		fine-grained sand, moist. SANDY FAT CLAY, sand is very fine-grained, dark brown, laminated SANDY FAT CLAY, sand is very fine-grained, dark brown, laminate			Cement/bentonite grout from 0 ft bgs to 46 ft bgs			
"	100	30		moist. S LTY SAND, very fine-grained, light grey, moist. @ 28 ft, saturated			CO MINIST CONTRACTOR MANAGEMENT CONTRACTOR C			
30 -	100			the offers a tenderate of the action to the School and the School	J.					
		SM		@ 33 ft, moist. @ 35 ft, laminated with minor thin clay laminations.						
\$ 5	100	JIVI		@ 38 ft, saturated.						
40 —	100			@ 56 It, saturated.						
27027		ML		CLAYEY SILT, light grey, medium stiff, moist.		·				
	100	CL		LEAN CLAY, light grey, laminated with light grey silt, stiff, moist.			Bentonite pellet seal from 46 ft bgs to 93.4 ft bgs			
50 —	100			FAT CLAY, dark grey, laminated with silt. @ 49.5 ft, clay is blocky, stiff, moist, minor amounts of very fine-gra	ined sand		bgs to 93.4 it bgs			
81 <u>21</u>	100			and silt partings.						
	100			@ 58 ft, plugged augers to 93 ft due to swelling clays. Soils logged	by cuttings					
60 —	n/a			to 93 ft.						
4	n/a									
	II/a	CH								
70 —	n/a									
1	n/a						62 - Na			
00							Y			
80 —	n/a									
1/4	n/a			Drillers noted lithology change at 87 ft.						
00		000		CLAYEY SAND, olive grey, decreasing clay with depth, dense, moi	st.					
90 —	n/a	SC					Silica size 10/20 filter pack			
9.73	100			S LTY SAND, very fine-grained, olive grey, dense, saturated.			from 93.4 ft bgs to 107 ft bgs			
100 —	100	011								
100	100	SM					10 ft of 2 in dia., 0.010 in slot, Sch. 80 PVC screen from			
2,=	100			@ 105 to 107 ft, with clay laminations.			97.5 ft bgs to 107.5 ft bgs			
110 —			1-1-1-1-1-1-1-1				0.35 ft, 2 in dia., Sch. 80 PVC			
							end cap			
400							108 ft BOH			
120										

			F	PROJE	CT:	Sec. 100 Sec	ING ID:					
				Mon	itoring Well Installations	MV	V-106D					
	<u>-</u>		L	OCAT	ION:	WEL	L ID:					
- 2	=				ergy White Bluff Landfill	MV	V-106D	79				
		4	_ [DRILLI	NG CONTRACTOR:	NOR	THING:	EASTING:				
		TE		McC	Cray Drilling, LLC	194	18617.2 ft	1267628.3 ft				
				DRILLI	NG EQUIPMENT:	GRO	UND SURFACE ELEV	/.: TOC ELEVATION:				
	ASS	<u>oclates</u>		CME	750x	337	7.8 ft	339.39 ft				
water reso	urces / enviro	nmental consu	Editis	DRILLI	NG METHOD:	TOTA	AL DEPTH:	DEPTH TO WATER: (10/3/20	015)			
			1	8.25	" Hollow Stem Auger	87.	1 ft below TO	C 40.94 ft below TOO	C			
LOGGI	ED BY:				ING METHOD:	DATE	E STARTED:	DATE COMPLETED:				
	D/RSI			5-fo	ot continous split barrel	7/1	7/2015	7/17/2015				
Set)	ပ္ပ		.0	2				Well				
Depth (feet)	% REC	nscs	dae	Log	Description		0.40	15 / 5 (15 (15 (15 (15 (15 (15 (15 (15 (15 (
Dept	%		Ğ	2	1		Construction					
				80								
0 -	66		11111	""""	Non-CCR road base		XXX XXX	Above ground completion				
	00	CH			SANDY CLAY, light grey with orange mottles, sand is fine-grained	A CALLES AND A CAL		including 2X2 ft concrete p				
147	100	ML			SANDY SILT, light grey with orange mottles, sand is very fine-gravery moist to wet. @ 8 ft, decreasing silt content.	ained, soπ,		four pipe bollards, and lock outer steel casing	king			
10 -	100				S LTY SAND, very fine-grained, light grey with orange mottles, m very moist to wet, with some light grey clay laminations.	edium dense,	l 📖 📖		,			
1/2	100	CN						76.7 ft of 2 in dia., Sch. 80 PVC solid riser, including 1				
-	100	SM						of stickup				
20 -	100							Cement/bentonite grout fro	om 0			
100	100		TTT	mm	SANDY SILT, olive grey, stiff, very moist. Sand is very fine-graine	ed.	1 📖 📖	ft bgs to 28.8ft bgs				
20	NAME OF THE PARTY	ML			@ 27 to 28 ft, with some clay laminations.							
30 -	100			////	FAT CLAY, dark grey, laminated with silt, moist.			Γ				
9.5	100				@ 33 ft, blocky texture, very stiff, moist, with some light grey very sand partings.	tine-grained		- Bentonite pellet seal from 2	28.8			
40 -	n/a				@ 38 to 68 ft, plugged augers due to swelling clays. Logged soils	by suttings to		ft bgs to 69.4 ft bgs				
"	II/a				68 ft.	by cuttings to						
99	n/a							_				
50 -	n/a	СН										
	LEGISTIC ACT	011										
	n/a							Γ				
60 -	n/a							-				
	-1-											
2000	n/a				@ 68 ft, FAT CLAY, dark grey, laminated, blocky, moist.				4			
70 -	100	SC			CLAYEY SAND, very fine-grained, dark grey, very dense. Clay co	ontent		Silica size 10/20 filter pack from 69.4 ft bgs to 88.0 ft	(
23.0	100	SC/CH	1///		decreasing with depth. CLAYEY SAND to SANDY FAT CLAY, dark grey, sand is very fin	e-grained,		bgs				
00	2000000	2.011			very dense/stiff, clay content decreases with depth, saturated. CLAYEY SAND, dark grey, clay content decreasing with depth, saturated.	and is very		10 ft of 2 in dia., 0.010 in s	olot,			
80 -	100	SC	///		fine-grained, very dense, saturated.			Sch. 80 PVC screen from 75.1 ft bgs to 85.1 ft bgs				
1/-	100	CH/ML			FAT CLAY and S LT, clay is dark grey, very stiff, moist, laminated grey silt and very fine-grained sand.	with light		-				
90 -				шШ	groy and and very inte-grained salid.			0.35 ft, 2 in dia., Sch. 80 F end cap	PVC			
90 -								A CONTRACTOR OF THE PROPERTY O				
9.5	1							88 ft BOH				
100 -	1							_				
25	1							<u></u>				
110 -								<u></u>				
100	1											
120												

			(inches)	DOLLARS DESCRI			WALESCON T- CORNERS					
			12004284	JECT:	sacrifice colonials and one little	27,1707,1875,187	ORING ID:					
			M	onitorii	ng Well Installations	MW	/-107D					
	4		LOC	CATION:		WELI	L ID:					
			Er	tergy \	White Bluff Landfill	MW	/-107D					
=		4	DRI	LLING CO	NTRACTOR:	NOR	NORTHING: EASTING:					
	록 ₽		M	Crav I	Drilling, LLC	194	8044.1 ft		1267403.4 ft			
-		ы	DRI	LLING EQ	JIPMENT:		UND SURFAC					
	Ass	ociates	Ltd. CI	ME 750	x	319	.4 ft		322.26 ft			
water resou	urces / environ	mental consu	Mante	LLING ME		100000000	AL DEPTH:		DEPTH TO WATER: (10/3/2015)			
			20000		A STATE OF THE PARTY OF THE PAR	0,000	6 ft belov	, TOC	CONTRACTOR CONTRACTOR SOCIONAL DE LA CONTRACTOR DE LA CON			
12.0.704.0012094.000	8.25" Hollow Stem Auger SAMPLING METHOD:					STARTED:	V 100	DATE COMPLETED:				
	LOGGED BY:								7/20/2015			
	DLD/RSH			5-foot continous split barrel 7/20			0/2015		112012015			
Depth (feet)	REC	S	. <u>S</u>					1	Vell			
th (t	% R	nscs	Graphic Log		Description							
Dep	0		ت ق				Construction					
0 -	76	CI	66666	Nob-Co	CR road base		XXX 8	XXX	Above ground completion			
10	6.00	CH		fine-gra	/ S LTY CLAY, yellowish orange to light brown, sand is valued soft moist.	17	***	₩ L	including 2X2 concrete pad, four pipe bollards, and locking			
	90	CL		/medium	LAY, yellowish orange to light brown, some very fine-grain stiff, moist.	DECEMBER DESCRIPTION	- XXX 3	₩	outer steel casing			
10 -	90			FAT CI	CLAY, silty, tan, with hard clay laminations, silty clay was AY, tan with iron oxide staining, blocky, very stiff to hard	s soft, moist. d.	****	XXX				
	100					magica (s.) Pri status persona describ		₩ L	58.3 ft of 2 in dia., Sch. 80 PVC solid riser, including 2.9 ft			
- AND -	100			@ 15 5	ft, color changes to olive grey with light grey silt laminat	tions, stiff, moist.		₩ I	of stickup			
20 -	100			@ 18 to	o 23 ft, SAA, very stiff.			XXX ⊦	Cement/bentonite grout from 0			
				@ 23 f	t, plugged augers due to swelling clays. Logged soils by	cuttings to 43 ft.	- XXX 8	XXX L	ft bgs to 41.3 ft bgs			
5307	n/a							XX	20/25/0 5/02/5/4			
30 -	n/a	CH					- XXX 3	₩	-			
9/3							- XXX 3	₩				
	n/a						- XXX 3	XX				
40 -	n/a			0 013 1	t, fat clay, olive grey, very stiff, moist.			⋙ ⊦	Postonita pollet coal from 44.2			
	400			W 431	, lat clay, olive grey, very suil, moist.				Bentonite pellet seal from 41.3 ft bgs to 52 ft bgs			
100	100							///				
50 -	100							///	Silica size 10/20 filter pack			
				CLAYE	Y SAND, very fine-grained, olive grey, very dense, very	moist to			from 52 ft bgs to 67.0 ft bgs			
1.5	100	SC		///	t, clay content begins to decrease with depth.				10 ft of 2 in dia., 0.010 in slot,			
60 -	100			1/2		-1-44-			 Sch. 80 PVC screen from 55.4 			
	100 miles	SM/SC		// SLTY	SAND, very fine-grained, olive grey, very dense, very mo SAND TO CLAYEY SAND, olive grey, clay content incre				to 65.4 ft bgs			
	100	CH			saturated. .AY, greenish grey, finely laminated with clayey sand.				0.35 ft, 2 in dia., Sch. 80 PVC			
70 -	1							-	end cap			
323									67.0 ft BOH			
l]											
80 -	-								_			
2,=	1											
90 -	-							-	<u></u>			
17-	1											
100 –	-								<u> </u>			
	1											
110 –	-								_			
SOUNTA												
e Linkaneria (1.0	1							-	-			
120												
NOTE			and the second						DI MADOO IMAMBOON			

						_					
				PROJE			ORING ID:				
			_		itoring Well Installations	MV	V-108D				
3	1		I	LOCAT	ION:	WEL					
					ergy White Bluff Landfill	IVIV	V-108D				
	73	4			NG CONTRACTOR:		THING:		EASTING:		
	= F	TE			ray Drilling, LLC	194	17916.6 ft		1266178.4 ft		
=			1.1.1		NG EQUIPMENT:	GRO	UND SURFACE	ELEV.:			
umfar ranau	ASS(OCICTOS mental consu		CME	750x	337	337.6 ft 341.61 ft				
water resou	rces i environ	mental consu	Editis	DRILLII	NG METHOD:	TOT	AL DEPTH:		DEPTH TO WATER: (10/3/2015)		
				8.25	" Hollow Stem Auger	80.	1 ft below	TOC	47.70 ft below TOC		
LOGGE	D BY:			SAMPL	ING METHOD:	DAT	E STARTED:		DATE COMPLETED:		
DLD/RSH				5-fo	ot continous split barrel	7/2	3/2015		7/23/2015		
c C				٥				1/	Vell		
% REC USCS				Log	Description			5.000 ST	struction		
Dept	%		Ċ	5 3	_		13	Cons	uction		
0 -	100	ML CH	777	1111	SANDY S LT, dark brown with organic matter, sand is very fine-grained	i, color	XXX X	888	Above ground completion		
		СН			changes to orangish tan at 0.5 ft, very dry, soft. FAT CLAY with sand and silt, yellowish orange becoming light grey with	10	·	\bowtie	including 2X2 concrete pad,		
15	100	ML			\mottles with depth very stiff dry. SANDY S LT, tan with orange mottles, decreasing sand content with the sand content with	epth,	· ‱ ⊗		four pipe bollards, and locking outer steel casing		
10 -	100	IVIL			moist to very moist with depth. @ 5 ft, SILT with very fine-grained sand with orange mottles, stiff to very stiff, very moist. @ 10.7 ft, SAA, with li	, tan ght		XX ⊦			
1/2	100	CL/ML	////	1111	brown silty clay lenses. CLAY and S LT laminations, with very fine-grained sand, laminations a	re hard,		₩ L	69.7 ft of 2 in dia., Sch. 80 PVC solid riser, including 4.0 ft		
	100	CLIVIL			sand and silt are light grey, stiff, dry to moist. FAT CLAY with very fine-grained sand, olive grey, slight blocky texture	verv		\otimes	of stickup		
20 –	100				stiff, moist. @ 18 ft, SAA with fine fine-grained sand and silt partings. @ 23 ft, plugged augers due to swelling clays. Soils logged by cuttings			₩ 1	Cement/bentonite grout from 0		
7- <u>2</u> 2	n/a							₩ -	ft bgs to 56.6 ft bgs		
30 —	000000000							₩	×4		
30	n/a							፠∣			
4.5	n/a							₩ ⊦			
40 -	n/a	СН						₩ L	<u> </u>		
13.000	II/a	CIT						\otimes	▼.		
7.	n/a							XX t			
50 -	n/a							₩ -	-		
90 <u>20</u>	400				@ 53 ft, SAA olive grey with very fine-grained sand, dry to moist.			₩ L			
	100							%			
60 -	100				@ 62 ft, sandy fat clay.				-		
9. 52	100	SC		<i>!///</i>	CLAYEY SAND, very fine-grained, olive grey, very dense, moist.		/////				
70		CH			SANDY FAT CLAY, sand is very fine-grained, olive grey, laminated wit grey very fine-grained sand very stiff moist.	h light			Bentonite pellet seal from 56.6 ft bgs to 64 ft bgs		
70 —	100	SC			CLAYEY SAND, very fine-grained, olive grey, dense, moist.				Toolean Champaradomini Socie		
3.	100		1.7.7.7	(////	@ 75.5 ft, minor carbonaceous material.				Silica size 10/20 filter pack from 64 ft bgs to 78 ft bgs		
80 —									10 ft of 2 in dia., 0.010 in slot,		
00									Sch. 80 PVC screen from 65.7		
V-								-	to 75.7 ft bgs		
90 —									_ 0.35 ft, 2 in dia., Sch. 80 PVC		
S-1000									end cap		
9- 73									78 ft BOH		
100 —								-	=		
2,7											
110 —								10	<u> </u>		
17.0											
120											
	CI NOV RO	1278	100	8 2007		9 0	1 2200000	2018 G 81			

_			DDO IE	0.7	DOD	INO ID	
			PROJE		100000000000000000000000000000000000000	ING ID:	
				itoring Well Installations		V-109D	
3	<u> </u>		LOCAT		WEL		
59				ergy White Bluff Landfill		V-109D	-
_		4_		NG CONTRACTOR:		THING:	EASTING:
	E F	ТГ	McC	Cray Drilling, LLC	194	18605.7 ft	1265389.0 ft
			11.1	NG EQUIPMENT:	GRO	UND SURFACE ELEV.:	TOC ELEVATION:
	ASS	<u>oclates</u>		750x	368	3.7 ft	371.31 ft
water resou	irces i enviror	mental consul	DRILLII	NG METHOD:	TOT	AL DEPTH:	DEPTH TO WATER: (10/3/2015)
			8.25	" Hollow Stem Auger	112	2.0 ft below TOC	80.12 ft below TOC
LOGGE	n pv.			ING METHOD:		E STARTED:	DATE COMPLETED:
)/RSI	i	5-fo	ot continous split barrel	7/2	1/2015	7/21/2015
				•			
Depth (feet)	REC	nscs	Graphic Log	Description		50-10 STATE	ell
ept	%	ns	Gra	Description		Const	ruction
ă			4 80			(a)	
0 -				400 S000 400			
U -	66	SM		Non-CCR road base. SANDY SILT, light brown to tan, soft, dry.			Above ground completion including 2X2 ft concrete pad,
2,=	100	10010000		FAT CLAY, light grey with reddish orange mottles, stiff, moist. @ 5 ft, laminated with light grey to tan silt, some laminations are hard. Clay		1 📖 📖 -	four pipe bollards, and locking
10 –		CH		changes to light grey with orange mottling, moist to dry. @ 8 ft, SAA, changes to light brown. @ 9.9 ft, a ~3 inch layer of peat-like organic	color natter. @		outer steel casing
10 -	100			10.1 color changes to brown. @ 10 6 ft, color changes to olive grey. a 3 inch lens of silt with fine-grained sand, tan to light brown, soft, dry	@ 12.7 ft, to moist.		101.6 ft of 2 in dia., Sch. 80
172	80	SM		S LTY SAND, very fine-grained, tan with orange and brown mottling,	moist.		PVC solid riser, including 2.6 ft
20 -	100			FAT CLAY and S LT, fat clay is thinly laminated with silt and very fine		·	of stickup
20 -	100	CH/ML		sand, clay is olive grey, medium stiff, moist. @ 18 ft, SAA, clay lamin stiff to hard. @ 21.7 ft, SAA, clay has some very fine-grained sand, is	ations are laminated		Cement/bentonite grout from 0
74 <u>2</u> 2	80	SM		with organic matter. S LTY SAND, very fine-grained, medium dense, light grey, moist.			ft bgs to 44.1 ft bgs
30 -		CH		FAT CLAY and S LT, fat clay is olive grey and thinly laminated with li silt and very fine-grained sand. Clay is stiff to medium stiff, moist.	to make the		
30 -	90	SM		S LTY SAND, fine-grained, dense to medium dense, light grey, some laminations.	clay		
4-	90	Sivi		@ 33 ft, SAA, saturated to 34.5 ft, then wet to very moist.			
40 -	5.00000	014/14		S LTY SAND to SANDY SILT, medium dense/medium stiff, light grey		H XXX XXX	
40 -	100	SM/ML		from 38 to 40 ft, then very moist to wet. Sand content decreases with SANDY SILT, light grey, medium stiff, very moist to wet.	depth.		
7 -	100	ML CH/ML	///	FAT CLAY and S LT, clay is olive grey, very stiff, and laminated with	silt, light		Bentonite pellet seal from 44.1 ft bgs to 96 ft bgs
50 -	400	OFFINE		grey to greenish grey, soft, moist. FAT CLAY, olive grey, laminated with light grey very fine-grained san	d. Clay is		R bgs to 50 R bgs
50 -	100			blocky, stiff.			
<u>602</u>	n/a			@ 53 ft, plugged augers due to swelling clays. Soils logged by cutting	s to 88 ft.		
60 -	50009000						
00 -	n/a						l
9.5	n/a						
70 —							
70	n/a						l
200	n/a	СН					Ţ I
80 -	31						*
80 -	n/a						
V-	100			@ 88 ft, SAA, fat clay, olive grey, blocky, with some very fine-grained	sand,		l
90 —	400			very stiff, moist. @ 89.5 ft, sandy fat clay, olive grey, sand is very fine-grained, very st			
90 -	100			, , , , , , , , , , , , , , , , , , , ,	CONTRACTOR CO		l
45	100						Silica size 10/20 filter pack
100 -	400						from 96 ft bgs to 112 ft bgs
100 –	100						10 ft of 2 in dia., 0.010 in slot,
2,7	100	SC		CLAYEY SAND, very fine-grained, very dense, olive grey, very moist Clay content decreases with depth.	to wet.		Sch. 80 PVC screen from 99.0
110 –		СН		SANDY FAT CLAY, olive grey, stiff, moist. @ 110 ft, clay is laminated			to 109.0 ft bgs
110		OIT		grey silt. Clay is light grey, olive grey, and greenish grey. @ 110 ft, si laminations are more prominent.	t		0.35 ft, 2 in dia., Sch. 80 PVC
16°-	1						end cap
120							112 ft BOH
NOTES	S. Hor	izontal a	nd vertical da	ata are based on survey conducted by Harmon Survey	ving Sen	tember 2015 (AR State Pl	ane NAD83 and NAVD88)

PROJECT: Monttoring Well Installations MW-110D			9	DDO IFCT.	DO:	ODING ID.
LOCATION: Entergy White Bluff Landfill DRILING CONTRACTOR: Walker-Hill Environmental, Inc. 1947917.7 1266655.5 1266655.5 DRILING CONTRACTOR: Walker-Hill Environmental, Inc. 1947917.7 GROUND ELEVATION: 335.3 ft 336.26 ft DEPTH TO WATER (4/3/2017) Sonic with 4x6 core and case * SAMPLING METHOD: Sonic with 4x6 core and case * SAMPLING METHOD: SAMPLING METHOD: DESCRIPTION DATE STARTED: 2/22/2017 DATE COMPLETED 2/22/2017 Well Construction Alover ground completion includes and sonic mentioning to be united date, case of case (as), and concept and, for in School, mentioning to be united date, and concept and case (as), and concept and, for in School, mentioning to be united date, and concept and, for in School, mentioning to be united date, and concept and, and concept and concept and, and concept and concept and concept and, and concept a				APC INTERCOLOGICAL MARKET AND APPLICATION OF THE AP	1000000000	
Entergy White Bluff Landfill DRILLING CONTRACTOR Walker-Hill Environmental, Inc. Walker-Hill Environmental, Inc. Particulary 1266655.5 DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING ENTEROD: DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING ENTEROD: DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING EQUIPMENT: Geoprobe 8150LS DRILLING ETHOD: Sonic with 4x6 core and case * SAMPLING METHOD: Continuous with 10 ft 4 in diameter core barrel DATE STARTED: 2/22/2017 DATE STARTED: 2/22/2017 Well Construction DATE STARTED: 2/22/2017 Well Construction DATE STARTED: 2/22/2017 Well Construction SART CLAY Color gray with immediate grain survey. SARTY CLAY Color gray, with immediate of and and very five grained and, sand other content immediate aft made. SARTY CLAY Color gray, with immediate of and and very five grained and, sand other content immediate aft made. SARTY CLAY Color gray, with immediate of and and very five grained and, sand other content immediate aft made. SARTY CLAY Color gray, with immediate of and and very five grained and, sand other content immediate aft made. SARTY CLAY Color gray, with immediate of and and very five grained and, sand other content immediate of and and very five grained and, sand other content immediate of and and very five grained and, sand other content immediate of and and very five grained and, sand other content immediate of and and very five grained and date. CH SARTY SLIT Institute the very slift, only to somewhat rook. At 100 SART CLAY Color gray, with immediate of and and very five grained and and slift by to somewhat rook. CALY Color plays with immediate of and and very five grained and and slift by to somewhat rook. CALY Color plays with immediate of and and very five grained and and slift by to somewhat rook. CALY Color plays with immediate of and and very five grained and and slift by to somewhat rook. CALY CLAY Color play		1		The state of the s		Mark Control
DRILLING CONTRACTOR: Walker-Hill Environmental, Inc. Walker-Hill Environmental, Inc. Page 19 1 100 DRILLING COUNTRACTOR: Walker-Hill Environmental, Inc. GROUND ELEVATION: GROUND ELEVATION: 338.26 ft 338.26 ft DRILLING METHOD: Sonic with 4x6 core and case * BALLING METHOD: Sonic with 4x6 core and case * BALLING METHOD: Sonic with 4x6 core and case * BALLING METHOD: DESCRIPTION SONIC WITH A In diameter core barrel DATE STARTED: 2/22/2017 DATE COMPLETED: 2/23/2017 Well Construction Above ground completion includes 3x3 ft concerte pad, flour pipe- orange of started and started an					7,8070	
Walker-Hill Environmental, Inc. 1947917.7 1266655.5 DRILLING EQUIPMENT: GROUND ELEVATION: 338.26 ft TO CELEVATION: 339.26 ft TO CELEVATION: 349.26 ft TO CELEVATION: 339.26 ft TO CELEVATION: 339		73	4_		11 11 11 11	The second secon
## ASSOCIATE LINE ## CONTINUES COLUMN NOTE TO CHECK TON: ## CONTINUES COLUMN TO CHECK TON: ## C					NAME OF TAXABLE PARTY.	
Geoprobe 8150LS Geoprobe 8150LS DRILLING METHOD: Sonic with 4x6 core and case * LOGGED BY: AJP Continuous with 10 ft 4 in diameter core barrel Description	- Associatos Ital			80 9 EV PANNET PAAR PARA 19 20	8570	12000010
Seoprobe 813ULS DRILLING METHOD: Sonic with 4x6 core and case * DRILLING METHOD: Sonic with 4x6 core and case * SAMPLING METHOD: Sonic with 4x6 core and case * BAMPLING METHOD: Sonic with 4x6 core and case * DATE STARTED: 2/23/2017 DATE COMPLETED: 2/23/2017 Well Construction Above ground completion includes 5x8 if concepted party for your depth in with depth, medium datase, dry be mediated as the case with depth in with depth, medium datase, dry be mediated as the case with depth, medium datase, dry be mediated datased in the case with depth, hard to very stiff, dry to concentral mobil. SCISM OH OH CL CLAYEY SAND is SILTY SAND; yellows down with the very stiff, dry to concentral mobil. SANDY CLAYEY SLT, light gray sandy all with drive gray increased dated, sand content decreases with depth, hard to very stiff, dry to concentral mobil. CAMPY SAND is SILTY SAND; for the silt of the very stiff, dry to concentral mobil. CLAYEY SAND is SILTY SAND; playing or sandy all with drive gray mediated as to case, mobil. CLAYEY SAND is SILTY SAND; playing and selected or silt and very stiff, dry to concentral mobil. CLAYEY SAND is SILTY SAND; playing and colored gray, decrease, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, derive gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, derive, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray, dense, mobil. CLAYEY SAND is SILTY SAND; play gray to clave gray. CLAYEY SAND is SILTY SAND; play gray to clave gray. CLAYEY SAND is SILTY SAND; play gray to clave gr	water recou				100000000	
FIN Project # Months	mater resou	1009 Lettaliali	mental consultants		3	335.3 ft 338.26 ft
SOLIC WITH 4X6 CORE and Case* 84.4 ft below TOC 33.24 ft below TOC 33.25 ft both Tother Both ToC 33.24 ft below TOC 33.25 ft both Tother Both Tother 33.25 ft both Tother Both Tother 33.25 ft both To	FTN Pr	oiect#		AND	0020	DEI III TO III I EI (II SI ZOII)
AJP Continuous with 10 ft 4 in diameter core barrel Description Description Under Construction PILL SAMOY CLAYE' SLT, field gar raised, and such depth, medium dense, dry SLTYSAND, relative raised set with depth, remotiles, medium dense follower, which will be set day with depth, medium dense, dry SLTYSAND, relative raised set with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which is set day with depth, remotiles, medium dense follower, which dense medium dense, dry SLTYSAND, representation with depth, remotiles, medium dense follower, which dense medium dense, and the set of the set of stricture of the set of			001	Sonic with 4x6 core and case *	84	84.4 ft below TOC 33.24 ft below TOC
SARDY CLAYEY S.T. Spill gary sends graved SARDY CLAYER graved	LOGGE	D BY:		SAMPLING METHOD:	DAT	
The content of the property o	AJP	10		Continuous with 10 ft 4 in diameter core barrel	2	2/22/2017 2/23/2017
The content of the property o	eet)	"	<u>.0</u>		o	Mall
The content of the property o	th (f	SCS	aph	Description		vveii .
The content of the property o	Dept	_	2 6	1	%	Construction
FILL MIL MIL MIL MIL MIL MIL MIL MIL MIL						
ML SMM SANDY CLAYE'S LT, compaining ray, less day with depth, norade mortee, dry to solution dense, dry to read the production dense to loose, moist. SMM SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, medium dense to loose, moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, medium self, moist or somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, medium self, moist or somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, medium self, moist or somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, medium self, moist or somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, and to very stiff, dry to somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, and to very stiff, dry to somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, and to very stiff, dry to somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth, and to very stiff, dry to somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth and to very stiff, dry to somewhat moist. AND SANDY CLAYE'S LT, light gray sandy sit with olive gray lenses of clay that increase with depth and light gray sand and all was different increases with depth and light gray sand gray lenses of last with gray last with gray last last gray last with gray last last gray last last gray last last gray last last gray last la	0 —	FILL	~~~~~	FIL consisting of paphalina evanita graval	-	
SM				SANDY CLAYEY S LT, orangish gray, less clay with depth, medium dense, dry		casing.
SANDY CLAYEY S.17, sight gray eardy sit with olive gray lenses of day that increase with depth, medium selff, most. SANDY CLAYEY S.17, sight gray eardy sit with olive gray lenses of day that increase with depth, medium selff, most. SANDY CLAYEY S.17, sight gray eardy sit with olive gray lenses of day that increase with depth, medium selff, most. FAT CLAY, olive gray, with laminations of all and very fine-grained sand, aand content decreases with depth, hard to very stiff, dry to somewhat moist. CH CH SONDY CLAYEY S.17, sight gray eardy sit with olive gray in the self and the s	- 5	2.		S LTY SAND, yellowish orange transitioning to tan with depth, orange mottles,	80	74.3 π of 4 in Scn. 40 PVC
SANDY CLAYEY SLT, light gray sandy eith with clive gray lenses of cley that increase with depth, modium stiff, moist. 30 - ML SANDY CLAYEY SLT, light gray sandy eith with clive gray lenses of cley that increases with depth, modium stiff, moist. © 20, dark olive clay lenses interfedded with stift, very stiff, moist to somewhat moist. FAT CLAY, clive gray, with laminations of sit and very fine-grained sand, sand content content decreases with depth, hard to very stiff, dry to somewhat moist. © 40 ft, color changes from olive gray to dark olive. © 48 ft, color changes to dark olive gray. © 48 ft, color changes to dark olive gray. © 50 onewhat moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. 100 SC/SM O The ft of a in dia. 0.010 in slot, Sch 40 PVC end cap at the moist of the gray of the gray day with the increase of the day gray day. 100 The ft of a in dia. 0.010 in slot, Sch 40 PVC end cap at the first of the gray of the gray of the gray day at the misses of gray day with th	10 —	SM		medium dense to loose, most.		
SANDY CLAYEY S.T. light gray sandy sit with olive gray lenses of clay that increase with depth, median stiff, moist. © 20 ft, dark clive clay lenses interbedded with alt, very stiff, dry to somewhat moist. FAT CLAY, olive gray, with laminations of sit and very free-grained, verved, moist. CH SC/SM CLAYEY SAND to Sitry SAND, light gray to olive gray, dense, moist. CLAYEY SAND to Sitry SAND, very dark gray to olive gray, fine-grained, varved, moist. CH CH SC/SM CH CH SC/SM CH CH CH SC/SM CLAYEY SAND to Sitry SAND, very dark gray to olive gray, fine-grained, varved, moist. CLAYEY SAND to Sitry SAND, very dark gray to olive gray, fine-grained, varved, moist. CLAYEY SAND to Sitry SAND, very dark gray to olive gray, fine-grained sand and sity and, fine-grained, dense to medium dense, wet. ② 80 to 81 ft, clay lenses thicken with depth. CH CH CH CH CH CH CH CH CH C	3000	100.000				Congrete compet from 0 to 4 ft has
AU CH SC/SM CLAYEY SAND to Sitt Y SAND, light gray to olive gray, dense, moist. 100		S.		SANDY CLAYEY S LT. light gray sandy silt with olive gray lenses of clay that	100	Concrete cement noin o to 4 it bgs
FAT CLAY, olive gray, with laminations of silt and very fine-grained sand, sand content decreases with depth, hard to very stiff, dry to somewhat moist. 100 40 — CH 60 — CH 60 — CLAYEY SAND to Silt Ty SAND, light gray to olive gray, dense, moist. CLAYEY SAND to Silt Ty SAND, very dark gray to olive gray, dense, moist. CLAYEY SAND to Silt Ty SAND, very dark gray to olive gray, laminated clayey and and and silty sand, fine-grained, dense to medium dense, wet. 60 — CH 60 — CH 60 — CLAYEY SAND to Silt Ty SAND, very dark gray to olive gray, laminated clayey and and and silty sand, fine-grained, dense to medium dense, wet. 60 — CH 60 — CH 60 — CLAYEY SAND to Silt Ty SAND, very dark gray to olive gray, laminated clayey and and silty sand, fine-grained, dense to medium dense, wet. 60 — CH 60 — CH 60 — CLAYEY SAND to Silt Ty SAND, very dark gray to olive gray, laminated clayey and and silty sand, fine-grained, dense to medium dense, wet. 60 © BU to 81 ft, clay lenses thicken with depth. 60 — TO Silica size 20/40 filter pack from 68 to 81.4 ft bgs. 70 In ft of 4 in dia. 0.010 in slot, Sch 40 PVC end cap silt, haid to very stiff, moist to somewhat dry.	20 —	ML		increase with depth, medium stiff, moist.		20 Cement/bentonite grout from 4 to
CH	10 Tel 10 M				E common	
CH Or St to 40 ft, sand content increases with depth, hard to very stiff, dry to somewhat moist. Or 40 ft, color changes from olive gray to dark olive. Or 40 ft, color changes from olive gray to dark olive. Or 40 ft transitions to FAT SANDY CLAY, hard to very stiff, dry to somewhat moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, fine-grained, varved, moist. SC/SM SC/SM Or 50 ft of 4 in dia. 0.010 in slot, Sch and the pith. CH FAT CLAY, vive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. Or 50 ft of 4 in dia. Sch 40 PVC end cap Drilling terminated at 90 ft bgs	120	Æ			100	
CH Or St to 40 ft, sand content increases with depth, hard to very stiff, dry to somewhat moist. Or 40 ft, color changes from olive gray to dark olive. Or 40 ft, color changes from olive gray to dark olive. Or 40 ft transitions to FAT SANDY CLAY, hard to very stiff, dry to somewhat moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist. CLAYEY SAND to SILTY SAND, light gray to olive gray, fine-grained, varved, moist. SC/SM SC/SM Or 50 ft of 4 in dia. 0.010 in slot, Sch and the pith. CH FAT CLAY, vive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. Or 50 ft of 4 in dia. Sch 40 PVC end cap Drilling terminated at 90 ft bgs	30 —	S				30
Somewhat moist. @ 40 ft, color changes from olive gray to dark olive. 100 @ 48 ft, color changes to dark olive gray. 80 - CH SC/SM CL CL CL CL CL SC/SM CH SC/SM CH SC/SM CH CH CH CH CH CH CH CH CH C	100000					
CH C		0.			100	
Bentonite seal from 25 to 68 ft bgs 60 - SC/SM CL CL LEAN SANDY CLAY, gray to olive gray, dense, moist. CL SC/SM BO CL LEAN SANDY CLAY, gray to olive gray, fine-grained, varved, moist. CL SC/SM BO CHAYEY SAND to SILTY SAND, very dark gray. LEAN SANDY CLAY, gray to olive gray, fine-grained, varved, moist. CLAYEY SAND to SILTY SAND, very dark gray to olive gray, fine-grained dense, wet. BO BO BO BO BO BO BO BO BO B	40 -					
80 - CH SC/SM CLAYEY SAND to SiLTY SAND, light gray to olive gray, dense, moist. 100	40	CH		W 40 IL, COOR CHANGES HOTH ONCE GIAY to dark out c.		
## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray. ## String of the first color changes to dark onive gray, dense, moist. ## String of the first color changes to dark onive gray, dense, moist. ## String of the first color changes to dark only to onive gray, dense, moist. ## String of the first color changes to dark only the first color changes from the	-	8			100	
80 - CL SC/SM SC/S	50 -			@ 48 ft, color changes to dark olive gray.		
80 - SC/SM TO - CL SC/SM RO	30	4				
SC/SM CL CLAYEY SAND to SiLTY SAND, light gray to olive gray, dense, moist. CL CL CLAYEY SAND to SiLTY SAND, light gray to olive gray, dense, moist. CL CL CLAYEY SAND to SiLTY SAND, very dark gray. CL SC/SM SC/SM CLAYEY SAND to SiLTY SAND, very dark gray to olive gray, laminated clayey sand and silty sand, fine-grained, ense to medium dense, wet. @ 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. THE CLAYEY SAND to SiLTY SAND, very dark gray to olive gray, laminated clayey and and silty sand, fine-grained, varved, moist. 100 100 The clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 Drilling terminated at 90 ft bgs	<u></u>	S		@ 57 to 60 ft transitions to EAT SANDY CLAY hard to very stiff dry to	100	
SC/SM CL CL CL CL CL CL CL SC/SM 80 - CL CL CL CL CLAYEY SAND to SILTY SAND, light gray to olive gray, fine-grained, varved, moist. CL SC/SM 80 - CL CL CLAYEY SAND to SILTY SAND, very dark gray to olive gray, fine-grained, varved, moist. CLAYEY SAND to SILTY SAND, very dark gray to olive gray, laminated clayey sand and silty sand, fine-grained, dense to medium dense, wet. 80 - CH SC/SM 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. TAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. Drilling terminated at 90 ft bgs	60	8		somewhat moist.		
OCL SC/SM SC	00			CLAYEY SAND to SILTY SAND, light gray to olive gray, dense, moist.	1	
CL SC/SM SO - CH CH SCH SANDY CLAY, gray to olive gray, fine-grained, varved, moist. CLAYEY SAND to SILTY SAND, very dark gray to olive gray, laminated clayey sand and silty sand, fine-grained, dense to medium dense, wet. © 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. Silica size 20/40 filter pack from 68 to 81.4 ft bgs 100 to 64 in dia. 0.010 in slot, Sch 40 PVC 80 0.1 ft 4 in dia. Sch 40 PVC end cap Drilling terminated at 90 ft bgs	12	SC/SM			100	
CL SC/SM SC/SM CHAYEY SAND to SILTY SAND, very dark gray to olive gray, laminated clayey sand and silty sand, fine-grained, dense to medium dense, wet. 80 - CH 80 - CH SC/SM SC/SM CLAYEY SAND to SILTY SAND, very dark gray to olive gray, laminated clayey sand and silty sand, fine-grained, dense to medium dense, wet. 80 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 100 100 100 100 100 100 100 100 1	70 —			@ 69 ft, very dark gray.		Silica size 20/40 filter pack from 68
SC/SM Sand and silty sand, fine-grained, dense to medium dense, wet. © 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 The sand and silty sand, fine-grained, dense to medium dense, wet. © 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 Drilling terminated at 90 ft bgs	70	CL		LEAN SANDY CLAY, gray to olive gray, fine-grained, varved, moist.	1	to 81.4 ft bgs
80 - SC/SM CH © 80 to 81 ft, clay lenses thicken with depth. FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 TAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 90 - On Drilling terminated at 90 ft bgs	-	ý			100	1000 1000
FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and silt, hard to very stiff, moist to somewhat dry. 100 100 100 100 100 100 100 1	90	SC/SM		ACCOUNTS CORRECT WIND A CLASS CONTROL AND COLORS CONTROL CONTROL CONTROL AND CONTROL OF CONTROL CONTROL OF CONTROL CONTROL OF CONTROL C		
90 - CH 100 - 90 Drilling terminated at 90 ft bgs	00 -	,		FAT CLAY, olive gray clay with thin lenses of light gray fine-grained sand and	1	0.1 ft 4 in dia. Sch 40 PVC end cap
	-	СН		siit, naru to very stiff, moist to somewhat dry.	100	D -
	00					On Drilling torminated at 00 ft have
100 —	90 -	e e				90 Drilling terminated at 90 ft bgs
100 —	=	2.				
	400	S				8 400
	100 —					100
	12	3				
	445					
110 —	110 —	i.e				<u> 110</u>
	=	ÿ				-
120	120					120
NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).		NOTES	Horizontal a	and vertical data are based on the Harmon Surveying report dat	ed Ma	

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

* 10 in temporary outer casing was drilled to 25 ft bgs

			PROJECT:	PO	ORING ID:
			Monitoring Well Installations	DOMESTICAL PROPERTY.	MW-112D
9	Ė		LOCATION:	100000000000000000000000000000000000000	ELL ID:
				7,8033	MW-112D
		4-	Entergy White Bluff Landfill		
1	DRILLING CONTRACTOR:			NAME OF TAXABLE PARTY.	ORTHING: EASTING:
	Walker-Hill Environmental, Inc.			850	1949090.5 1265440.9
water res	ASSI nortyne sermos	mental consultants	DRILLING EQUIPMENT:	1997-09-00	ROUND ELEVATION: TOC ELEVATION:
HUM 199	sources / criming	IIIviinii voitoumino	Geoprobe 8150LS	3	375.5 ft 378.29 ft
FTN	Project #		DRILLING METHOD:	TO	DEPTH TO WATER: (4/3/2017)
	20-1516-	001	Sonic with 4x6 core and case *	1	113.3 ft below TOC 87.93 ft below TOC
LOGG	SED BY:		SAMPLING METHOD:	DAT	ATE STARTED: DATE COMPLETED:
AJI	P/DLD		Continuous with 10 ft 4 in diameter core barrel	2	2/12/2017 2/21/2017
et)		o		0	\A/- II
Depth (feet)	nscs	Graphic Log	Description	REC	Well
ept	ž	2 3	Becompain	%	
Ω					Above ground completion includes
0 -	- GP I			<u> </u>	3x3 ft concrete pad, four pipe
U	- FEE		F LL, consisting of nepheline syenite gravel. S LT, brownish tan, rootlets, soft, moist.	<u> </u>	bollards, and locking outer aluminum casing.
	CH		LEAN CLAY, light brown with rootlets and rounded gravel (~ 1 in), medium stiff, moist.	65	
40	ML		FAT CLAY, gray with reddish-brown mottles, very stiff, moist. S LT, light gray to tan with orange mottles, laminated with clayey silt and sandy		including 2.8 ft of stickup (vented
10	CII		silt, very stiff, dry to moist. FAT SANDY CLAY, light gray to olive gray, sand is very fine-grained, very stiff,	2	below cap)
	CH		moist. @ 12.5 to 13.5 ft, with organic matter. @ 13.5 ft, with dark brown sandy lenses and greenish gray silt lenses, very stiff, moist.	100	Concrete cement from 0 to 2.7 ft
	SM		S LTY SAND, very fine-grained, light to dark brown, with iron oxide staining, few thin clay lenses, loose to medium dense, moist.	8	bgs bgs
20 -	CUAN		FAT CLAY and SANDY S LT, olive gray fat clay laminated with greenish grey	1	20
	CH/ML		sandy silt. Clay layers are very stiff, silty sand layers are medium dense.	100	
	SM		organic matter, medium stiff, moist.		Cement/benontite grout from 2.7 to 50 ft bgs
30	_ Сп		FAT CLAY, olive gray transitioning to greenish gray with depth some sandy lenses, with dark brown organic matter/old roots, very dense, moist.		
			S LTY SAND, very fine-grained, tan to brown with some iron oxide staining, dense, moist.	400	
	SM		@ 35 ft, olive gray to light gray, with small amounts of organic matter.	100	'I
40	SIVI		@ 39 ft, with some clay laminations.		₩ ₩ - 40
				6059400	
	1		S LT, with very fine-grained sand, light grey, decreasing sand with depth, soft to	100	?I ₩ ₩ F
50	ML CH/ML		stiff, moist. @ 48 to 50 ft. increasing clay content medium stiff moist.		
	CHANL		FAT CLAY and S LT, olive gray fat clay with laminations of light gray sandy silt, medium stiff, moist.	1	
	28		FAT CLAY, olive gray with light gray silt lenses that decrease with depth, very stiff to hard, dry to somewhat moist.	100	
60			@ 60 to 60.5 ft, blocky texture, organic matter.		60
00			,		
	120			100	
70			@ 70 ft, silt lenses thicken but become sparse, very stiff to hard, dry to		70
70	CH		somewhat moist.		
	; – 6			100	Bentonite seal from 50 to 97 ft bgs
00					
80 -			@ 80 ft, homogeneous texture with no silt lenses.		
	-			100	
90	a ji			<u> </u>	90
	sc		CLAYEY SAND, fine-grained, dark grey to olive gray, poorly graded, moist.	100	
	The state of the s		FAT CLAY to LEAN CLAY, olive gray with light gray silt lenses that thicken and	- 50	Silica size 20/40 filter pack from 97
100	CH/CL		decrease in frequency with depth, very stiff to hard, dry to somewhat moist.		100 to 111ft bgs
	-00:5:		CLAYEY SAND to SILTY SAND, fine-grained, very dark gray to olive gray, decreasing clay with depth, medium dense, moist to wet.	100	10 ft of 4 in dia. 0.010 in. slot, Sch
	SC/SM			100	40 PVC.
110	SM			‡	110 0.1 ft 4 in dia. Sch 40 PVC end cap
			FAT CLAY, olive gray with light gray silt lenses that decrease with depth, very stiff to hard, dry to somewhat moist.	100	
	CH			100	Drilling terminated at 120 ft bgs
	1		1	1	120
120	Mark Construction		and vertical data are based on the Harmon Surveying report dat	o Mariana and Mil	

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88)

* 10 in temporary outer casing was drilled to 54 ft bgs

								7
			PROJECT:	145-155-5	RING ID:			
	<u> </u>		Monitoring Well Installations	N	IW-113D			
<u>-</u>			LOCATION:	WE	LL ID:			
=		4_	Entergy White Bluff Landfill	N	1W-113D		,00·	
			DRILLING CONTRACTOR:	NO	RTHING:		EASTING:	
			Walker-Hill Environmental, Inc.	1	947692.9		126742	9.5
Associates Ltd.			DRILLING EQUIPMENT:	GR	OUND ELEVATIO	N:	TOC ELEV	ATION:
water resources / environmental consultants			Geoprobe 8150LS	3	01.7 ft		305.46	ft
ETNIB			DRILLING METHOD:	ТО	TAL WELL DEPT	1 :	DEPTH TO	WATER: (4/3/2017)
	roject # 20-1516-0	001	Sonic with 4x6 core and case	4	6.9 ft below T	oc	8.36 ft l	pelow TOC
	ED BY:		SAMPLING METHOD:	DA	TE STARTED:		DATE COM	MPLETED:
AJP			Continuous with 10 ft 4 in diameter core barrel	2	/23/2017		2/24/20	17
8 11		888					service at a livery	
Depth (feet)	8	Graphic Log	Description	REC			Well	
pth	nscs	Grap	Description	% R		Cor	struction	
Ď		Y		2.				l completion includes
pomon							3x3 ft concret	completion includes e pad, four pipe
0 -	FILL	*****	F LL, consisting of nepheline syenite gravel. FAT CLAY, oxidized orange, laminated with light gray clayey fine-grained sandy		***	∥	bollards, and	locking outer
			FAT CLAY, oxidized orange, laminated with light gray clayey fine-grained sandy silt, silt content increases with depth, rootlets, soft, very moist. @ 2.7 ft, SANDY CLAY, yellowish orange with lenses of fine-grained sandy silt that are light gray	70		•	aluminum cas	
			with bright orange mottling, very soft, moist.				36.8 ft of 4 in including 3.8	Sch 40 PVC ft of stickup (vented
10 -	- 5				XX XX		0 below cap)	
	011		@ 15 ft, with fine-grained sand, tan with bright orange limonite stained silts and	100		20		nite grout from 0 to
	СН		fine-grained sand, some subrounded to rounded fine-grained gravel to 17 ft, medium stiff, moist. @ 17 ft, color changes to very dark gray.	100			11 ft bgs	
20 -	- 4					- 2	ma in the second state of the second	I from 11 to 29.5 ft
١.	Sec		@ 22ft, dark olive gray with very little sand or silt, very hard, dry.	100			bgs	
·				100		II.		
30 -	ý		CLAYEY SAND, dark olive gray with lenses of dark gray-green sand and light	R		- 3		40 filter pack from
	V235231		gray sand, dense, moist.	8(2)(2)			29.5 to 43.5 ft	bgs
	SC			100			10 ft of 4 in di	a. 0.010 in slot, Sch
40 -			S LTY SAND, fine-grained, olive gray with thin layers of clayey sand, loose to	12		L	0 40 PVC	
	SM SC/SM	////	medium dense. CLAYEY SAND to SILTY SAND, dark olive gray with lenses of dark gray-green	E CONTRACTOR			0.1 ft 4 in dia	Sch 40 PVC end cap
	CH		sand and light gray sand, with organic matter and dark gray-green clay layers that increasing with depth, dense, moist.	100		-	U.TIL 4 III GIG.	Sch 401 VO chu cap
50 -	CH		FAT CLAY with sand, olive gray with lenses of light grey fine-grained sand and silt clay thickness increases with depth very stiff moist.	ic .		II .	O Drilling termin	ated at 50 ft bgs
			Cont. City Unionices indiceases with depth 1017 sun iniciae.	15			3	3
60 -						_ 6	0	
DIFO.						100	_	
	± k					-7		
70 -						_ 7	0	
							5	
	-8					-		
80 -						_ 8	n	
30 -						_ {	U	
,						-2		
00						272	0	
90 -						- 8	U	
	22							
100 -							00	
						200		
110 -						_	10	
120						10	20	
120	NOTES:	Horizontal s	l and vertical data are based on the Harmon Surveving report dat	od Ma	arch 26, 2017 (AD			th and NAV/DOO)

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

Borehole and/or well IDs were updated to reflect the nomenclature used for EPA CCR Rule network.

		18			
	PROJECT:	0.000000	RING ID:		
<u> </u>	Monitoring Well Installations	N	/W-114D		
<u>=</u>	LOCATION:	WE	ELL ID:		
	Entergy White Bluff Landfill	N	/W-114D		
	DRILLING CONTRACTOR:	NO	RTHING:	EASTING:	
Walker-Hill Environmental, Inc.		1	949371	1268520.5	
Associatos Ital			OUND ELEVATION:	TOC ELEVATION:	
water resources / environmental consultan	Geoprobe 8150LS	3	47.3 ft	350.22 ft	
	DRILLING METHOD:				
FTN Project #	Sonic with 4x6 core and case *	120	2.2 ft below TOC	DEPTH TO WATER: (4/3/2017) 60.55 ft below TOC	
R07920-1516-001	ACTIVITIES OF THE CONTROL OF THE CON	1000		The common and a second co	
LOGGED BY:	SAMPLING METHOD:		TE STARTED:	DATE COMPLETED:	
AJP/DLD	Continuous with 10 ft 4 in diameter core barrel		/8/2017	2/13/2017	
Depth (feet) USCS Graphic Log		O	1/	Vell	
epth (fee USCS Graphic Log	Description	REC	1000	0.0000000000000000000000000000000000000	
pd ⊃ p2	1	%	Cons	truction	
		+		Above ground completion includes	
0 -			0	3x3 ft concrete pad, four pipe	
FILL FILL	F LL, consisting of nepheline syenite gravel.	ei e		bollards, and locking outer aluminum casing.	
- FILL XXXX	∺	30		82.1 ft of 4 in Sch 40 PVC	
	S LTY SAND, very fine-grained, brownish tan, with clay lenses, moist.	13		including 2.9 ft of stickup (vented	
10 - SM	@ 10 ft, with orange iron oxide stains.			below cap)	
		100			
ML	S LT, with very fine grained sand, tan with orange oxide stains, very moist to we	100000		Concrete cement from 0 to 1.2 ft bgs	
20 - "	FAT CLAY, dark gray, medium stiff to soft, moist, some silt in the upper 1.5 ft.		₩ ₩ - 20	bg5	
	@ 21 5 ft, with thin laminations of gray silt, very stiff, moist.	400			
		100			
30 -			- 30	Cement/bentonite grout from 1.2 to	
	@ 32 ft, very few to no silt laminations, very stiff, moist.			22 ft bgs	
- /////		100			
40 —	@ 40 ft, homogeneous texture.		- 40		
- /////		100			
CH CH					
50 — CH			50	Bentonite seal from 22 to 76 ft bgs	
		100			
		100			
60 —			60		
		100			
70 —	@ 68 5 ft, with very fine-grained sand. @ 70 ft, SANDY FAT CLAY, sand content increases with depth.		70		
- //////		100		Silica size 20/40 filter pack from 76	
00	S LTY SAND, very fine-grained, dark gray to dark olive gray, dense, very moist.	8		to 90 ft bgs	
80 — SM	@ 80 ft, silt content decreases with depth.	100	80	10 ft of 4 in dia. 0.010 in. slot, Sch	
	POORLY GRADED SAND with SILT, fine-grained, dark gray, medium dense,			40 PVC	
SP-SM	very moist.	100		0.1 ft 4 in dia. Sch 40 PVC end cap	
90 —	FAT CLAY, dark gray, with some thin laminations of gray silt, very stiff, moist.	400	90		
CH		100		Drilling terminated at 95 ft bgs	
60 K			100 Co. 1	Driving terrimated at 33 it bys	
100 —			— 100	1	
110			110	,	
-			-		
120			120	i	
	al and vertical data are based on the Harmon Surveying report da	ated Ma			

NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

* 10 in temporary outer casing was drilled to 22 ft bgs

			I		
			PROJECT:	10553599	BORING ID:
_1	À.		Monitoring Well Installations	1700011007	MW-115D
			LOCATION:	180	VELL ID:
		4	Entergy White Bluff Landfill	N	MW-115D
				NO	ORTHING: EASTING:
				1	1947569.4 1265229.9
-	ASSOCIATES LTD, DRILLING EQUIPMENT: water resources / environmental consultants Commando 201501.00			GR	GROUND ELEVATION: TOC ELEVATION:
water reso	urces / enviro	nmental consultants	Geoprobe 8150LS	3	358.5 ft 361.27 ft
ETUD			DRILLING METHOD:	TO	OTAL WELL DEPTH: DEPTH TO WATER: (4/3/2017)
	roject # 0-1516-	001	Sonic with 4x6 core and case *	9	93.3 ft below TOC 74.70 ft below TOC
LOGG	ED BY:		SAMPLING METHOD:	DA	ATE STARTED: DATE COMPLETED:
	/DLD		Continuous with 10 ft 4 in diameter core barrel	2	2/10/2017 2/13/2017
					00 0000 00 1000
Depth (feet)	nscs	Graphic Log	Description	REC	ଧ୍ର Well
pth	ns	Grag	Description	% R	Construction
ď		¥		- 2	
0.7000					Above ground completion includes 3x3 ft concrete pad, four pipe
0 -	FILL	XXXXXX			bollards, and locking outer
	CL		LEAN CLAY, tan, highly and thinly laminated with light tan silt and very fine-grained sand, hard, dry.	46	aluminum casing.
	CL		4	10	83.2 ft of 4 in Sch 40 PVC including 2.7 ft stickup (vented
10 -	5		S LTY SAND, very fine-grained, tan with orange mottles, some clay laminations	-	= 10 below cap)
			in the upper first foot, soft, dry.	40	
l '	SM			40	Concrete cement from 0 to 2.8 ft
20 -			* * * * * * * * * * * * * * * * * * *		
			S LT with fine-grained sand, light gray, highly laminated with clay with lenses of	9500	Cement/bentonite grout from 2.8 to
	ML		sandy silt (~ 6 in), stiff to soft, moist.	100	00 45 ft bgs
30 -					₩ ₩ 30
00			FAT CLAY, olive gray, thinly laminated with light gray very fine-grained sand and silt, very stiff, dry.		
				86	6 📉 💥 -
40					
40 -			@ 40 to 45 ft, decreasing laminations.		
			@ 45 to 50 ft, increased laminations of light gray very fine-grained sand and silt,	90	o
			very stiff, dry.		
50 -	011		@ 50 ft, no laminations.		50
	СН		g 30 K, NO Idillinadoris.	100	
				100	
60 -					Bentonite seal from 45 to 75 ft bgs
				400	
Ι ΄	1			100	
70 -	8		@ 69 ft, FAT SANDY CLAY, olive gray, very stiff, dry.		70
154.5%/54				75,000,000	
'	ONUGO		S LTY SAND to CLAYEY SAND, fine-grained, dark gray to olive gray, very	100	Silica size 20/40 filter pack from 75
80 -	SM/SC		dense, moist.		to 90 ft bgs
50 _	CL/CH		LEAN SANDY CLAY to FAT SANDY CLAY, olive gray, very stiff, dry,	100	
,	-		CLAYEY SAND, fine-grained, olive gray, very dense, moist.		- 40 PVC
00	SC			400	00 0.1 ft 4 in dia. Sch 40 PVC end cap
90 -	СН		FAT CLAY, highly laminated with light gray fine-grained sand and silt, very stiff, dry.	100	90
,	-				_ Drilling terminated at 95 ft bgs
100 -	8				- 100
					21
I					
110 -	N.				— 110
	No.				
120					120
	NOTES:	Horizontal	and vertical data are based on the Harmon Surveying report da	ted Ma	March 26, 2017 (AR State Plane NAD83 South and NAVD88).

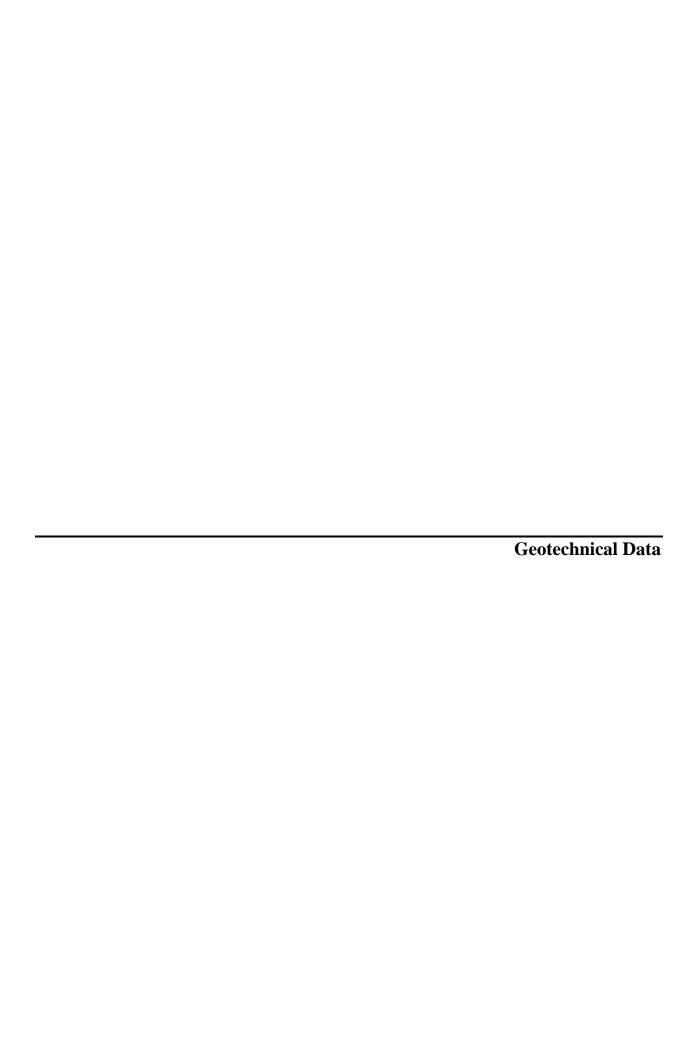
NOTES: Horizontal and vertical data are based on the Harmon Surveying report dated March 26, 2017 (AR State Plane NAD83 South and NAVD88).

* 10 in temporary outer casing was drilled to 35 ft bgs

<u> </u>								2
			PROJECT:	BORING	GID:			
	J.		Supplemental GHI	MW-1	118D			
2			LOCATION:	WELL ID):			
0.22			Entergy White Bluff Landfill	MW-1	118D			
9	= 3		DRILLING CONTRACTOR:	2000000				EASTING
	= F		Secret West And School or Secretary Countries Secretary Secre	NORTHING				Martin Bath Strategical
	Acc	oclatos Ital	Tri-State Testing Services	1949079.9 ft GROUND ELEVATION:				1269297.5 ft
water reso	urces / envilron	mental consultants	DRILLING EQUIPMENT:	DISCONO DE CONTRA DE		ATION:		TOC ELEVATION:
1000		morning well-watering	CME 750x (SN: 299708)	Distriction of the second	26.2 ft 330.07 ft			330.07 ft
ETN P	roject#		DRILLING METHOD:	TOTAL	DEPTH fi	rom TOC		DEPTH TO WATER from TOC:
	0-0143-	001	8.25" Hollow Stem Auger (HSA)	71.41	ft			39.73 (2/12/2014)
LOGGI	ED BY:		SAMPLING METHOD:	DATE ST	TARTED:			DATE COMPLETED:
DLD			5-foot continous soil sampler	11/4/2	2013			11/5/2013
et)	0.000	0						
Depth (feet)	nscs	Graphic Log	Description	% REC ST SPT				/ell
ept	S	Ga	Description	SP SP		Co	ns	truction
Ď		500,000		MANAGEMENT TO SERVICE			E	CONTRACTOR OF STATEMENT CONTRACTOR CONTRACTO
<u>(5</u>)					т		E	
0 -	CL	///////	LEAN CLAY, very sitty, yellowish orange, stiff, dry. @ 1 5 ft bgs, color changes to very light grey with orange mottles. @ 3 ft bgs, orangish brown mottles.	100	XX	\bowtie	ΙĒ	Above ground wellhead
3-			FAT CLAY, tan with orangish brown and reddish brown mottles, blocky texture,	100	XX	\otimes	ΙE	completion including 2x2 ft concrete pad, four pipe bollards,
			hard, dry. @ 6 ft bgs, color changes to yellowish orange.	ST 8-10'	XX	XX	ΙĒ	and locking outer steel casing
10 -			@ 7 ft bgs, color changes to grayish tan to medium grey. Blocky texture, very stiff to hard, dry.	100	XX	***		61.0 ft of 2-inch dia., Sch. 40
			@ 10 ft bgs, with orange mottles, blocky texture, very stiff to hard. @ 13 ft bgs, color changes to tan to dark tan, with silt partings.	G8997		\bowtie	ΙĒ	PVC solid riser including 3.9 ft of
100				100		\approx	탇	stick up (vented below cap)
20 -	4		@ 20 ft bgs, color changes to dark tan to dark pinkish tan, blocky texture, very stiff, moist.	ST 18-20' 100		\bowtie	ΙĒ	
			@ 23 ft color is dark pinkish tan to reddish tan. @ 26 ft bgs, color changes to very dark grey.	100		\bowtie	lÈ	
10-	СН		@ 28 ft bgs, with some very fine-grained sand partings, sand is dark grey, blocky texture, very stiff, moist.	100		\bowtie	ΙĒ	Cement/Bentonite grout from 0 ft
30 -			texture, very suit, moist.	100		\bowtie	ᄩ	to 53.9 ft bgs
10 mm				100	I 💥	\approx	ΙĒ	
3	1			100	- XX	\bowtie	ΙĒ	
40 -			@ 38 to 42 ft bgs, increased sand content.	400		\bowtie	ľ	
40			@ 43 to 45 ft bgs, laminated.	100		\bowtie	ΙĖ	
607	-		2500 SSR0	100		\bowtie	Æ	
50			CLAYEY SAND, dark grey, sand is very fine-grained, medium dense, moist to	6 -8- 11		\bowtie	ΙĒ	
50 -	00		very moist. @ 53 ft bgs, wet and less clay.	100		\bowtie	Œ	Bentonite pellet seal (slow
64	SC		Construction of the consequent construction of the construction of	100		<i>>>></i>		release) from 53.9 ft bgs to 56.0 ft bgs
rearced.		///////	POORLY GRADED SAND, very fine-grained, with some silt and clay, dark grey,				ΙĒ	Sillica size 10/20 filter pack from
60 -	SP		wet.	100			ΙĒ	56.0 ft bgs to 68 ft bgs
10.4	35			400			ΙÉ	10.0 ft of 2-inch dia., 0.010-inch
535	CH		FAT CLAY, dark grey laminated with very light grey silt and very fine-grained sand, stiff, moist.	100				slotted Sch. 40 PVC screen 0.35 ft, 2-inch dia., Sch. 40 PVC
70 -	-		COUNTY, SUIT, HICHST.	1			ΙĒ	end cap
							ΙĒ	Drilling terminated at 68 ft bgs
95	1						E	
80 -							IF	
							ΙĒ	
84	1						ΙĒ	
90 -							E	
30							ΙĒ	
3.5	1						lF	
400							ΙĒ	
100 -	1				200		F	
0.5								
							=	
110 -								
900							E	
							E	
120								

_								
			PROJECT:	BORING	G ID:			
	į.		Supplemental GHI	PZ-5				
1	=		LOCATION:	WELL ID):			
		-	Entergy White Bluff Landfill					
			DRILLING CONTRACTOR:	PZ-5	3		EASTING	
			Tri-State Testing Services	1947135.1 ft				1268229.8 ft
Associates Ltd.		oclates Ltd.	DRILLING EQUIPMENT:		ND ELEVA			TOC ELEVATION:
water resources / environmental consultants		mental consultants	CME 750x (SN: 299708)	0.000404.004.00	2000			322.81 ft
			DRILLING METHOD:	00000000	TOTAL DEPTILE TOO			A CONTRACTOR STANDARD CONTRACTOR AND ADMINISTRACTOR ADMINISTRACTOR AND ADMINISTRACTOR AND ADMINISTRACTOR AND ADMINISTRACTOR AND ADMINISTRACTOR AND ADMINISTRACTOR AND ADMINISTRACTOR ADMINISTRACTOR AND ADMINISTRACTOR ADMINISTRACTOR AND ADMINISTRACTOR ADMINIST
	roject#		8.25" Hollow Stem Auger (HSA)	74.0		oni roc		DEPTH TO WATER from TOC: 43.95 (2/12/2014)
R0604	0-0143-0	001		13 5550	88	0		
LOGGE			SAMPLING METHOD:	STORAGE TENER	TARTED:			DATE COMPLETED:
DLD		Ť	5-foot continous soil sampler	11/6/	2013			11/6/2013
Depth (feet)	S	. <u>e</u>		O			1/	Vell
₽	nscs	Graphic Log	Description	% REC ST SPT		0-		truction
Dep		ت ق	5.	% 0 0		CC	ns	truction
					1	TA	E	
0 -		,,,,,,,,,	LEAN CLAY, very silty with some very fine-grained sand, light grey with orange	400	- KXX	W.V.	ıΕ	Above ground wellhead
0.000	CL		mottles, medium stiff, dry. @ 15 ft bgs, color changes to very light grey with orange mottles.	100	-	\bowtie	ΙF	completion including 2x2 ft
2.5	CL/CH		LEAN to FAT CLAY, more plastic with depth, silty with very-fine-grained sand, light grey to grey with orange mottles, very stiff, dry.	100	****	\bowtie	ΙĖ	concrete pad, four pipe bollards, and locking outer steel casing
10 -	GC	16/-/SB	@ 8 ft bgs_clay is less plastic. CLAYEY GRAVEL, with coarse-grains sand, sand and fines are oxidized, gravel	100		\bowtie		and locking odder steer casing
			is up to 2-inches, sub-rounded, various colors. Dry to moist. FAT CLAY, tan becoming pinkish tan with depth, blocky texture, with some silt	- 100		XX	ΙĒ	53.6 ft of 2-inch dia., Sch. 40 PVC solid riser including 3.7 ft of
85	1		partings. very stiff to hard.	100		\approx	ΙĒ	stick up (vented below cap)
20 -			@ 13 ft bgs, laminated with very light grey silt, clay has blocky texture, very stiff, moist.	ST 18-20'		\bowtie	Œ	1000
20			@ 20 ft bgs, blocky texture with very few silt partings.	100	- XX	\otimes	ΙĒ	Cement/Bentonite grout from 0 ft to 43.6 ft bgs
16°=	1		@ 23 to 24 ft bgs, laminated, few silt partings, partings are oxidized.	80	- XX	\otimes	ᄩ	10 45.0 It bgs
20			0.001.005.01	ST 28-30'		\otimes	ΙE	
30 —	CH		@ 30 to 30.5 ft bgs, with organic matter. @ 30.5 ft bgs, color changes to greenish grey to dark grey.	100		\bowtie		
3. -	-		@ 32.5 ft bgs, color changes to dark grey, very stiff, moist.	90		\approx	ŀ	
40			@ 37 to 38 ft bgs, color changes to dark brownish grey. @ 38 ft bgs, color changes to dark grey, blocky texture, stiff, moist.			\bowtie		
40 —			@ 40 ft bgs, with very fine-grained sand, very stiff to hard.	100		\bowtie	7	Bentonite pellet seal (slow
65	-		@ 43 ft bgs, with few light grey silt partings.	100		<i>?</i> //	ΙĒ	release) from 43.6 ft bgs to 46.3 ft bgs
			@ 49 ft bgs, SANDY (FAT) CLAY, sand is very fine-grained, dark grey, very stiff, moist.	0.505			lE	3
50 —			CLAYEY SAND, very fine-grained, dark grey, medium dense, moist.	100			Œ	Sillica size 10/20 filter pack from
86	SC		2 1 (2) APP (1) (1) (1) (1) (1) (2) (1) (2) (4) (2) (4) (2) (4) (2) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	100			ΙE	46.3 ft bgs to 73 ft bgs
15501645	CH		FAT CLAY, with very fine-grained sand, dark grey, stiff to hard, moist.	100			ΙĒ	20.0 ft of 2-inch dia., 0.010-inch
60 —	1		CLAYEY SAND, very fine-grained, dark grey, medium dense, moist. @ 63 to 68 ft bgs, highly laminated with light grey silt, and greenish grey fat clay.	80			Æ	slotted Sch. 40 PVC screen
y -	SC			100			ΙĒ	
				100			lF	
70 -	СН		FAT CLAY, dark grey, highly laminated with light grey silt, very stiff, moist.	100			ΙĒ	0.35 ft, 2-inch dia., Sch. 40 PVC
	J.,			1			ΙĒ	end cap Drilling terminated at 73 ft bgs
							Œ	
80 -	1						E	
\$100							E	
							ΙF	
90 -	-						ΙĖ	
							Œ	
8.5	1							
100 -	-						II ⊨	
							E	
9.5	1						Ē	
110 —]							
aradenia								
82	†						E	
120							E	
	The second second							

No.								
			PROJECT:	BORING	G ID:			
			Supplemental GHI	PZ-7				
			LOCATION:	WELL ID):			
2			Entergy White Bluff Landfill	PZ-7				
	= 5		DRILLING CONTRACTOR:	NORTHING				EASTING
			Asset Austral And Asset	1948088.1 ft				Michigan
-	Accoplator Ltd		1			TION	1269806.2 ft	
water resou	rces / environ	mental consultants	DRILLING EQUIPMENT:	DOM: NO PLAN	ND ELEVA	HON:		TOC ELEVATION:
		minutal verious anne	CME 750x (SN: 299708)	0.000.000.000	00.5 ft 304.10 ft			304.10 ft
ETN D	roject#		DRILLING METHOD:	TOTAL	DEPTH fro	om TOC:		DEPTH TO WATER from TOC:
	0-0143-0	001	8.25" Hollow Stem Auger (HSA)	51.2	ft			25.35 (2/12/2014)
LOGGE	D BY		SAMPLING METHOD:	DATE S	TARTED:			DATE COMPLETED:
DLD			5-foot continous soil sampler	11/5/	2013			11/5/2013
et	0.0000			Tow.				
Depth (feet)	nscs	Graphic Log	Description	% REC ST SPT			W	'ell
bt	ns	Ga Po	Description	ST SP		Co	nst	ruction
ă				252021000001		STEAMS		2 V 20 V
1500					-	Г	Ē	
0 -	FILL	111111111111111111111111111111111111111	FILL - TOP SOIL	100	XX	XX	E	Above ground wellhead
			FAT CLAY, tan with orange mottles, blocky texture, very stiff, dry. @ 3 ft bgs, with some silt, color changes to dark pinkish tan with orange mottles,	0.000	***	XX	E	completion including 2x2 ft concrete pad, four pipe bollards,
5.00			blocky texture, very stiff to hard, dry. @ 8 to 12 ft bgs, with very fine-grained sand. (Attempted to collect Shelby tube	100		\bowtie	F	and locking outer steel casing
10 —			sample at 13 to 15 ft bgs, sampler broke off in bore hole due to very stiff clays. Poor recovery to depth of borehole due to interference of the broken tube).	100		\bowtie	E	40.8 ft of 2-inch dia., Sch. 40
4.5	СН			50		\bowtie		PVC solid riser including 3.6 ft of stick up (vented below cap)
20 —	OII			00		\bowtie	E	Cement/Bentonite grout from 0 ft
20			@ 22 ft bgs, color changed to dark grey, very stiff, moist.	60		\bowtie		to 31.0 ft bgs
1/ -			@ 24.5 ft bgs, with very fine-grained sand.	15 -8- 7		₩	_	
2535545			@ 28 ft bgs, SANDY (FAT) CLAY, sand is very dark grey, dark grey, medium stiff, very moist.	70 65	- XX	\bowtie	E	
30 —			\$ 0.00 \$ 0.00 min	70.0040	XX	>>>		Bentonite pellet seal (slow release) from 31.0 ft bgs to 35.4
y -			CLAYEY SAND, dark grey, sand is very fine-grained, medium dense, saturated.	65				ft bgs
				03			E	Sillica size 10/20 filter pack from 35.4 ft bgs to 48 ft bgs
40 —	SC			20				
4-7				20				10.0 ft of 2-inch dia., 0.010-inch slotted Sch. 40 PVC screen
		[:/:/:/:/:/		1573.55			-	0.05.0.0.1.1.0.1.40.01/0
50 —								0.35 ft, 2-inch dia., Sch. 40 PVC end cap
8.2								Drilling terminated at 48 ft bgs
60 —	ł						-	
23								
70 —							Ė	
l							E	
45	1							
80 -								
50							Ξ	
82								
00							E	
90 —	1							
-							Ε	
No. of the Control of							Ė	
100 —							E	
110 —								
grade								
en e	1							
120				L.				



ENTERGY WHITE BLUFF PLANT WELL ID NUMBER KEY.

EPA CCR Well ID on Site Map	Well ID on Geotechnical Data Test Forms ^(a)
MW-101S	MW-1S
MW-101D	MW-1D
MW-102S/MW-102D ^(b)	MW-2S/MW-2D
MW-103S/MW-103D ^(b)	MW-3S/MW-3D
MW-104S/MW-104D ^(b)	MW-4S/MW-4D
MW-105S/MW-105D ^(b)	MW-5S/MW-5D
MW-106S/MW-106D ^(b)	MW-6S/MW-6D
MW-107D	MW-7D
MW-108D	MW-8D
MW-109D	MW-9D
MW-110S/MW-110D ^(b)	MW-10S/MW-10D
MW-111S	MW-11S
MW-112D	MW-12D
MW-113D	MW-13D
MW-114D	MW-14D
MW-115D	MW-15D
MW-118D	PZ-8

Notes:

- Geotechnical soil samples were collected and tested using well IDs associated with the landfill's ADEQ solid waste permit (Permit No. 0199-S3N-R3).
- b. Well cluster consisting of two closely spaced wells with different depths. Due to scale, these are represented as one well on the site map.

CHECK

REVIEW APPROVE Com

USCS:

CL

MOISTURE / DRY DENSITY CURVE **ASTM D 698** Method A

Mechanical Standard Dry Method

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER:

1303118

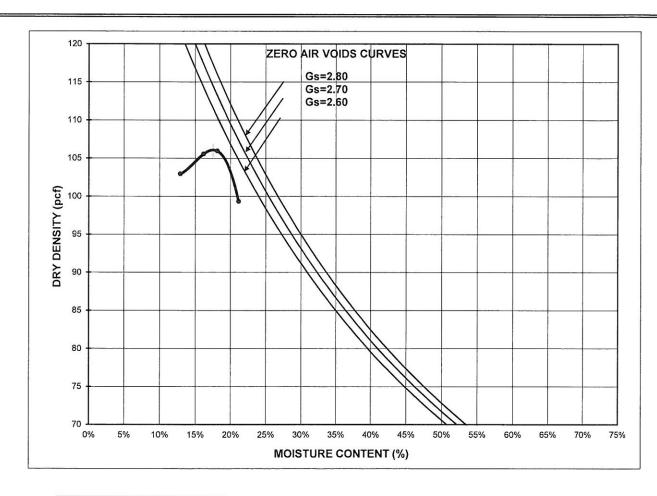
SAMPLE ID:

FTN B-9

DEPTH: 13.0-18.0'

SAMPLE TYPE:

Bulk



	Dry	Moisture
Specimen	Density	Content
Number	(pcf)	(%)
1	102.9	12.9%
2	105.5	16.2%
3	105.9	18.1%
4	99.3	21.1%
l		1

Maximum Dry Density (pcf)	106.0
Optimum Moisture (%)	17.5
Corrected Maximum Dry Density (pcf)	
Corrected Optimum Moisture (%)	

As-Received Moisture Content 30.3%

% Retained on # 4 siev % Retained on 3/8" siev % Retained on 3/4" siev

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e	
e	

DESCRIPTION	SILTY CLA	AY and fine to coarse SAND; yellowish brown.
USCS	CL	

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FLEXIBLE WALL PERMEABILITY ASTM D 5084

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WHITE BLUFF LF/AR					
PROJECT NUMBER	1303118					
SAMPLE ID	FTN B-9	13.0-18.0'				
SAMPLE TYPE	Bulk					

1200	100 m
Board #	3
Flow Pump	1
Flow Pump Speed	7
Technician	TW

COMMENTS The sample was remolded to 95.5% of the Maximum Dry Density and OPTM + 2.8% (using ASTM D 698).

- 1										
	Sample Data, Initial		_	<u> </u>	Sample Data, Final					
	Height, inches	2.994	B-Value, f	0.98	Height, inches	3.017			Sample	
	Diameter, inches	2.790	Cell Pres.	90.0	Diameter, inches	2.798	WATER CONTENTS	S	Initial	
	Area, cm²	39.44	Bot. Pres.	80.0	Area, cm ²	39.67	Wt Soil & Tare, i	g	585.14	
١	Volume, cm ³	299.95	Top Pres.	80.0	Volume, cm ³	303.99	Wt Soil & Tare, f	g	486.55	
	Mass, g	585.14	Tot. B.P.	80.0	Mass, g	598.49	Wt Tare	g	0.00	
	Moisture Content, %	20.3	Head, max.	104.10	Moisture Content, %	23.01	Wt Moisture Lost	g	98.59	
	Dry Density, pcf	101.2	Head, min.	104.10	Dry Density, pcf	99.87	Wt Dry Soil	g	486.55	
	Spec. Gravity(assumed)	2.700	Max. Grad.	13.58	Volume Solids, cm ³	180.20	Water Content	%	20.26%	
	Volume Solids, cm3	180.20	Min. Grad.	13.58	Volume Voids, cm ³	123.79			2	
	Volume Voids, cm3	119.75			Void Ratio	0.69				
	Void Ratio	0.66	e.		Saturation, %	90.4%	DESCRIPTION			
	Saturation, %	82.3%				-	SILTY CLAY and fin	e to coarse S	SAND; yellowish	h brown.
		Flow Pump	p Rate	2.35E-04 cm ³ /sec	USCS	CL				

SE 11 PM		TIM	E FUNCTIO	ONS, SECO	NDS	***	dP					
DATE	DAY	HOUR	MIN	TEMP (°C)	dt (min)	dt,acc (min)	dt (sec)	dt,acc	Reading (psi)	Head (cm)	Gradient	Permeability (cm/sec)
01/03/14	41642	9	45	21.3	0	0	0	0	1.48	104.10	13.58	4.2E-07
01/03/14	41642	9		S-100 52	,	,						
NO. 2010 AND ADDRESS OF THE PARTY OF THE PAR	0.0000000000000000000000000000000000000		50	21.3	5	5	300	300	1.48	104.10	13.58	4.2E-07
01/03/14	41642	9	55	21.3	5	10	300	600	1.48	104.10	13.58	4.2E-07
01/03/14	41642	10	0	21.3	5	15	300	900	1.48	104.10	13.58	4.2E-07 *
01/03/14	41642	10	5	21.3	5	20	300	1200	1.48	104.10	13.58	4.2E-07 *
01/03/14	41642	10	10	21.3	5	25	300	1500	1.48	104.10	13.58	4.2E-07 *
01/03/14	41642	10	15	21.3	5	30	300	1800	1.48	104.10	13.58	4.2E-07 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 4.2E-07 cm/sec **

ciii/sec

DATE 1/3/14
CHECK O MM
REVIEW APPROVE

Final 606.45 494.56 8.21 111.89 486.35 23.01%

DATE

CHECK

REVIEW APPROVE 12/27/13 **Qem**

PWIN

brown.

ML

USCS:

MOISTURE / DRY DENSITY CURVE **ASTM D 698** Method A

Mechanical Standard Dry Method

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER:

1303118

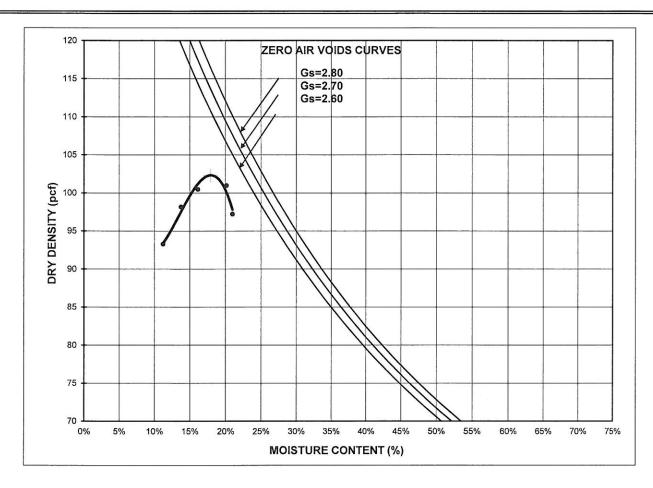
SAMPLE ID:

FTN B-9

DEPTH: 23.0-28.0'

SAMPLE TYPE:

Bulk



	Dry	Moisture
Specimen	Density	Content
Number	(pcf)	(%)
1	93.3	11.2%
2	98.1	13.8%
3	100.5	16.1%
4	101.0	20.1%
5	97.2	21.0%

Maximum Dry Density (pcf)	102.3	_
	102.5	_
Optimum Moisture (%)	17.9	
Corrected Maximum Dry Density (pcf)		
Corrected Optimum Moisture (%)		

As-Received Moisture Content

% Retained on # 4 sieve % Retained on 3/8" sieve % Retained on 3/4" sieve

DESCRIPTION	sandy CLAYEY SILT, fine to medium; grayish brown.
USCS	ML

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APPROVE	1

FLEXIBLE WALL PERMEABILITY **ASTM D 5084**

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE FTN/ENTERGY WHITE BLUFF LF/AR PROJECT NUMBER 1303118 SAMPLE ID FTN B-9 23.0-28.01 SAMPLE TYPE Bulk

Board # Flow Pump 1 Flow Pump Speed 5 Technician TW

DESCRIPTION

COMMENTS The sample was remolded to 95.0% of the Maximum Dry Density and OPTM + 3.3% (using ASTM D 698).

Sample Data, Initial Height, inches 2.988 B-Value, f 1.00 Diameter, inches 2.790 Cell Pres. 90.0 Area, cm2 39.44 Bot. Pres. 80.0 Volume, cm3 299.35 Top Pres. 80.0 Mass, g 564.75 Tot. B.P. 80.0 Moisture Content, % 76.67 21.2 Head, max. Dry Density, pcf 97.2 Head, min. 76.67 Spec. Gravity(assumed) 2.700 Max. Grad. 10.03 Volume Solids, cm3 172.64 Min. Grad. 10.03 Volume Voids, cm3 126.72 Void Ratio 0.73

Sample Data, Final Height, inches 3.010 Diameter, inches 2.801 Area, cm2 39.75 Volume, cm3 303.94 Mass, g 584.40 Moisture Content, % 25.38 Dry Density, pcf 95.70 172.64 Volume Solids, cm³ Volume Voids, cm3 131.30 Void Ratio 0.76 Saturation, % 90.1%

Sample WATER CONTENTS Initial Wt Soil & Tare, i 564.75 g Wt Soil & Tare, f g 466.12 Wt Tare 0.00 g Wt Moisture Lost 98.63 g 466.12 Wt Dry Soil g Water Content % 21.16%

Sample Final 592.42 474.19 8.29 118.23 465.90 25.38%

Flow Pump Rate

77.8%

Saturation, %

1.26E-03 cm³/sec

USCS

ML

sandy CLAYEY SILT, fine to medium; grayish brown.

		TIM	E FUNCTIO	ONS, SECO	NDS	****		dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
		ji		(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/03/14	41642	11	50	21.3	0	0	0	0	1.09	76.67	10.03	3.1E-06
01/03/14	41642	11	55	21.3	5	5	300	300	1.09	76.67	10.03	3.1E-06
01/03/14	41642	12	0	21.3	5	10	300	600	1.09	76.67	10.03	3.1E-06
01/03/14	41642	12	5	21.3	5	15	300	900	1.09	76.67	10.03	3.1E-06 *
01/03/14	41642	12	10	21.3	5	20	300	1200	1.09	76.67	10.03	3.1E-06 *
01/03/14	41642	12	15	21.3	5	25	300	1500	1.09	76.67	10.03	3.1E-06 *
01/03/14	41642	12	20	21.3	5	30	300	1800	1.09	76.67	10.03	3.1E-06 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 3.1E-06 cm/sec **

DATE 1/3/14 oum CHECK REVIEW APPROVE

0.0013

SC-SM

brown.

DESCRIPTION:

USCS:

15.4

DECEMBER 2013 1303118

MOISTURE / DRY DENSITY CURVE **ASTM D 698** Method A

Mechanical	Standard	Dry Method

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER:

1303118

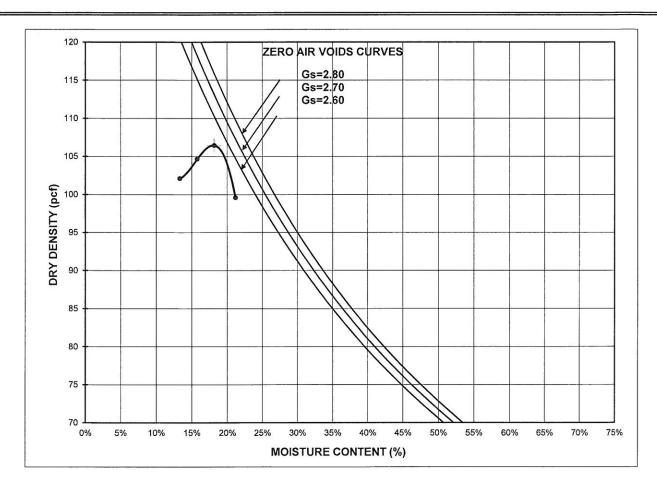
SAMPLE ID:

FTN B-10

DEPTH: 3.0-8.0'

SAMPLE TYPE:

Bulk



	Dry	Moisture
Specimen	Density	Content
Number	(pcf)	(%)
1	102.1	13.3%
2	104.6	15.8%
3	106.4	18.2%
4	99.6	21.1%

Maximum Dry Density (pcf) 106.4 Optimum Moisture (%) 18.2 Corrected Maximum Dry Density (pcf) Corrected Optimum Moisture (%)

As-Received Moisture Content

27.3%

% Retained on # 4 sieve % Retained on 3/8" sieve % Retained on 3/4" sieve

DESCRIPTION	CLAYEY SAND to SILTY SAND, fine to medium; brown.	
USCS	SC-SM	

CHECK OUM REVIEW APPROVE

MOISTURE / DRY DENSITY CURVE **ASTM D 698** Method A

Mechanical Dry Method Standard

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER:

1303118

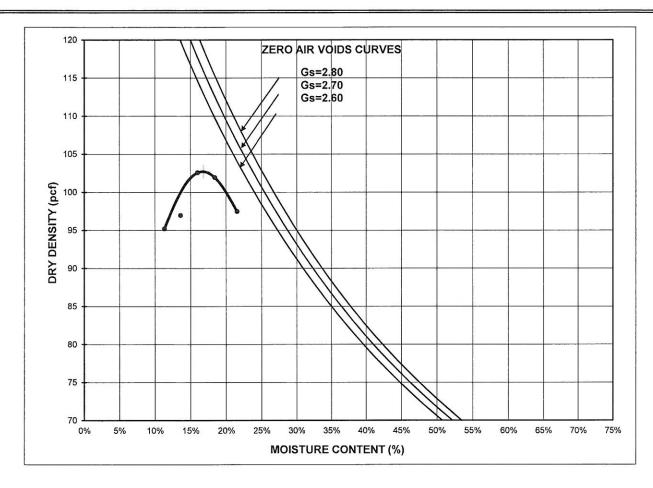
SAMPLE ID:

FTN B-10

DEPTH: 13.0-18.0'

SAMPLE TYPE:

Bulk



	Dry	Moisture
Specimen	Density	Content
Number	(pcf)	(%)
1	95.2	11.3%
2	96.9	13.6%
3	102.6	16.0%
4	101.9	18.4%
5	97.5	21.5%

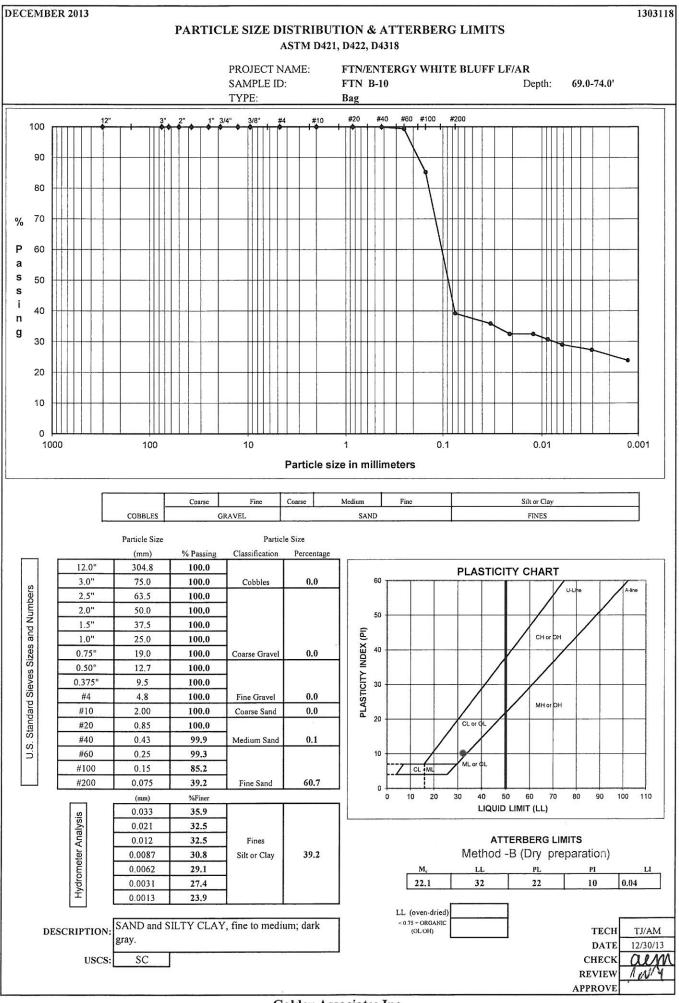
Maximum Dry Density (pcf)	102.7
Optimum Moisture (%)	16.8
Corrected Maximum Dry Density (pcf)	
Corrected Optimum Moisture (%)	

As-Received Moisture Content 31.5%

> % Retained on # 4 sieve % Retained on 3/8" sieve % Retained on 3/4" sieve

DESCRIPTION	sandy SILTY CLAY, fine to coarse; gray.		
USCS	CL		

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APPROVE	



REVIEW

APPROVE

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MOISTURE / DRY DENSITY CURVE **ASTM D 698** Method A

Mechanical Standard Dry Method

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER:

1303118

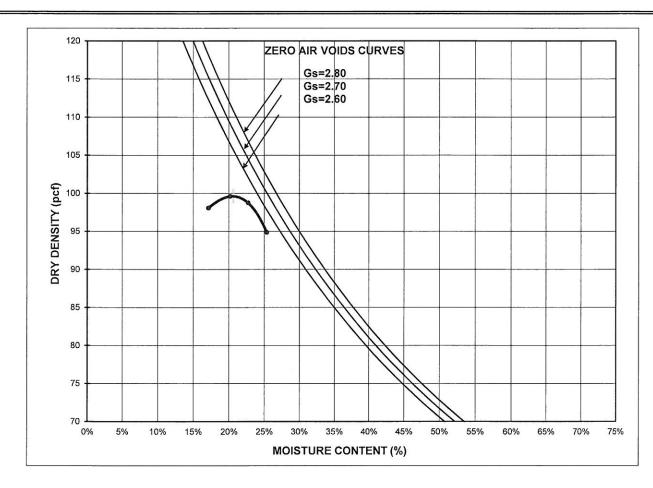
SAMPLE ID:

FTN B-11

DEPTH: 13.0-18.0'

SAMPLE TYPE:

Bulk



	Dry	Moisture
Specimen	Density	Content
Number	(pcf)	(%)
1	98.1	17.1%
2	99.6	20.2%
3	98.7	22.7%
4	94.9	25.4%

Maximum Dry Density (pcf)	99.6
Optimum Moisture (%)	20.6
Corrected Maximum Dry Density (pcf)	
Corrected Optimum Moisture (%)	

As-Received Moisture Content

% Retained on # 4 s	sieve
% Retained on 3/8" s	sieve
% Retained on 3/4" s	sieve

e	4
e	
e	

DESCRIPTION	sandy CLA	YEY SILT, fine to medium; yellowish brown.
USCS	ML	

CHECK	aum
REVIEW	MINIM
APPROVE	

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WI	HITE BLUFF LF/AR
PROJECT NUMBER	1303118	
SAMPLE ID	FTN B-11	13.0-18.0'
SAMPLE TYPE	Bulk	

Board #	4
Flow Pump	1
low Pump Speed	7
Technician	TW

COMMENTS The sample was remolded to 95.3% of the Maximum Dry Density and OPTM + 2.9% (using ASTM D 698).

Sample Data, Initial				Sample Data, Final	
Height, inches	2.989	B-Value, f	1.00	Height, inches	3.011
Diameter, inches	2,790	Cell Pres.	90.0	Diameter, inches	2.777
Area, cm²	39.44	Bot. Pres.	80.0	Area, cm²	39.08
Volume, cm ³	299.45	Top Pres.	80.0	Volume, cm ³	298.85
Mass, g	562.33	Tot. B.P.	80.0	Mass, g	576.47
Moisture Content, %	23.5	Head, max.	98.48	Moisture Content, %	26.63
Dry Density, pcf	94.9	Head, min.	98.48	Dry Density, pcf	95.05
Spec. Gravity(assumed)	2.700	Max. Grad.	12.88	Volume Solids, cm ³	168.61
Volume Solids, cm ³	168.61	Min. Grad.	12.88	Volume Voids, cm ³	130.24
Volume Voids, cm ³	130.84		21 000	Void Ratio	0.77
Void Ratio	0.78			Saturation, %	93.1%
Saturation, %	81.8%				

		Sample
WATER CONTENT	S	Initial
Wt Soil & Tare, i	g	562.33
Wt Soil & Tare, f	g	455.24
Wt Tare	g	0.00
Wt Moisture Lost	g	107.09
Wt Dry Soil	g	455.24
Water Content	%	23.52%

DESCRIPTION

Sample **Final** 584.72 463.53 8.46 121.19 455.07 26.63%

Flow Pump Rate

2.35E-04 cm³/sec

USCS ML sandy CLAYEY SILT, fine to medium; yellowish brown.

100		TIM	E FUNCTIO	ONS, SECO	NDS			dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
		ana a		(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/03/14	41642	11	0	21.3	0	0	0	0	1.40	98.48	12.88	4.5E-07
01/03/14	41642	11	5	21.3	5	5	300	300	1.40	98.48	12.88	4.5E-07
01/03/14	41642	11	10	21.3	5	10	300	600	1.40	98.48	12.88	4.5E-07
01/03/14	41642	11	15	21.3	5	15	300	900	1.40	98.48	12.88	4.5E-07 *
01/03/14	41642	11	20	21.3	5	20	300	1200	1.40	98.48	12.88	4.5E-07 *
01/03/14	41642	11	25	21.3	5	25	300	1500	1.40	98.48	12.88	4.5E-07 *
01/03/14	41642	11	30	21.3	5	30	300	1800	1.40	98.48	12.88	4.5E-07 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 4.5E-07 cm/sec **

DATE 1/3/14 CHECK REVIEW APPROVE

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE PROJECT NUMBER SAMPLE ID SAMPLE TYPE

FTN/ENTERGY W	HITE BLUFF LF/AR
1303118	
FTN B-10	3.0-8.0'
Bulk	

Board #	3	
Flow Pump	1	
Flow Pump Speed	9	
Technician	SDM	
- 11 - 10 - 10 - 10 - 10 - 10 - 10 - 10		_

DESCRIPTION

COMMENTS The sample was remolded to 95.0% of the Maximum Dry Density and OPTM + 2.8% (using ASTM D 698).

Sample Data, Initial Height, inches Diameter, inches Area, cm2 Volume, cm3 Mass, g Moisture Content, % Dry Density, pcf Spec. Gravity(assumed) Volume Solids, cm3 Volume Voids, cm3

Void Ratio Saturation, %

3.007	B-Value, f	0.98
2.790	Cell Pres.	90.0
39.44	Bot. Pres.	80.0
301.25	Top Pres.	80.0
590.50	Tot. B.P.	80.0
21.0	Head, max.	141.38
101.1	Head, min.	141.38
2.700	Max. Grad.	18.60
180.69	Min. Grad.	18.60
120.56		
0.67		
85.1%		

Sample Data, Final	
Height, inches	2.992
Diameter, inches	2.771
Area, cm ²	38.91
Volume, cm3	295.68
Mass, g	599.01
Moisture Content, %	22.78
Dry Density, pcf	102.96
Volume Solids, cm ³	180.69
Volume Voids, cm3	114.99
Void Ratio	0.64
Saturation, %	96.7%

		Sample
WATER CONTENT	rs.	Initial
Wt Soil & Tare, i	g	590.50
Wt Soil & Tare, f	g	487.87
Wt Tare	g	0.00
Wt Moisture Lost	g	102.63
Wt Dry Soil	g	487.87
Water Content	%	21.04%

Sample
Final
606.97
495.89
8.31
111.08
487.58
22.78%

Flow Pump Rate

4.48E-05 cm³/sec

USCS

SC-SM

CLAYEY SAND to SILTY	SAND, fine to	medium; brown.
----------------------	---------------	----------------

		TIM	E FUNCTIO	ONS, SECO	NDS			dP			25	
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/08/14	41647	8	50	20.1	0	0	0	0	2.01	141.38	18.60	6.2E-08
01/08/14	41647	8	55	20.1	5	5	300	300	2.01	141.38	18.60	6.2E-08
01/08/14	41647	9	0	20.1	5	10	300	600	2.01	141.38	18.60	6.2E-08
01/08/14	41647	9	5	20.1	5	15	300	900	2.01	141.38	18.60	6.2E-08 *
01/08/14	41647	9	10	20.1	5	20	300	1200	2.01	141.38	18.60	6.2E-08 *
01/08/14	41647	9	15	20.1	5	25	300	1500	2.01	141.38	18.60	6.2E-08 *
01/08/14	41647	9	20	20.1	5	30	300	1800	2.01	141.38	18.60	6.2E-08 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 6.2E-08 cm/sec **

DATE 1/8/14 CHECK

APPROVE

REVIEW

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE FTN/ENTERGY WHITE BLUFF LF/AR PROJECT NUMBER 1303118 SAMPLE ID FTN B-10 13.0-18.0' SAMPLE TYPE Bulk

		_
Board #	2	
Flow Pump	1	
low Pump Speed	5	
Technician	SDM	
		-

DESCRIPTION

COMMENTS The sample was remolded to 95.5% of the Maximum Dry Density and OPTM + 2.6% (using ASTM D 698).

Sample Data, Initial B-Value, f Height, inches 2.996 0.97 Cell Pres. Diameter, inches 2.790 90.0 Area, cm2 Bot. Pres. 80.0 39.44 Volume, cm3 300.15 Top Pres. 80.0 80.0 Mass, g 562.96 Tot. B.P. Moisture Content, % 19.4 Head, max. 85.81 Dry Density, pcf 98.0 Head, min. 85.81 Spec. Gravity(assumed) 2.700 Max. Grad. 11.25 Volume Solids, cm3 174.56 Min. Grad. 11.25 Volume Voids, cm3 125.59 Void Ratio 0.72 Saturation, % 73.0%

Sample Data, Final Height, inches 3.003 Diameter, inches 2.792 Area, cm2 39.50 Volume, cm3 301.28 Mass, g 593.51 Moisture Content, % 25.93 97.62 Dry Density, pcf 174.56 Volume Solids, cm³ Volume Voids, cm³ 126.72 Void Ratio 0.73 Saturation, % 96.4%

Sample WATER CONTENTS Initial 562.96 Wt Soil & Tare, i g Wt Soil & Tare, f 471.32 g Wt Tare 0.00 g 91.64 Wt Moisture Lost g 471.32 Wt Dry Soil g Water Content % 19.44%

Sample Final 601.41 479.28 8.20 122.13 471.08 25.93%

Flow Pump Rate

1.26E-03 cm³/sec

USCS

CL

indy SILTY	CLAY, fine	e to coarse; gr	ay.	

		TIM	E FUNCTIO	ONS, SECO	NDS			dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/08/14	41647	8	5	19.3	0	0	0	0	1.22	85.81	11.25	2.9E-06
01/08/14	41647	8	10	19.3	5	5	300	300	1.22	85.81	11.25	2.9E-06
01/08/14	41647	8	15	19.3	5	10	300	600	1.22	85.81	11.25	2.9E-06
01/08/14	41647	8	20	19.3	5	15	300	900	1.22	85.81	11.25	2.9E-06 *
01/08/14	41647	8	25	19.3	5	20	300	1200	1.22	85.81	11.25	2.9E-06 *
01/08/14	41647	8	30	19.3	5	25	300	1500	1.22	85.81	11.25	2.9E-06 *
01/08/14	41647	8	35	19.3	5	30	300	1800	1.22	85.81	11.25	2.9E-06 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 2.9E-06 cm/sec **

DATE CHECH REVIEW APPROVE

1/8/14

JANUARY 2014 1303118 PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS ASTM D421, D422, D4318 PROJECT NAME: FTN/ENTERGY WHITE BLUFF LF/AR SAMPLE ID: FTN B-12 Depth: 8.0-10.0 TYPE: UD #20 #60 #100 #200 100 90 80 70 % P 60 a S 50 S 40 n g 30 20 10 0 100 10 0.1 0.01 0.001 1000 Particle size in millimeters Fine Coarse Medium Fine Silt or Clay Coarse COBBLES GRAVEL SAND FINES Particle Size Particle Size % Passing Classification Percentage (mm) 12.0" 304.8 100.0 PLASTICITY CHART 3.0" 75.0 100.0 Cobbles 0.0 60 Standard Sieves Sizes and Numbers 2.5" 63.5 100.0 50.0 100.0 2.0" 50 100.0 1.5" 37.5 1.0" 25.0 100.0 INDEX 40 100.0 0.75" 0.0 19.0 Coarse Gravel 0.50" 12.7 100.0 PLASTICITY 0.375" 9.5 100.0 30 #4 4.8 100.0 Fine Gravel 0.0 MH or OH #10 2.00 93.2 Coarse Sand 6.8 #20 0.85 88.4 CL or QL 0.43 #40 86.6 Medium Sand 6.6 U.S. #60 0.25 85.6 10 #100 0.15 84.5 CL #200 0.075 75.1 11.4 Fine Sand 10 20 40 100 50 80 (mm) LIQUID LIMIT (LL) 0.030 Hydrometer Analysis 0.019 58.6 ATTERBERG LIMITS 0.011 56.0 Method -B (Dry preparation) 0.0081 51.6 Silt or Clay 75.1 0.0057 49.0 0.32 0.0029 45.5 36.5 29 0.0012 39.4 LL (oven-dried) DESCRIPTION: sandy CLAY, fine to coarse; olive brown. < 0.75 = ORGANIC TECH SJ/TW/AM (OLOH) DATE 1/10/14 CH DA USCS: CHECK REVIEW My APPROVE

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE
PROJECT NUMBER
SAMPLE ID
SAMPLE TYPE

FTN/ENTERGY W	HITE BLUFF LF/AR
1303118	
FTN B-12	8.0-10.0

Board #	8
Flow Pump	1
Flow Pump Speed	5
Technician	TW

COMMENTS

Sample Data, Initial Height, inches

Diameter, inches
Area, cm²
Volume, cm³
Mass, g
Moisture Content, %
Dry Density, pcf
Spec. Gravity

Volume Solids, cm³ Volume Voids, cm³ Void Ratio

Saturation, %

	2.935	B-Value, f	0.99
	2.827	Cell Pres.	85.0
	40.50	Bot. Pres.	80.0
	301.89	Top Pres.	80.0
	543.01	Tot. B.P.	80.0
%	36.5	Head, max.	111.84
	82.2	Head, min.	111.84
	2.699	Max. Grad.	14.95
	147.41	Min. Grad.	14.95
	154.48		
	1.05		

Sample Data, Final	
Height, inches	2.946
Diameter, inches	2.847
Area, cm ²	41.07
Volume, cm3	307.33
Mass, g	558.56
Moisture Content, %	40.39
Dry Density, pcf	80.78
Volume Solids, cm ³	147.41
Volume Voids, cm ³	159.92
Void Ratio	1.08
Saturation, %	100.0%

		Sample
WATER CONTENT	rs	Initial
Wt Soil & Tare, i	g	543.01
Wt Soil & Tare, f	g	397.85
Wt Tare	g	0.00
Wt Moisture Lost	g	145.16
Wt Dry Soil	g	397.85
Water Content	%	36.49%

Flow Pump Rate

94.0%

1.26E-03 cm³/sec

USCS

СН

DESCRIPTION sandy CLAY, fine to coarse; olive brown.

TIME FUNCTIONS, SECONDS								dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/03/14	41642	15	0	21.4	0	0	0	0	1.59	111.84	14.95	2.0E-06
01/03/14	41642	15	5	21.4	5	5	300	300	1.59	111.84	14.95	2.0E-06
01/03/14	41642	15	10	21.4	5	10	300	600	1.59	111.84	14.95	2.0E-06
01/03/14	41642	15	15	21.4	5	15	300	900	1.59	111.84	14.95	2.0E-06 *
01/03/14	41642	15	20	21.4	5	20	300	1200	1.59	111.84	14.95	2.0E-06 *
01/03/14	41642	15	25	21.4	5	25	300	1500	1.59	111.84	14.95	2.0E-06 *
01/03/14	41642	15	30	21.4	5	30	300	1800	1.59	111.84	14.95	2.0E-06 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 2.0E-06 cm/sec **

DATE 1/3/14
CHECK DA
REVIEW CWM
APPROVE

JANUARY 2014 1303118 UNCONSOLIDATED / UNDRAINED COMPRESSIVE STRENGTH OF SOILS **ASTM D 2850** PROJECT NAME: FTN/ENTERGY WHITE BLUFF LF/AR PROJECT NUMBER: 1303118 SAMPLE ID: **FTN B-13** Depth: 11.0-13.0' Sample Type: UD **COMPRESSIVE STRENGTH** Confining Dry 3000 Moisture Pressure Density Content DEVIATOR STRESS (psf) (psf) (pcf) (%) 994 96.0 26.8 2 1987 98.9 24.1 2000 2966 102.3 23.1 AVERAGE 99.1 24.7 Normal Axial Rate 1000 Stress @ Strain @ of Axial Failure Failure Strain Specimen (psf) (%) (in/min.) 2176 15.2 0.06 2 4366 14.6 0.06 16 5592 9.2 0.06 **AXIAL STRAIN (%)** FAILURE PICTURE STRESS PATH 3000 $q(\sigma_1 - \sigma_3)/2$ (psf) 2000 e = 0.2754x + 201.31 1000 2000 5000 6000 7000 STRESS PATH RESULTS 15.4 $p(\sigma_1 + \sigma_3)/2(psf)$ 201.3 MOHR STRESS RESULTS MOHR STRESS CIRCLES 16.0 ф 3000 209.4 SHEAR STRESS (psf) Soil Description 2000 sandy SILTY CLAY, fine to coarse, trace fine gravel; yellowish brown. y = 0.2865x + 209.41USCS CL 1000 Comments 1000 2000 6000 7000 TECH **NORMAL STRESS (psf)** SDM DATE 1/7/14 CHECK 20 REVIEW BUM APPROVE

1303118

UNCONSOLIDATED / UNDRAINED COMPRESSIVE STRENGTH OF SOILS ASTM D 2850

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER: 1303118

96.32

SAMPLE ID:

FTN B-13

DEPTH:

11.0-13.0

SAMPLE TYPE

UD

SPECIMEN 1

MACHINE SPEED STRAIN RATE CONFINING PRES.

% SATURATION

0.06 in/min 1.01 %/min 6.9 psi

INITIAL SAMPLE DATA

HEIGHT 5.918 in 15.027 cm DIAMETER 2.868 7.285 in cm **AREA** 6.46 in^2 41.68 cm² VOLUME 38.23 626.50 cm³ WEIGHT 1222.25 % MOISTURE 26.82 SPECIFIC GRAVITY 2.691 WET DENSITY 121.79 pcf DRY DENSITY, calc 96.03 pcf VOLUME OF SOLIDS 358.15 cm³ VOLUME OF VOIDS 268.35 cm^3 **VOID RATIO** 0.75

CORRECTED SAMPLE DATA

 HEIGHT
 5.916
 in

 DIAMETER
 2.868
 in

 AREA
 6.46
 in²

 VOLUME
 38.23
 in³

WATER CONTENT

WT SOIL & TARE, WET 1401.08 g
WT SOIL & TARE, DRY 1143.46 g
WT TARE 182.83 g
WT MOISTURE 257.62 g
WT DRY SOIL 960.63 g
% MOISTURE 26.82

	ACCUMULATED	AXIAL	e		DEVIATOR	(σ ₁)	$(\sigma_1 + \sigma_3)$	$(\sigma_1 - \sigma_3)$
TIME	DEFLECT	LOAD	% STRAIN	AREA	STRESS	devstr+cp	2	2
(min)	(inch)	(lbs)	(in/in)	(in²)	(psf)	(psf)	(p)	(g)
0.0	0.000	1.5	0.0	6.46	0.00	993.60	993.60	0.00
0.1	0.003	9.3	0.1	6.47	173.72	1167.32	1080.46	86.86
0.1	0.006	13.2	0.1	6.47	260.44	1254.04	1123.82	130.22
0.1	0.009	14.8	0.2	6.47	295.91	1289.51	1141.56	147.96
0.2	0.012	16.7	0.2	6.48	338.01	1331.61	1162.61	169.01
0.3	0.015	18.0	0.3	6.48	366.73	1360.33	1176.97	183.37
0.4	0.025	20.4	0.4	6.49	419.36	1412.96	1203.28	209.68
0.8	0.050	24.2	0.8	6.52	501.54	1495.14	1244.37	250.77
1.3	0.075	27.9	1.3	6.55	580.81	1574.41	1284.00	290.40
1.7	0.100	30.5	1.7	6.57	635.28	1628.88	1311.24	317.64
2.1	0.125	33.1	2.1	6.60	689.26	1682.86	1338.23	344.63
2.5	0.150	36.1	2.5	6.63	751.44	1745.04	1369.32	375.72
2.9	0.175	37.6	3.0	6.66	780.62	1774.22	1383.91	390.31
3.3	0.200	39.1	3.4	6.69	809.51	1803.11	1398.36	404.76
4.2	0.250	42.1	4.2	6.75	866.46	1860.06	1426.83	433.23
5.0	0.300	45.1	5.1	6.81	922.28	1915.88	1454.74	461.14
5.8	0.350	46.7	5.9	6.87	947.61	1941.21	1467.41	473.81
6.7	0.400	48.4	6.8	6.93	974.42	1968.02	1480.81	487.21
7.5	0.450	50.2	7.6	6.99	1002.65	1996.25	1494.93	501.33
8.3	0.500	52.1	8.4	7.06	1032.24	2025.84	1509.72	516.12
9.2	0.550	54.0	9.3	7.12	1061.12	2054.72	1524.16	530.56
10.0	0.600	55.1	10.1	7.19	1073.26	2066.86	1530.23	536.63
10.8	0.650	56.6	11.0	7.26	1092.92	2086.52	1540.06	546.46
11.7	0.700	58.6	11.8	7.33	1121.84	2115.44	1554.52	560.92
12.5	0.750	60.1	12.7	7.40	1140.28	2133.88	1563.74	570.14
13.3 14.2	0.800	61.5	13.5	7.47	1156.23	2149.83	1571.71	578.11
15.0	0.850	63.0	14.4	7.55	1173.56	2167.16	1580.38	586.78
15.0	0.900	64.1	15.2	7.62	1182.76	2176.36	1584.98	591.38
16.7	0.950 1.000	65.6	16.1	7.70	1199.04	2192.64	1593.12	599.52
10./	1.000	67.1	16.9	7.78	1214.74	2208.34	1600.97	607.37

Time to Failure 15.0

Deflection @ Failure 0.900

% Strain @ Failure 15.2

*NORMAL STRESS @ FAILURE 2176.36 psf
Failure based on the maximum deviator stress or 15% axial strain, whichever occurs first.

TECH SDM

DATE 1/7/14

CHECK DA

REVIEW APPROVE

1303118

UNCONSOLIDATED / UNDRAINED COMPRESSIVE STRENGTH OF SOILS ASTM D 2850

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER: 1303118

SAMPLE ID:

FTN B-13

cm

cm

cm²

cm³

DEPTH:

11.0-13.0'

SAMPLE TYPE

UD

SPECIMEN 2

MACHINE SPEED STRAIN RATE CONFINING PRES.

0.06	in/min
1.03	%/min
13.8	psi

CORRECTED SAMPLE DATA

 HEIGHT
 5.799
 in

 DIAMETER
 2.879
 in

 AREA
 6.51
 in²

 VOLUME
 37.75
 in³

INITIAL SAMPLE DATA

HEIGHT 5.803 14.729 DIAMETER 2.878 7.310 in **AREA** 6.51 in² 41.97 **VOLUME** 37.75 618.62 WEIGHT 1216.57 % MOISTURE 24.08 SPECIFIC GRAVITY 2.691 122.77 WET DENSITY pcf DRY DENSITY, calc 98.94 pcf VOLUME OF SOLIDS 364.35 cm^3 VOLUME OF VOIDS 254.27 cm3 VOID RATIO 0.70 % SATURATION 92.86

WATER CONTENT

WT SOIL & TARE, WET 1321.79 g
WT SOIL & TARE, DRY 1086.37 g
WT TARE 108.79 g
WT MOISTURE 235.42 g
WT DRY SOIL 977.58 g
% MOISTURE 24.08

	ACCUMULATED	AXIAL	e	CORRECTED	DEVIATOR	(σ _i)	$(\sigma_1 + \sigma_3)$	$(\sigma_1 - \sigma_3)$
TIME	DEFLECT	LOAD	% STRAIN	AREA	STRESS	devstr+cp	2	2
(min)	(inch)	(lbs)	(in/in)	(in²)	(psf)	(psf)	(p)	(g)
0.0	0.000	1.1	0.0	6.51	0.00	1987.20	1987.20	0.00
0.1	0.003	17.5	0.1	6.51	362.59	2349.79	2168.49	181.29
0.1	0.006	21.2	0.1	6.52	444.16	2431.36	2209.28	222.08
0.2	0.009	29.5	0.2	6.52	627.24	2614.44	2300.82	313.62
0.2	0.012	29.3	0.2	6.52	622.50	2609.70	2298.45	311.25
0.3	0.015	32.4	0.3	6.53	690.58	2677.78	2332.49	345.29
0.4	0.025	42.4	0.4	6.54	909.63	2896.83	2442.02	454.82
0.8	0.050	58.5	0.9	6.57	1258.77	3245.97	2616.58	629.38
1.3	0.075	70.4	1.3	6.60	1513.13	3500.33	2743.76	756.56
1.7	0.100	78.3	1.7	6.62	1678.26	3665.46	2826.33	839.13
2.1	0.125	84.6	2.2	6.65	1807.26	3794.46	2890.83	903.63
2.5	0.150	88.7	2.6	6.68	1887.65	3874.85	2931.03	943.83
2.9	0.175	92.4	3.0	6.71	1958.68	3945.88	2966.54	979.34
3.3	0.200	95.8	3.4	6.74	2022.60	4009.80	2998.50	1011.30
4.2	0.250	99.9	4.3	6.80	2091.34	4078.54	3032.87	1045.67
5.0	0.300	103.6	5.2	6.86	2150.12	4137.32	3062.26	1075.06
5.8	0.350	107.3	6.0	6.93	2207.49	4194.69	3090.95	1103.75
6.7	0.400	109.6	6.9	6.99	2234.62	4221.82	3104.51	1117.31
7.5	0.450	112.9	7.8	7.06	2281.28	4268.48	3127.84	1140.64
8.3	0.500	114.4	8.6	7.12	2290.29	4277.49	3132.35	1145.15
9.2	0.550	116.3	9.5	7.19	2306.74	4293.94	3140.57	1153.37
10.0	0.600	118.9	10.3	7.26	2336.35	4323.55	3155.38	1168.18
10.8	0.650	120.8	11.2	7.33	2351.22	4338.42	3162.81	1175.61
11.7	0.700	122.6	12.1	7.40	2363.42	4350.62	3168.91	1181.71
12.5	0.750	123.9	12.9	7.48	2365.30	4352.50	3169.85	1182.65
13.3	0.800	124.9	13.8	7.55	2360.97	4348.17	3167.68	1180.48
14.2	0.850	127.1	14.6	7.63	2378.91	4366.11	3176.65	1189.45
15.0	0.900	127.9	15.5	7.70	2369.85	4357.05	3172.12	1184.92
15.8	0.950	129.7	16.4	7.78	2378.98	4366.18	3176.69	1189.49
16.7	1.000	130.8	17.2	7.87	2374.61	4361.81	3174.50	1187.30

*NORMAL STRESS @ FAILURE 4366.11 psf
Failure based on the maximum deviator stress or 15% axial strain, whichever occurs first.

TECH SDM
DATE 1/7/14
CHECK DW
REVIEW APPROVE

1303118

UNCONSOLIDATED / UNDRAINED COMPRESSIVE STRENGTH OF SOILS ASTM D 2850

cm

cm

cm²

 cm^3

PROJECT NAME:

FTN/ENTERGY WHITE BLUFF LF/AR

PROJECT NUMBER: 1303118

SAMPLE ID:

FTN B-13

DEPTH:

11.0-13.0'

SAMPLE TYPE

UD

SPECIMEN 3

MACHINE SPEED STRAIN RATE CONFINING PRES. 0.06 1.01 20.6 in/min %/min psi

INITIAL SAMPLE DATA

HEIGHT 5.971 15.161 in DIAMETER 2.876 in 7.305 **AREA** 6.50 in² 41.91 VOLUME 38.79 635.65 WEIGHT 1282.83 % MOISTURE 23.14 SPECIFIC GRAVITY 2.691 WET DENSITY 125.99 pcf DRY DENSITY, calc 102.31 pcf VOLUME OF SOLIDS 387.12 cm³ VOLUME OF VOIDS 248.53 cm3 **VOID RATIO** 0.64 % SATURATION 97.01

CORRECTED SAMPLE DATA

HEIGHT 5.969 in DIAMETER 2.876 in AREA 6.50 in VOLUME 38.79 in 3

WATER CONTENT

WT SOIL & TARE, WET 1477.70 g
WT SOIL & TARE, DRY 1237.35 g
WT TARE 198.81 g
WT MOISTURE 240.35 g
WT DRY SOIL 1038.54 g
% MOISTURE 23.14

	ACCUMULATED	AXIAL	e	CORRECTED	DEVIATOR	(σ ₁)	$(\sigma_1 + \sigma_3)$	$(\sigma_1 - \sigma_3)$
TIME	DEFLECT	LOAD	% STRAIN	AREA	STRESS	devstr+cp	2	2
(min)	(inch)	(lbs)	(in/in)	(in²)	(psf)	(psf)	(p)	(g)
0.0	0.000	1.1	0.0	6.50	0.00	2966.40	2966.40	0.00
0.1	0.003	12.7	0.1	6.50	256.91	3223.31	3094.86	128.46
0.1	0.006	22.3	0.1	6.51	469.30	3435.70	3201.05	234.65
0.2	0.009	29.1	0.2	6.51	619.52	3585.92	3276.16	309.76
0.2	0.012	34.2	0.2	6.51	731.99	3698.39	3332.39	365.99
0.3	0.015	38.3	0.3	6.51	822.24	3788.64	3377.52	411.12
0.4	0.025	48.0	0.4	6.53	1034.90	4001.30	3483.85	517.45
0.8	0.050	67.2	0.8	6.55	1452.44	4418.84	3692.62	726.22
1.3	0.075	80.1	1.3	6.58	1728.57	4694.97	3830.68	864.28
1.7	0.100	88.7	1.7	6.61	1908.62	4875.02	3920.71	954.31
2.1	0.125	96.5	2.1	6.64	2069.71	5036.11	4001.25	1034.85
2.5	0.150	101.0	2.5	6.67	2158.07	5124.47	4045.43	1079.03
2.9	0.175	105.8	2.9	6.69	2252.05	5218.45	4092.42	1126.02
3.3	0.200	108.8	3.3	6.72	2306.58	5272.98	4119.69	1153.29
4.2	0.250	114.8	4.2	6.78	2413.99	5380.39	4173.39	1206.99
5.0	0.300	118.5	5.0	6.84	2470.76	5437.16	4201.78	1235.38
5.8	0.350	122.6	5.9	6.90	2534.50	5500.90	4233.65	1267.25
6.7	0.400	125.2	6.7	6.97	2565.71	5532.11	4249.25	1282.85
7.5	0.450	127.5	7.5	7.03	2589.81	5556.21	4261.30	1294.90
8.3	0.500	129.0	8.4	7.09	2596.81	5563.21	4264.80	1298.40
9.2	0.550	131.6	9.2	7.16	2625.38	5591.78	4279.09	1312.69
10.0	0.600	132.7	10.0	7.22	2623.09	5589.49	4277.95	1311.55
10.8	0.650	133.8	10.9	7.29	2620.39	5586.79	4276.60	1310.20
11.7	0.700	134.6	11.7	7.36	2611.42	5577.82	4272.11	1305.71
12.5	0.750	135.8	12.6	7.43	2609.90	5576.30	4271.35	1304.95
13.3	0.800	137.2	13.4	7.50	2611.77	5578.17	4272.29	1305.89
14.2	0.850	137.6	14.2	7.58	2594.12	5560.52	4263.46	1297.06
15.0	0.900 0.950	139.4	15.1	7.65	2602.66	5569.06	4267.73	1301.33
16.7	1.000	140.2	15.9	7.73	2591.91	5558.31	4262.35	1295.95
10.7	1.000	140.2	16.7	7.81	2566.10	5532.50	4249.45	1283.05

Time to Failure 9.2

Deflection @ Failure 0.550

% Strain @ Failure 9.2

*NORMAL STRESS @ FAILURE 5591.78 psf
Failure based on the maximum deviator stress or
15% axial strain, whichever occurs first.

TECH SDM

DATE 1/7/14

CHECK DA

REVIEW NUM

APPROVE

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE PROJECT NUMBER SAMPLE ID SAMPLE TYPE

FTN/ENTERGY WI	IITE BLUFF LF/AR
1303118	
FTN B-13	24.0-26.0'

Board #	7
Flow Pump	1
Flow Pump Speed	10
Technician	TW

COMMENTS

Sample Data, Initial

Saturation, %

Sample Data, Initial		_	
Height, inches	2.917	B-Value, f	0.99
Diameter, inches	2.854	Cell Pres.	97.0
Area, cm²	41.27	Bot. Pres.	80.0
Volume, cm ³	305.80	Top Pres.	80.0
Mass, g	584.22	Tot. B.P.	80.0
Moisture Content, %	28.8	Head, max.	94.96
Dry Density, pcf	92.5	Head, min.	94.96
Spec. Gravity(assumed)	2.700	Max. Grad.	12.98
Volume Solids, cm ³	167.94	Min. Grad.	12.98
Volume Voids, cm3	137.86		
Void Ratio	0.82	2	
997 59 59 59 59 50 50 50 50 50 50 50 50 50 50 50 50 50			

Sample Data, Final	
Height, inches	2.880
Diameter, inches	2.865
Area, cm²	41.59
Volume, cm ³	304.25
Mass, g	586.53
Moisture Content, %	29.35
Dry Density, pcf	93.00
Volume Solids, cm ³	167.94
Volume Voids, cm ³	136.31
Void Ratio	0.81
Saturation, %	97.6%

WATER CONTENT	rc	Sample Initial
Wt Soil & Tare, i	g	584.22
Wt Soil & Tare, f	g	453.43
Wt Tare	g	0.00
Wt Moisture Lost	g	130.79
Wt Dry Soil	g	453.43
Water Content	%	28.84%

Sample
Final
594.53
461.50
8.29
133.03
453.21
29.35%

94.9% Flow Pump Rate

2.07E-05 cm³/sec

USCS

sandy CLAY, fine; dark olive brown.

DESCRIPTION

		TIM	E FUNCTIO	ONS, SECO	NDS			dP	Messa Massew 14. e			
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/03/14	41642	14	20	21.3	0	0	0	0	1.35	94.96	12.98	3.7E-08
01/03/14	41642	14	25	21.3	5	5	300	300	1.35	94.96	12.98	3.7E-08
01/03/14	41642	14	30	21.3	5	10	300	600	1.35	94.96	12.98	3.7E-08
01/03/14	41642	14	35	21.3	5	15	300	900	1.35	94.96	12.98	3.7E-08 *
01/03/14	41642	14	40	21.3	5	20	300	1200	1.35	94.96	12.98	3.7E-08 *
01/03/14	41642	14	45	21.3	5	25	300	1500	1.35	94.96	12.98	3.7E-08 *
01/03/14	41642	14	50	21.3	5	30	300	1800	1.35	94.96	12.98	3.7E-08 *

CH

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 3.7E-08 cm/sec **

DATE 1/3/14 CHECK REVIEW /// APPROVE

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WHITE BLUFF LF/AR			
PROJECT NUMBER	1303118			
SAMPLE ID	FTN PZ-8	8.0-10.0'		
SAMPLE TYPE	UD			

Board #	2
Flow Pump	1
Flow Pump Speed	5
Technician	SDM

COMMENTS

Sample Data, Initial				Sample Data, Final							
Height, inches	2.924	B-Value, f	1.00	Height, inches	2.963				Sample		Sample
Diameter, inches	2.846	Cell Pres.	85.0	Diameter, inches	2.868	W	ATER CONTENT	S	Initial		Final
Area, cm ²	41.04	Bot. Pres.	80.0	Area, cm ²	41.68	Wi	t Soil & Tare, i	g	545.81		592.42
Volume, cm3	304.82	Top Pres.	80.0	Volume, cm3	313.68	Wi	t Soil & Tare, f	g	432.82		441.02
Mass, g	545.81	Tot. B.P.	80.0	Mass, g	584.32	Wi	t Tare	g	0.00		8.47
Moisture Content, %	26.1	Head, max.	84.41	Moisture Content, %	35.00	Wi	t Moisture Lost	g	112.99		151.40
Dry Density, pcf	88.6	Head, min.	84.41	Dry Density, pcf	86.10	Wi	t Dry Soil	g	432.82		432.55
Spec. Gravity(assumed)	2.700	Max. Grad.	11.22	Volume Solids, cm3	160.31	W	ater Content	%	26.10%		35.00%
Volume Solids, cm3	160.31	Min. Grad.	11.22	Volume Voids, cm3	153.37						
Volume Voids, cm3	144.51			Void Ratio	0.96						
Void Ratio	0.90			Saturation, %	98.8%	DE	ESCRIPTION				
Saturation, %	78.2%					sar	ndy CLAYEY SIL	T, fine to coar	rse; yellowish b	rown.	
	Flow Pumi	o Rate	1.26E-03 cm ³ /sec	USCS	MH						

		TIM	E FUNCTIO	ONS, SECO	NDS			dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/07/14	41646	10	30	20.1	0	0	0	0	1.20	84.41	11.22	2.7E-06
01/07/14	41646	10	35	20.1	5	5	300	300	1.20	84.41	11.22	2.7E-06
01/07/14	41646	10	40	20.1	5	10	300	600	1.20	84.41	11.22	2.7E-06
01/07/14	41646	10	45	20.1	5	15	300	900	1.20	84.41	11.22	2.7E-06 *
01/07/14	41646	10	50	20.1	5	20	300	1200	1.20	84.41	11.22	2.7E-06 *
01/07/14	41646	10	55	20.1	5	25	300	1500	1.20	84.41	11.22	2.7E-06 *
01/07/14	41646	11	0	20.1	5	30	300	1800	1.20	84.41	11.22	2.7E-06 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 2.7E-06 cm/sec **

DATE 1/7/14
CHECK DW
REVIEW JUM
APPROVE

METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE PROJECT NUMBER SAMPLE ID SAMPLE TYPE

FTN/ENTERGY WI	HITE BLUFF LF/AR
1303118	
FTN B-10	3.0-8.0'
Bulk	

Board #	2	
Flow Pump	1	Ì
Flow Pump Speed	6	100
Technician	SDM	Section

DESCRIPTION

COMMENTS The sample was remolded to 95.0% of the Maximum Dry Density and OPTM + 3.1% (using ASTM D 698).

Sample Data, Initial			
Height, inches	3.000	B-Value, f	0.99
Diameter, inches	2.790	Cell Pres.	90.0
Area, cm²	39.44	Bot. Pres.	80.0
Volume, cm ³	300.55	Top Pres.	80.0
Mass, g	589.86	Tot. B.P.	80.0
Moisture Content, %	21.3	Head, max.	99.18
Dry Density, pcf	101.0	Head, min.	99.18
Spec. Gravity(assumed)	2.700	Max. Grad.	13.01
Volume Solids, cm ³	180.15	Min. Grad.	13.01
Volume Voids, cm ³	120.40		
Void Ratio	0.67		
Saturation, %	85.9%		

Height, inches	3.002
Diameter, inches	2.782
Area, cm²	39.22
Volume, cm ³	299.03
Mass, g	599.35
Moisture Content, %	23.22
Dry Density, pcf	101.50
Volume Solids, cm ³	180.15
Volume Voids, cm ³	118.88
Void Ratio	0.66
Saturation, %	95.0%

WATER CONTENT	S	Sample Initial
Wt Soil & Tare, i	g	589.86
Wt Soil & Tare, f	g	486.41
Wt Tare	g	0.00
Wt Moisture Lost	g	103.45
Wt Dry Soil	g	486.41
Water Content	%	21.27%

Sample
Final
607.34
494.50
8.51
112.84
485.99
23.22%

Flow Pump Rate

5.07E-04 cm³/sec

USCS

SC-SM

CLAYEY	SAND	to S	SILTY	SAND,	fine to	medium;	brown.

	TIME FUNCTIONS, SECONDS							dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
01/22/14	41661	8	20	19.5	0	0	0	0	1.41	99.18	13.01	1.0E-06
01/22/14	41661	8	25	19.5	5	5	300	300	1.41	99.18	13.01	1.0E-06
01/22/14	41661	8	30	19.5	5	10	300	600	1.41	99.18	13.01	1.0E-06
01/22/14	41661	8	35	19.5	5	15	300	900	1.41	99.18	13.01	1.0E-06 *
01/22/14	41661	8	40	19.5	5	20	300	1200	1.41	99.18	13.01	1.0E-06 *
01/22/14	41661	8	45	19.5	5	25	300	1500	1.41	99.18	13.01	1.0E-06 *
01/22/14	41661	8	50	19.5	5	30	300	1800	1.41	99.18	13.01	1.0E-06 *

TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 1.0E-06 cm/sec **

DATE 1/22/14 CHECK

REVIEW APPROVE

0.75 - ORGANIC

(OL/OH)

TECH FT/TW/SJ/AM

1/10/14

riviv

DATE

CHECK

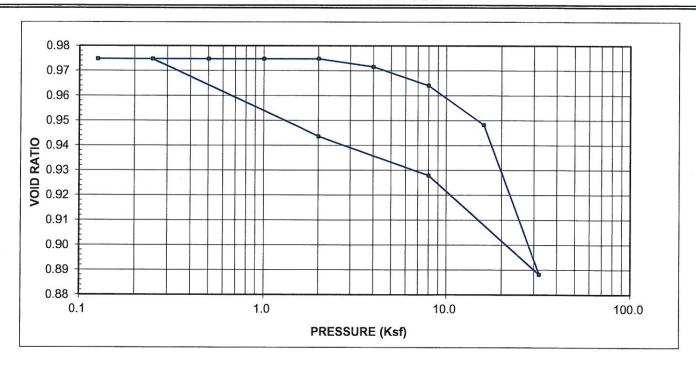
REVIEW APPROVE

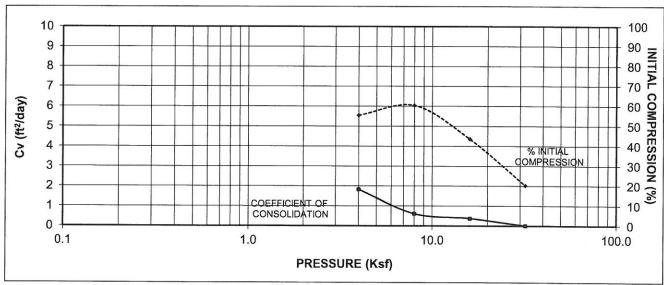
DESCRIPTION: CLAY, trace fine to coarse sand; gray.

CH

USCS:

JANUARY 2014 1303118 PARTICLE SIZE DISTRIBUTION & ATTERBERG LIMITS ASTM D421, D422, D4318 PROJECT NAME: FTN/ENTERGY WHITE BLUFF LF/AR SAMPLE ID: FTN B-10 Depth: 14.0-16.0 TYPE: UD #20 #60 #100 100 90 80 70 % P 60 a s 50 s į 40 n g 30 20 10 0 100 1000 10 0.1 0.01 0.001 Particle size in millimeters Fine Coarse Medium Coarse Fine Silt or Clay COBBLES GRAVEL SAND FINES Particle Size Particle Size % Passing Classification 12.0" 100.0 304.8 PLASTICITY CHART 3.0" 100.0 75.0 Cobbles 0.0 60 Standard Sieves Sizes and Numbers 2.5" 63.5 100.0 2.0" 50.0 100.0 50 1.5" 37.5 100.0 (P) 1.0" 25.0 100.0 PLASTICITY INDEX 40 0.75" 19.0 100.0 Coarse Gravel 0.0 0.50" 12.7 100.0 0.375 100.0 9.5 #4 4.8 100.0 Fine Gravel 0.0 HO to HM 100.0 #10 2.00 0.0 Coarse Sand #20 0.85 100.0 CL or O #40 0.43 99.9 Medium Sand 0.1 U.S. #60 0.25 99.8 10 #100 0.15 99.5 #200 0.075 77.2 Fine Sand 22.7 (mm) %Finer LIQUID LIMIT (LL) 0.034 27.3 Hydrometer Analysis 0.021 23.9 0.012 ATTERBERG LIMITS 22.2 Fines Method -B (Dry preparation) 0.0089 20.5 77.2 Silt or Clay 0.0063 18.8 0.0031 15.4 27.8 0.08 35 27 0.0014 13.7 LL (oven-dried) 0.75 = ORGANIC (OL/OH) sandy CLAYEY SILT, fine to medium; gray. DESCRIPTION: FT/SJ/TJ TECH 1/9/14 DATE ML USCS: CHECK DA REVIEW APPROVE





Note: Void Ratio vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-11	
UD	П
43.0 - 45.0'	

LL [76
PL [37
PI	39
Gs	2.73

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

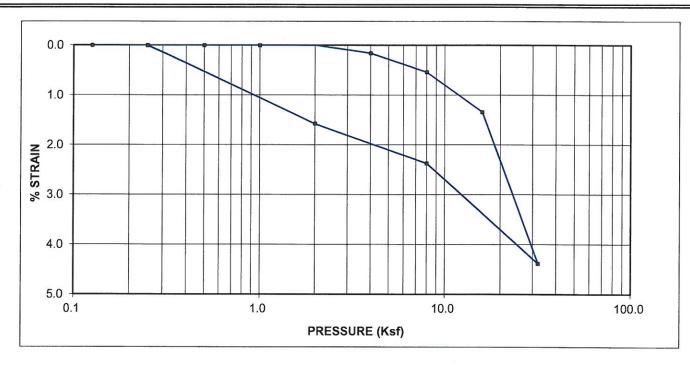
Initial	Final
86.2	86.2
116.5	118.2
35.1%	37.1%
0.975	0.975
98%	100%

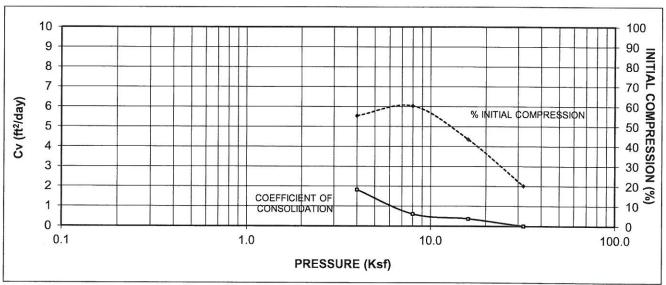
DESCRIPTION CLAYEY SILT, some fine to medium sand; gray.

USCS MH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH PWM/TW
START DATE 1/7/14
CHECK FWM/L
REVIEW FROVE





Note: %Strain vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-11	
UD	
43.0 - 45.0'	

LL 76
PL 37
PI 39
Gs 2.73

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
86.2	86.2
116.5	118.2
35.1%	37.1%
0.975	0.975
98%	100%

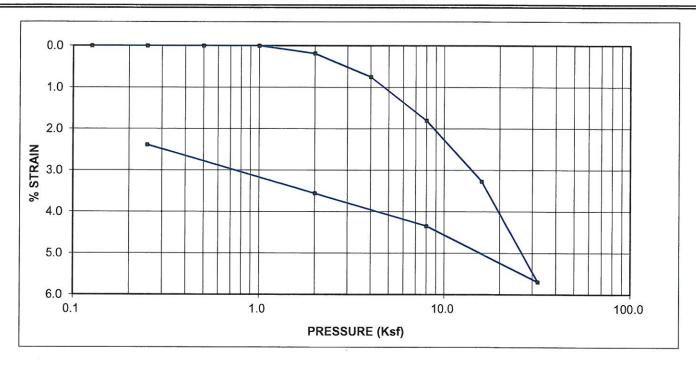
DESCRIPTION CLAYEY SILT, some fine to medium sand; gray.

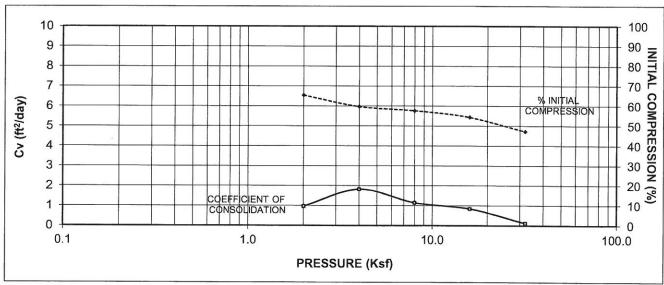
USCS MH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH PWM/TW
START DATE 1/7/14
CHECK WA
REVIEW APPROVE

ONE-DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A PROJECT NAME FTN/ENTERGY WHITE BLUFF LF/AR CLAYEY SILT, some fine to medium sand; gray. DESCRIPTION 76 LL PROJECT NUMBER 1303118 PL 37 SAMPLE ID **FTN B-11** CLASSIFICATION MH 39 PI SAMPLE DEPTH 43.0 - 45.0' Gs 2.729 UD SAMPLE TYPE CONSOLIDOMETER # ASTM D 2435 Method A Sample Data Initial Final Sample Data Trimmings Before After 2.490 Diameter (in) Total Height (in) 0.744 0.744 Test Test Height of sample (in) 0.744 Height of solids (in) 0.377 0.377 Tare plus wet soil, g 181.63 185.14 186.81 Area of sample (in^2) 4.870 0.367 Height of voids (in) 0.367 Tare plus dry soil, g 147.69 156.37 156.37 Volume of sample (in^3) 3.623 Height of water (in) 0.361 0.382 51.57 Tare, g 74.36 74.36 Water Content 35.1% Void ratio 0.975 0.975 Water, g 33.94 28.77 30.44 Sample Wt (wet, g) 110.78 Degree of saturation 98.2% 100.0% Dry soil, g 96.12 82.01 82.01 Sample Wt (dry, g) 82.01 Dry unit wt (pcf) 86.2 86.2 Water Content 35.3% 35.1% 37.1% Water Wt (g) 28.77 116.5 Wet unit wt (pcf) 118.2 PRESSURE H100 MACHINE DIAL FITTING SAMPLE HEIGHT OF VOID CHANGE IN STRAIN LENGTH OF DRAINAGE PERCENT COEFFICIENT OF / STONE (ksf) DIAL **CHANGE** TIME (sec) HEIGHT VOIDS **RATIO** HEIGHT PATH (DOUBLE DRAINAGE) INITIAL CONSOLIDATION READING CORR. (in) t90 (in) Hv е (accum) % H (in) H^2 (cm^2) COMPRESSION (ft^2/day) 0.125 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0 0.0000 0.372 0.893 0.126 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0000 0.0 0.372 0.893 0.250 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0000 0.0 0.372 0.893 0.500 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0000 0.0 0.372 0.893 1.000 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0000 0.0 0.372 0.893 2.000 0.0017 0.0017 0.0000 0.744 0.3673 0.9748 0.0000 0.0 0.372 0.893 4.000 0.0046 0.0034 0.0012 38 0.743 0.3661 0.9716 0.0012 0.2 0.372 0.891 55.4 1.83 8.000 0.0091 0.0050 0.0040 114 0.740 0.3632 0.9641 0.0040 0.5 0.371 0.887 60.4 0.61 16.000 0.0169 0.0069 0.0100 184 0.3573 0.734 0.9482 0.0100 1.3 0.368 0.876 43.6 0.38 32.000 0.0416 0.0090 0.0326 4646 0.711 0.3346 0.8882 0.0326 4.4 0.361 0.842 20.3 0.01 8.000 0.0227 0.0050 0.0177 0.726 0.3496 0.9279 0.0177 2.4 0.359 0.834 2.000 0.0150 0.0033 0.0117 0.732 0.3555 0.9436 0.0117 1.6 0.365 0.858 0.250 0.0000 0.0000 0.0000 0.744 0.3672 0.9748 0.0000 0.0 0.369 0.879 FINAL DIAL READING = 0.0000 Test terminated, due to sample swelling. Note: Specimen was trimmed into consolidation ring Specimen was run inundated. TECH PWM/TW Specimen required 2 ksf of pressure to hold swelling down. START DATE 1/7/14 Load increments were allowed to stay on samples for at least 24 hours. CHECK Mula. %Strain and Void Ratio versus axial stress curves are plotted using the end of primary consolidation, using the square root of time method. **REVIEW** WES Final saturation high (104%), adjusted to 100% **APPROVE**





Note: %Strain vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID
SAMPLE TYPE
SAMPLE DEPTH

FTN B-12	١
UD	7
8.0 - 10.0'	1

LL	56	
PL	27	
PI	29	Τ
Gs	2.70	

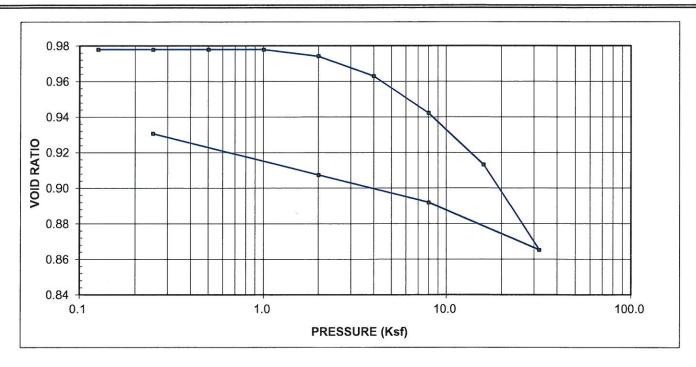
Dry Unit Weight (pcf)
Wet Unit Weight (pcf)
Moisture Content
Void Ratio
Degree of Saturation

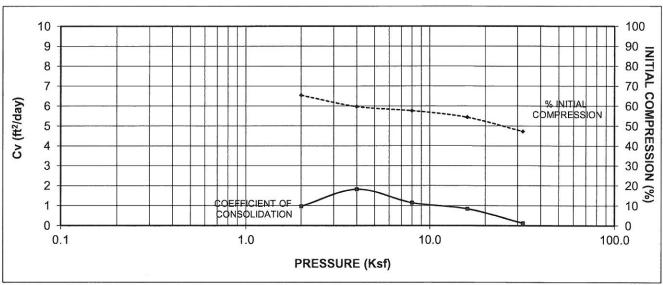
Initial	Final
85.1	87.2
113.4	118.3
33.1%	35.6%
0.978	0.931
91%	100%

DESCRIPTION	sandy CLA	Y, fine to coarse; olive brown.
USCS	СН	

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH PWM/TW
START DATE 1/7/14
CHECK W/M
REVIEW A/PROVE





Note: Void Ratio vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-12	
UD	
8.0 - 10.0'	

LL 56
PL 27
PI 29
Gs 2.70

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
85.1	87.2
113.4	118.3
33.1%	35.6%
0.978	0.931
91%	100%

DESCRIPTION sandy CLAY, fine to coarse; olive brown.

USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH PWM/TW
START DATE 1/7/14
CHECK / W/Y
REVIEW WELL

APPROVE

ONE-DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A FTN/ENTERGY WHITE BLUFF LF/AR PROJECT NAME DESCRIPTION sandy CLAY, fine to coarse; olive brown LL 56 PROJECT NUMBER 1303118 PL 27 FTN B-12 SAMPLE ID CLASSIFICATION CH ΡI 29 SAMPLE DEPTH 8.0 - 10.0 2.699 Gs SAMPLE TYPE UD CONSOLIDOMETER # 2 ASTM D 2435 Method Sample Data Initial Final Sample Data Trimmings Before After Diameter (in) 2.496 Total Height (in) 0.745 0.727 Test Test 0.745 Height of sample (in) 0.377 Height of solids (in) 0.377 Tare plus wet soil, g 219.62 184.01 186.03 Area of sample (in^2) 4.893 Height of voids (in) 0.368 0.351 180.83 157.02 157.02 Tare plus dry soil, g Volume of sample (in^3) 3.645 Height of water (in) 0.337 0.362 Tare, g 52.08 75.54 75.54 Water Content 33.1% Void ratio 0.978 0.931 Water, g 38.79 26.99 29.01 Sample Wt (wet, g) 108.47 Degree of saturation 91.4% 100.0% 128.75 81.48 Dry soil, g 81.48 Sample Wt (dry, g) 81.48 85.1 Dry unit wt (pcf) 87.2 Water Content 30.1% 33.1% 35.6% Water Wt (g) 26.99 Wet unit wt (pcf) 113.4 118.3 PRESSURE H100 MACHINE DIAL FITTING SAMPLE HEIGHT OF VOID CHANGE IN **STRAIN** LENGTH OF DRAINAGE PERCENT COEFFICIENT OF (ksf) DIAL / STONE **CHANGE** TIME (sec) HEIGHT **VOIDS RATIO** HEIGHT CONSOLIDATION PATH (DOUBLE DRAINAGE) INITIAL READING CORR. (in) t90 (in) Hv (accum) % H (in) H^2 (cm^2) COMPRESSION (ft^2/day) 0.125 0.0000 0.0000 0.0000 0.745 0.3683 0.9779 0.0000 0.0 0.373 0.895 0.126 0.0000 0.0000 0.0000 0.745 0.3683 0.9779 0.0000 0.372 0.0 0.895 0.250 0.0000 0.0000 0.0000 0.745 0.3683 0.9779 0.0000 0.0 0.372 0.895 0.500 0.0000 0.0000 0.0000 0.745 0.9779 0.3683 0.0000 0.0 0.372 0.895 1.000 0.0000 0.0000 0.0000 0.745 0.3683 0.9779 0.0000 0.0 0.372 0.895 2.000 0.0034 0.0020 0.0014 73 0.744 0.3669 0.9742 0.0014 0.2 0.372 0.894 65.4 0.97 4.000 0.0087 0.0031 0.0056 38 0.739 0.3627 0.9630 0.0056 0.8 0.371 0.887 59.7 1.82 8.000 0.0179 0.0045 0.0134 60 0.732 0.3549 0.9422 0.0134 1.8 0.368 0.872 57.7 1.15 16.000 0.0305 0.0061 0.0244 79 0.721 0.3440 0.9132 0.0244 3.3 0.363 0.850 54.3 0.84 32.000 0.0509 0.0085 0.0424 512 0.703 0.3259 0.8652 0.0424 5.7 0.356 0.817 47.3 0.13 8.000 0.0384 0.0060 0.0324 0.713 0.3360 0.8919 0.0324 4.3 0.354 0.808 2.000 0.0285 0.0020 0.0265 0.718 0.3418 0.9075 0.0265 3.6 0.358 0.826 0.250 0.0178 0.0000 0.0178 0.727 0.3506 0.9307 0.0178 2.4 0.361 0.843 FINAL DIAL READING 0.0178 Note: Specimen was trimmed into consolidation ring Specimen was run inundated. TECH PWM/TW Specimen required 1 ksf of pressure to hold swelling down. START DATE 1/7/14 Load increments were allowed to stay on samples for at least 24 hours. 1/4 CHECK %Strain and Void Ratio versus axial stress curves are plotted using the end of primary consolidation, using the square root of time method. **REVIEW** NRS Final saturation high (103%), adjusted to 100% **APPROVE**

DIRECT SHEAR

ASTM D 3080

PROJECT NAME: PROJECT NUMBER:

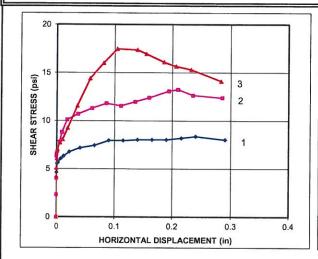
FTN/ENTERGY WHITE BLUFF LF/AR

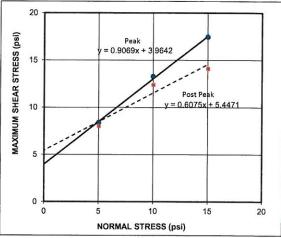
1303118

SAMPLE ID:

FTN B-10

DEPTH: 14.0-16.0'





$\frac{1}{1}$	φ= C=	42.2 4.0	o psi
	φ = [C= [Post Pea 31.3 5.4	ak 0 psi
20			

Peak

	PECIMEN 1	
Normal Str	ess (psi)	5
t50 (mir	utes)	0.19
SPEED	mm/min	0.036
Sample Diar	neter (in)	2.50
Moisture Cor	ntent (%)	27.8
Wet Density	(pcf)	118.8
Dry Density	pcf)	93.0
Void Ratio		0.813
Saturation (%	6)	92

Void Ratio	0.813
Saturation (%)	92
HORIZONTAL	SHEAR
DISPLACEMENT	STRESS
(in)	(psi)
0.000	0.0
0.000	2.0
0.000	3.7
0.001	4.6
0.001	5.6
0.003	5.6
0.008	6.1
0.013	6.3
0.022	6.8
0.042	7.2
0.066	7.4
0.091	8.0
0.116	8.0
0.141	8.0
0.166	8.0
0.191	8.0
0.215	8.2
0.240	8.4
0.291	8.0

	CIMEN 2	
Normal Stress	s (psi)	10
t50 (minute	s)	0.12
SPEED	mm/min	0.036
Sample Diamete	er (in)	2.50
Moisture Conter	nt (%)	27.8
Wet Density (po	f)	117.9
Dry Density (pcf)	92.3
Void Ratio		0.826
Saturation (%)		91

Cutarution (70)	- 01
HORIZONTAL DISPLACEMENT	SHEAR
(in)	(psi)
0.000	0.0
0.000	2.3
0.000	4.0
0.000	6.3
0.000	6.6
0.002	6.8
0.006	7.8
0.010	8.8
0.018	10.1
0.038	10.7
0.062	11.3
0.086	11.8
0.112	11.6
0.136	12.0
0.161	12.4
0.195	13.1
0.210	13.3
0.235	12.7
0.286	12.4

SPECIMEN 3		
Normal Stres	s (psi)	15
t50 (minute	es)	0.11
SPEED	mm/min	0.036
Sample Diamet	er (in)	2.50
Moisture Conte	nt (%)	27.8
Wet Density (po	of)	116.8
Dry Density (pct	F)	91.4
Void Ratio		0.844
Saturation (%)		89

()	
HORIZONTAL	SHEAR
DISPLACEMENT	STRESS
(in)	(psi)
0.000	0.0
0.000	1.9
0.000	4.2
0.000	5.0
0.001	6.1
0.002	7.0
0.006	7.7
0.011	8.0
0.019	9.2
0.037	11.6
0.058	14.4
0.081	16.0
0.105	17.5
0.140	17.4
0.155	16.9
0.186	16.1
0.207	15.7
0.232	15.3
0.284	14.1

8.4 Max Shear Stress

13.3 Max Shear Stress 17.5 Max Shear Stress

REMARKS

Test was run inundated.

DESCRIPTION sandy CLAYEY SILT, fine to medium; gray.

USCS ML

TECH DATE CHECK REVIEW APROVE



ONE-DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A FTN/ENTERGY WHITE BLUFF LF/AR PROJECT NAME DESCRIPTION CLAY, trace fine to coarse sand; gray. 64 PROJECT NUMBER 1303118 24 PL SAMPLE ID FTN B-9 CLASSIFICATION CH PI 40 SAMPLE DEPTH 38.0-40.0 2.712 SAMPLE TYPE UD CONSOLIDOMETER# ASTM D 2435 Method Sample Data Initial Final Sample Data Trimmings Before After Diameter (in) 2.498 Total Height (in) 0.747 0.740 Test Test Height of sample (in) 0.747 Height of solids (in) 0.377 0.377 Tare plus wet soil, g 216.50 186.22 187.75 Area of sample (in^2) 4.901 Height of voids (in) 0.370 0.363 Tare plus dry soil, g 174.24 158.12 158.12 Volume of sample (in^3) 3.661 Height of water (in) 0.350 0.369 Tare, g 51.53 76.05 76.05 Water Content 34.2% Void ratio 0.982 0.962 Water, g 28.10 42.26 29.63 Sample Wt (wet, g) 110.17 Degree of saturation 94.6% 100.0% 122.71 Dry soil, g 82.07 82.07 Sample Wt (dry, g) 82.07 Dry unit wt (pcf) 85.4 86.3 Water Content 34.4% 34.2% 36.1% Water Wt (g) 28.1 Wet unit wt (pcf) 114.6 117.4 PRESSURE MACHINE H100 SAMPLE HEIGHT OF DIAI FITTING VOID CHANGE IN STRAIN I ENGTH OF DRAINAGE

I KESSUKE	11100	MACHINE	DIAL	FILLING	SAMPLE	HEIGHT OF	VOID	CHANGE IN	STRAIN	LENGTH	OF DRAINAGE	PERCENT	COEFFICIENT OF
(ksf)	DIAL	/ STONE	CHANGE	TIME (sec)	HEIGHT	VOIDS	RATIO	HEIGHT		PATH (DOU	JBLE DRAINAGE)	INITIAL	CONSOLIDATION
	READING	CORR.	(in)	t90	(in)	Hv	е	(accum)	%	H (in)	H^2 (cm^2)	COMPRESSION	(ft^2/day)
0.125	0.0000	0.0000	0.0000		0.747	0.3700	0.9816	0.0000	0.0	0.374	0.900		
0.126	0.0000	0.0000	0.0000		0.747	0.3700	0.9816	0.0000	0.0	0.374	0.900		
0.250	0.0000	0.0000	0.0000		0.747	0.3700	0.9816	0.0000	0.0	0.374	0.900		
0.500	0.0012	0.0006	0.0006		0.746	0.3694	0.9799	0.0006	0.1	0.373	0.899		
1.000	0.0027	0.0011	0.0015		0.745	0.3685	0.9775	0.0015	0.2	0.373	0.897		
2.000	0.0054	0.0021	0.0033		0.744	0.3668	0.9730	0.0033	0.4	0.372	0.894		
4.000	0.0109	0.0034	0.0075		0.740	0.3625	0.9617	0.0075	1.0	0.371	0.887		
8.000	0.0247	0.0050	0.0197	265	0.727	0.3503	0.9293	0.0197	2.6	0.367	0.868	34.9	0.26
16.000	0.0349	0.0069	0.0279	470	0.719	0.3421	0.9075	0.0279	3.7	0.362	0.844	27.4	0.14
32.000	0.0535	0.0090	0.0445	1411	0.702	0.3255	0.8634	0.0445	6.0	0.355	0.815	31.1	0.05
8.000	0.0406	0.0060	0.0346		0.712	0.3354	0.8898	0.0346	4.6	0.354	0.807	Experience Constitution of the State of the	Prince County of the American September 19 and the
2.000	0.0279	0.0020	0.0259	8	0.721	0.3441	0.9129	0.0259	3.5	0.358	0.829		
0.250	0.0075	0.0000	0.0075		0.740	0.3626	0.9618	0.0075	1.0	0.365	0.860		
								00000000000	Revaluable 1	**************************************	1000.5.5		
			EDIAL DIAL	DEADNIC -	0.0075			·					

FINAL DIAL READING = 0.0075

Note: Specimen was trimmed into consolidation ring

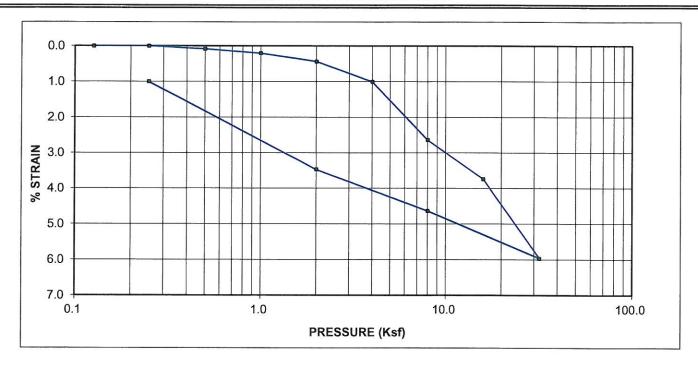
Specimen was run inundated.

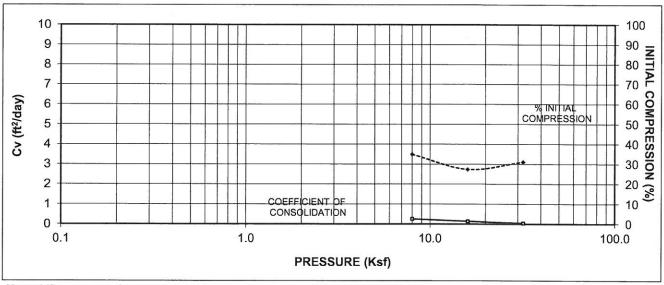
Specimen required 4 ksf of pressure to hold swelling down.

Load increments were allowed to stay on samples for at least 24 hours.

%Strain and Void Ratio versus axial stress curves are plotted using the end of primary consolidation, using the square root of time method. Final saturation high (102%), adjusted to 100%

TECH SDM/TW
START DATE 1/22/14
CHECK FEVIEW APPROVE





Note: %Strain vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

UD
38.0-40.0'

LL	64
PL	24
PΙ	40
Gs	2.71

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
85.4	86.3
114.6	117.4
34.2%	36.1%
0.982	0.962
95%	100%

DESCRIPTION CLAY, trace fine to coarse sand; gray.

USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

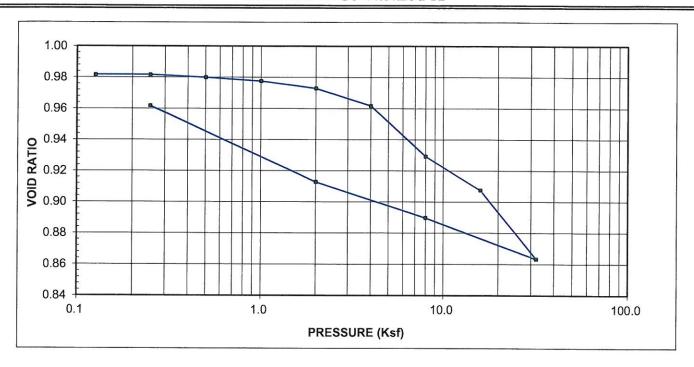
TECH SDM/TW

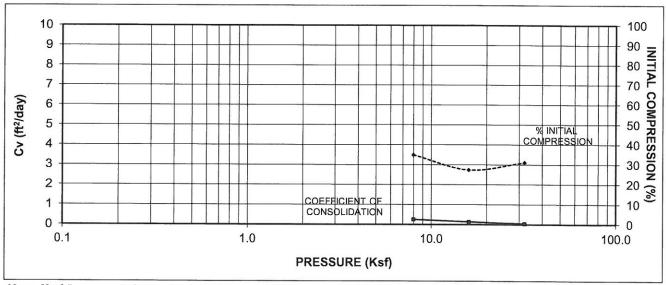
START DATE 1/22/14

CHECK AWA

REVIEW 4/65

APPROVE





Note: Void Ratio vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID
SAMPLE TYPE
SAMPLE DEPTH

FTN B-9	
UD	
38.0-40.0'	

LL	64
PL	24
ΡI	40
Gs	2.71

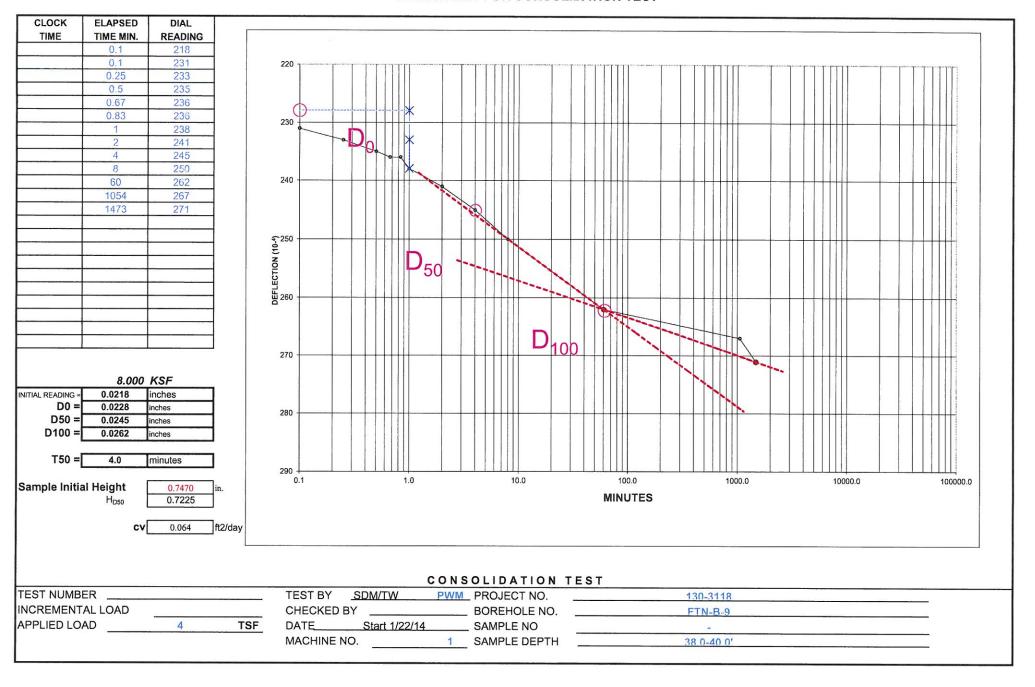
Dry Unit Weight (pcf)
Wet Unit Weight (pcf)
Moisture Content
Void Ratio
Degree of Saturation

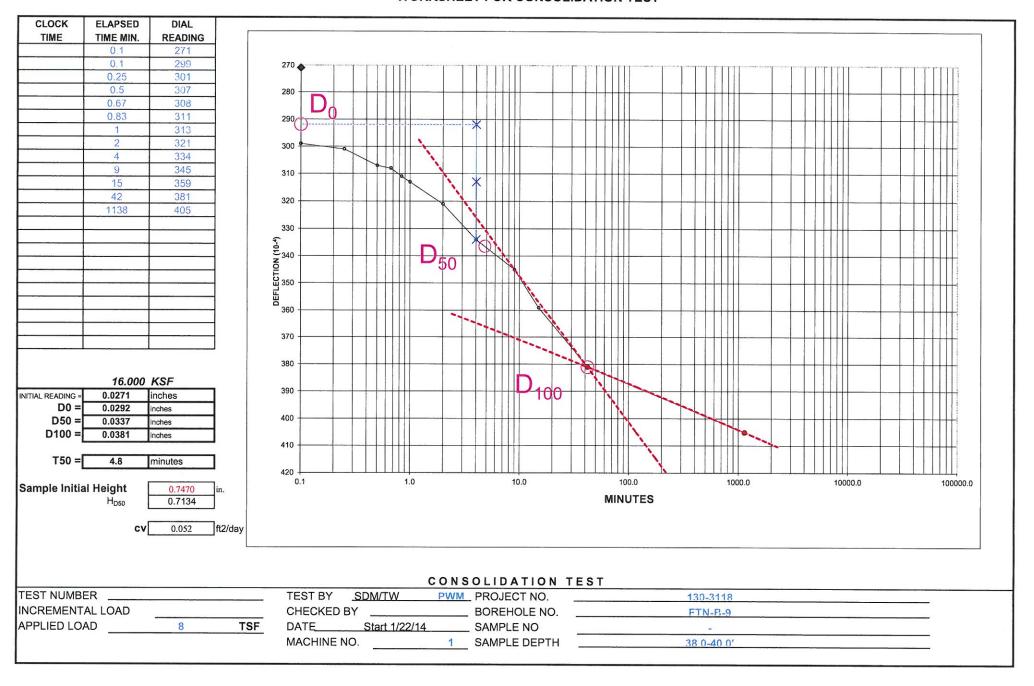
Initial	Final
85.4	86.3
114.6	117.4
34.2%	36.1%
0.982	0.962
95%	100%

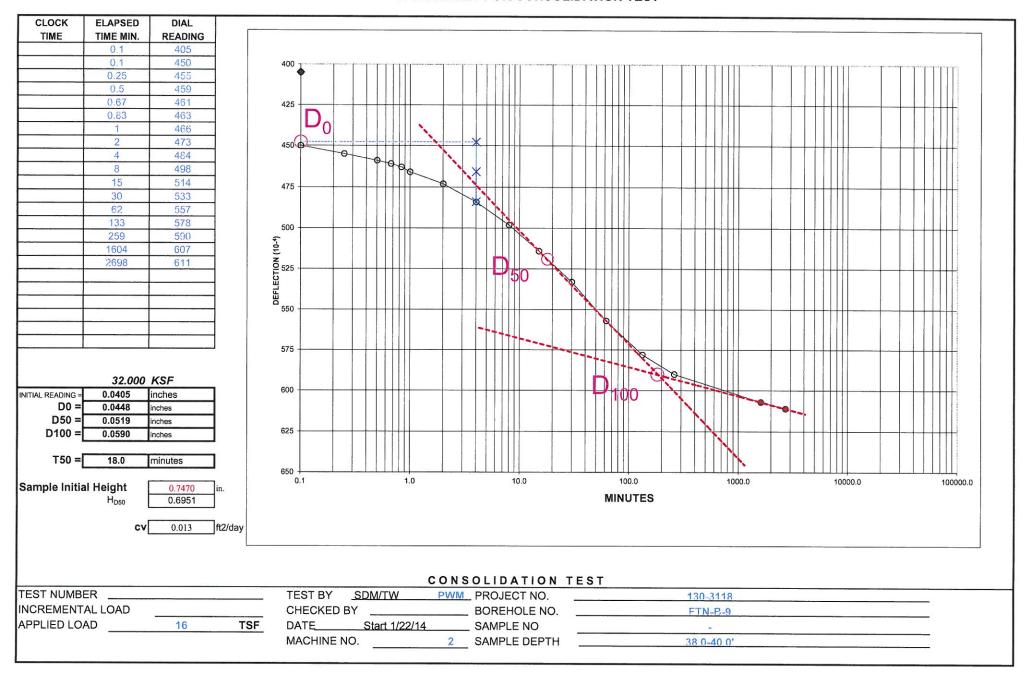
DESCRIPTION	CLAY, trac	ce fine to coarse sand; gray.	
USCS	СН		

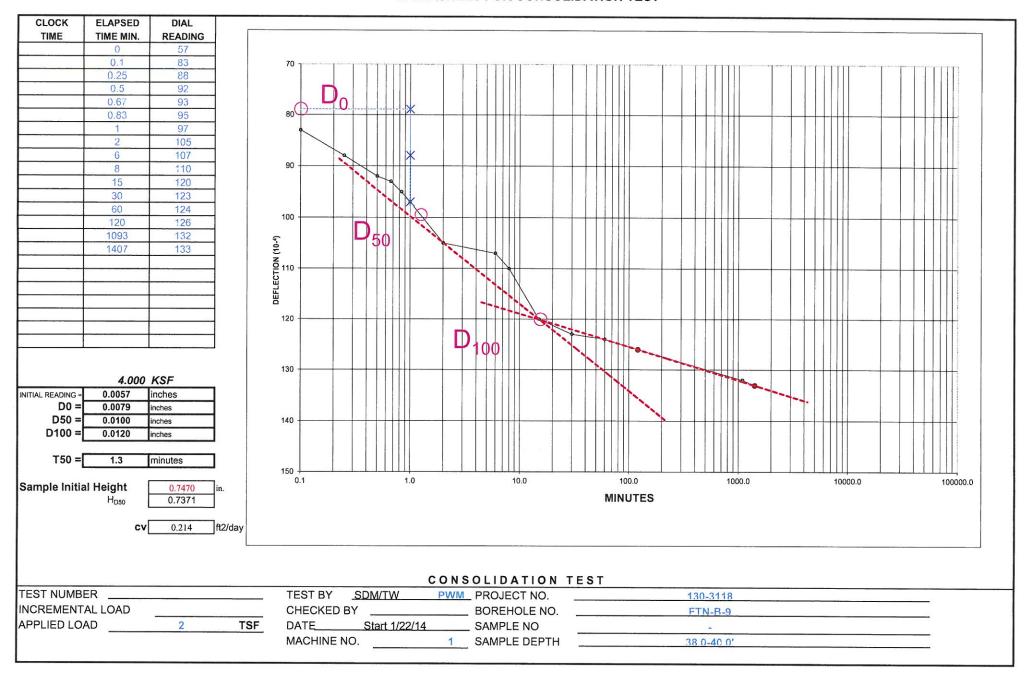
FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH SDM/TW
START DATE 1/22/14
CHECK APPROVE

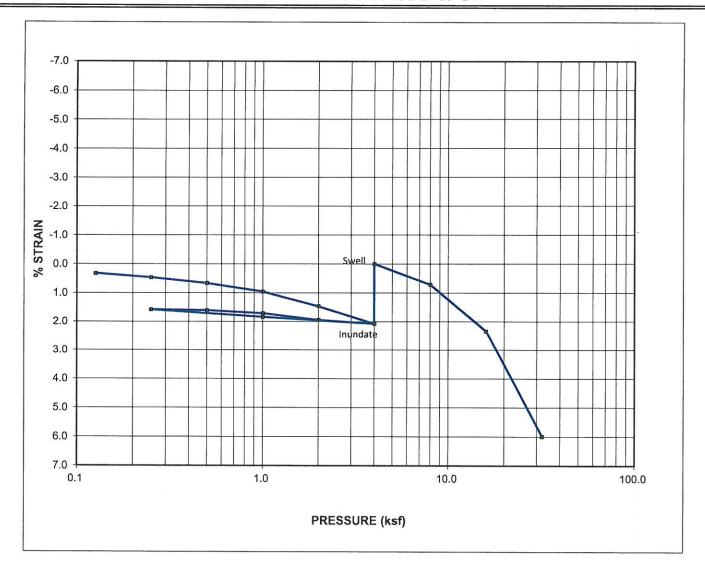








ONE - DIMENSIONAL SWELL OR COLLAPSE OF COHESIVE SOILS ASTM D 4546 Method B & C



%Free Swell 2.1% @ 4.0 Ksf % Collapse

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-9	
UD	
38.0 - 40.0'	

LL 64
PL 24
PI 40
Gs 2.71

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
87.9	89.2
117.9	122.2
34.1%	36.9%
0.926	0.896
100%	100%

DESCRIPTION CLAY, trace fine to coarse sand; gray.

USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH TW/SDM
START DATE 2/5/14
CHECK CHECK
REVIEW MAPPROVE

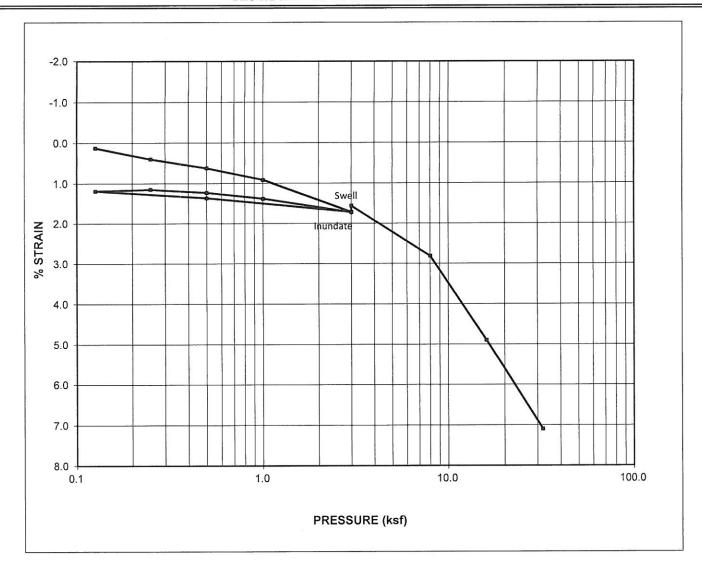
ONE-DIMENSIONAL SWELL OR COLLAPSE OF COHESIVE SOILS ASTM D 4546 Method B & C CLAY, trace fine to coarse sand; gray. PROJECT NAME FTN/ENTERGY WHITE BLUFF LF/AR LL 64 DESCRIPTION PL 24 1303118 PROJECT NUMBER FTN B-9 CH ΡI 40 CLASSIFICATION SAMPLE ID 38.0 - 40.0 Gs 2.712 SAMPLE DEPTH UD CONSOLIDOMETER # SAMPLE TYPE B & ASTM D 4546 Method Sample Data Initial Final 2.502 Total Height (in) 0.487 0.480 Sample Data **Trimmings** Before After Diameter (in) 0.487 Height of solids (in) 0.253 0.253 Test Test Height of sample (in) 148.54 4.917 Height of voids (in) 0.234 0.227 96.94 150.09 Area of sample (in^2) Tare plus wet soil, g 2.394 Height of water (in) 0.234 0.253 129.70 129.70 74.36 Volume of sample (in^3) Tare plus dry soil, g 0.926 74.46 34.1% Void ratio 0.896 8.23 74.46 Water Content Tare, g 99.9% 22.58 18.84 20.39 Sample Wt (wet, g) 74.08 Degree of saturation 100.0% Water, g 55.24 87.9 89.2 55.24 55.24 Sample Wt (dry, g) Dry unit wt (pcf) 66.13 Dry soil, g 18.84 Wet unit wt (pcf) 117.9 122.2 Water Content 34.1% 34.1% 36.9% Water Wt (g) CHANGE IN LENGTH OF DRAINAGE PERCENT COEFFICIENT OF PRESSURE H100 DIAL FITTING SAMPLE HEIGHT OF VOID STRAIN PATH (DOUBLE DRAINAGE) INITIAL CONSOLIDATION VOIDS **RATIO** HEIGHT (ksf) DIAL CHANGE TIME (sec) HEIGHT % H (in) H^2 (cm^2) COMPRESSION (ft^2/day) READING (in) t90 (in) Hv e (accum) 0.2341 0.9255 0.0000 0.0 0.0000 0.0000 0.487 0.125 0.485 0.2325 0.9193 0.0016 0.3 0.0016 0.126 0.0016 0.0023 0.5 0.0023 0.0023 0.485 0.2318 0.9165 0.250 0.0032 0.484 0.2309 0.9128 0.0032 0.7 0.500 0.0032 0.9071 0.0047 1.0 0.0047 0.482 0.2294 1.000 0.0047 0.8973 0.0071 1.5 2.000 0.0071 0.0071 0.480 0.2269 0.477 0.2240 0.8856 0.0101 2.1 4.000 0.0101 0.0101 0.478 0.2251 0.8901 0.0089 1.8 1.000 0.0089 0.0089 0.250 0.0077 0.0077 0.479 0.2264 0.8952 0.0077 1.6 0.479 0.2263 0.8946 0.0078 1.6 0.500 0.0078 0.0078 0.8926 0.0083 1.7 0.479 0.2258 1.000 0.0083 0.0083 0.0094 1.9 2.000 0.0094 0.0094 0.478 0.2246 0.8882 0.8856 0.0101 2.1 0.477 0.2240 4.000 0.0101 0.0101 0.9255 0.0000 0.0 0.487 0.2341 4.000 0.0000 0.0000 0.372 0.484 0.2306 0.9118 0.0035 0.7 0.240 29.8 0.053 8.000 0.0035 0.0035 558 0.8805 0.0114 2.3 0.240 0.371 35.4 0.041 0.0114 718 0.476 0.2227 0.0114 16.000 4335 0.8101 0.0292 6.0 0.233 0.351 21.8 0.006 32.000 0.0292 0.0292 0.458 0.2049 Note: Specimen was trimmed into consolidation ring Specimen inundated at 4.0 ksf. Specimen was allowed to swell or collapse at 4.0 ksf

Load increment at 4.0 ksf was allowed to stay on specimen for 24 hours.

%Strain versus axial stress curve is plotted using the end of primary consolidation, using the square root of time method. Final saturation high (105%), adjusted to 100%

TECH TW/SDM START DATE 2/5/14 RA CHECK WN REVIEW

ONE - DIMENSIONAL SWELL OR COLLAPSE OF COHESIVE SOILS ASTM D 4546 Method B & C



%Free Swell 0.1% @ 3.0 ksf % Collapse

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

 FTN B-11	
 UD	
 28,0-30.0'	

LL	52
PL	21
PΙ	31
Gs	2.71

Dry Unit Weight (pcf)
Wet Unit Weight (pcf)
Moisture Content
Void Ratio
Degree of Saturation

Initial	Final
90.8	94.7
116.2	123.5
28.0%	30.5%
0.862	0.786
88%	100%

DESCRIPTION CLAY, trace fine to medium sand; gray.

USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH TW/PWM

START DATE 2/11/14

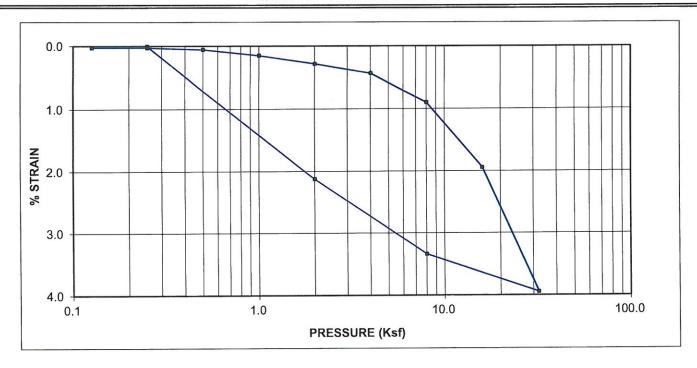
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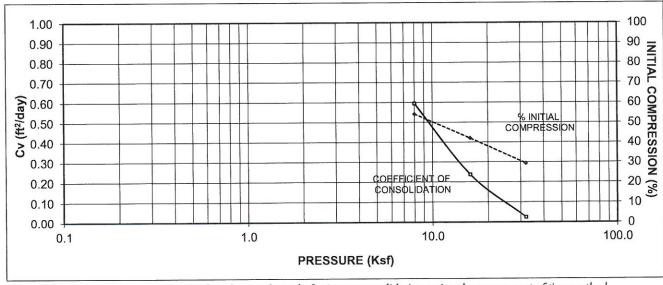
REVIEW FWM

ONE-DIMENSIONAL SWELL OR COLLAPSE OF COHESIVE SOILS ASTM D 4546 Method B & C CLAY, trace fine to medium sand; gray. LL 52 FTN/ENTERGY WHITE BLUFF LF/AR DESCRIPTION PROJECT NAME PL 21 PROJECT NUMBER 1303118 FTN B-11 CH PI 31 SAMPLE ID CLASSIFICATION 28.0-30.0 Gs 2.710 SAMPLE DEPTH UD SAMPLE TYPE CONSOLIDOMETER # 1 ASTM D 4546 Method B & C Sample Data Initial Final Total Height (in) 0.488 0.468 Sample Data Trimmings Before After Diameter (in) 2.496 0.262 0.262 0.488 Height of solids (in) Test Test Height of sample (in) 4.893 0.226 0.206 207.30 148.38 149.80 Height of voids (in) Tare plus wet soil, g Area of sample (in^2) 132.45 132.45 2.388 Height of water (in) 0.199 0.216 Tare plus dry soil, g 166.31 Volume of sample (in^3) 51.75 75.54 75.54 Water Content 28.0% Void ratio 0.862 0.786 Tare, g 15.93 72.84 88.0% 100.0% Water, g 40.99 17.35 Sample Wt (wet, g) Degree of saturation 56.91 90.8 94.7 Dry soil, g 114,56 56.91 56.91 Sample Wt (dry, g) Dry unit wt (pcf) 15.93 Wet unit wt (pcf) 116.2 123.5 Water Content 35.8% 28.0% 30.5% Water Wt (g) LENGTH OF DRAINAGE PRESSURE H100 DIAL FITTING SAMPLE HEIGHT OF VOID CHANGE IN STRAIN PERCENT COEFFICIENT OF (ksf) DIAL CHANGE TIME (sec) HEIGHT VOIDS RATIO HEIGHT PATH (DOUBLE DRAINAGE) INITIAL CONSOLIDATION % H (in) H^2 (cm^2) COMPRESSION (ft^2/day) READING (in) t90 (in) Hv (accum) 0.0 0.488 0.2260 0.8625 0.0000 0.125 0.0006 0.0000 0.1 0.126 0.0012 0.0006 0.487 0.2254 0.8602 0.0006 0.250 0.0025 0.0019 0.486 0.2240 0.8551 0.0019 0.4 0.6 0.500 0.0036 0.0030 0.485 0.2230 0.8510 0.0030 0.8455 0.0045 0.9 1.000 0.0051 0.0045 0.484 0.2215 0.0084 1.7 3,000 0.0090 0.0084 0.480 0.2176 0.8306 0.2193 0.8371 0.0067 1.4 0.500 0.0073 0.0067 0.481 0.126 0.0064 0.0058 0.482 0.2202 0.8404 0.0058 1.2 0.250 0.0062 0.0056 0.482 0.2204 0.8411 0.0056 1.1 1.2 0.500 0.0066 0.0060 0.482 0.2200 0.8396 0.0060 1.4 1.000 0.0073 0.0067 0.481 0.2193 0.8368 0.0067 1.7 3.000 0.0090 0.480 0.2176 0.8304 0.0084 0.0084 1.6 0.0082 0.480 0.2184 0.8335 0.0076 3.000 0.0076 0.474 0.2123 0.8101 0.0137 2.8 0.239 0.367 62.2 0.34 8.000 0.0143 0.0137 86 0.0239 0.2021 0.7713 0.0239 4.9 0.235 0.355 53.5 0.12 16.000 0.0245 240 0.464 0.1914 0.7303 0.0346 7.1 0.229 0.339 54.2 0.29 32.000 0.0352 0.0346 94 0.453 Note: Specimen was trimmed into consolidation ring Specimen inundated at 3.0 ksf. TECH TW/PWM Specimen was allowed to swell or collapse at 3.0 ksf Load increment at 3.0 ksf was allowed to stay on specimen for 24 hours. START DATE 2/11/14 DA %Strain versus axial stress curve is plotted using the end of primary consolidation, using the square root of time method. CHECK Final saturation high (105%), adjusted to 100% REVIEW PWA

ONE-DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A LL 64 CLAY, trace fine to coarse sand; gray. FTN/ENTERGY WHITE BLUFF LF/AR DESCRIPTION PROJECT NAME 24 PL 1303118 PROJECT NUMBER PI 40 FTN B-9R CLASSIFICATION CH SAMPLE ID 2.712 Gs 38.0-40.0 SAMPLE DEPTH UD CONSOLIDOMETER# 1 SAMPLE TYPE ASTM D 2435 Method A Sample Data Initial Final Total Height (in) 0.747 0.747 2.502 Diameter (in) Before After Sample Data **Trimmings** 0.390 0.747 Height of solids (in) 0.390 Height of sample (in) Test Test 4.917 Height of voids (in) 0.357 0.357 189.13 Area of sample (in^2) 187.84 Tare plus wet soil, g 143.69 Height of water (in) 0.350 0.366 3.673 110.02 159.67 Volume of sample (in^3) Tare plus dry soil, g 159.67 Void ratio 0.915 0.915 33.1% Water Content 8.27 74.46 74.46 Tare, g 98.0% 100.0% Degree of saturation 113.38 33.67 28.17 29.46 Sample Wt (wet, g) Water, g 88.4 88.4 Dry unit wt (pcf) 85.21 101.75 85.21 85.21 Sample Wt (dry, g) Dry soil, g Wet unit wt (pcf) 117.6 118.9 28.17 33.1% 33.1% 34.6% Water Wt (g) Water Content COEFFICIENT OF LENGTH OF DRAINAGE PERCENT CHANGE IN STRAIN DIAL FITTING SAMPLE HEIGHT OF VOID PRESSURE H100 MACHINE CONSOLIDATION PATH (DOUBLE DRAINAGE) INITIAL HEIGHT **VOIDS RATIO HEIGHT** DIAL / STONE CHANGE TIME (sec) (ksf) COMPRESSION H^2 (cm^2) (ft^2/day) H (in) Hv e (accum) % CORR. t90 (in) READING (in) 0.0 0.374 0.900 0.3569 0.9147 0.0000 0.0000 0.0000 0.747 0.0005 0.125 0.373 0.900 0.3567 0.9142 0.0002 0.0 0.0002 0.747 0.0000 0.126 0.0007 0.373 0.900 0.9142 0.0002 0.0 0.747 0.3567 0.0007 0.0000 0.0002 0.250 0.899 0.9136 0.0004 0.1 0.373 0.3564 0.0004 0.747 0.500 0.0015 0.0006 0.2 0.373 0.898 0.9118 0.0011 0.746 0.3557 0.0011 1.000 0.0028 0.0011 0.3 0.373 0.896 0.9093 0.0021 0.745 0.3548 0.0021 2.000 0.0047 0.0021 0.372 0.894 0.0032 0.4 0.744 0.3536 0.9064 4.000 0.0072 0.0034 0.0032 0.371 0.888 54.2 0.595 0.9 0.3501 0.8975 0.0067 0.740 8.000 0.0123 0.0050 0.0067 118 0.875 42.0 0.237 0.368 0.8775 0.0145 1.9 0.3424 0.0219 0.0069 0.0145 290 0.732 16.000 0.848 29.3 0.025 0.8392 0.0295 3.9 0.363 0.3274 0.0390 0.0090 0.0295 2693 0.718 32.000 0.360 0.836 3.3 0.0249 0.0249 0.722 0.3319 0.8508 8.000 0.0314 0.0060 0.852 0.363 0.3410 0.8741 0.0159 2.1 0.0159 0.731 0.0184 0.0020 2.000 0.881 0.9147 0.0000 0.0 0.370 0.0000 0.747 0.3569 0.0005 0.0000 0.250 FINAL DIAL READING 0.0000 Specimen was trimmed into consolidation ring Note: TECH TW Specimen was run inundated. 2/14/14 START DATE Specimen required 4 ksf of pressure to hold swelling down. %Strain and Void Ratio versus axial stress curves are plotted using the end of primary consolidation, using the square root of time method. CHECK **REVIEW** WES Final saturation high (102%), adjusted to 100% **APPROVE**

ONE - DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A





Note: %Strain vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-9R	
 UD	
38.0-40.0'	

LL 64
PL 24
PI 40
Gs 2.71

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
88.4	88.4
117.6	118.9
33.1%	34.6%
0.915	0.915
98%	100%

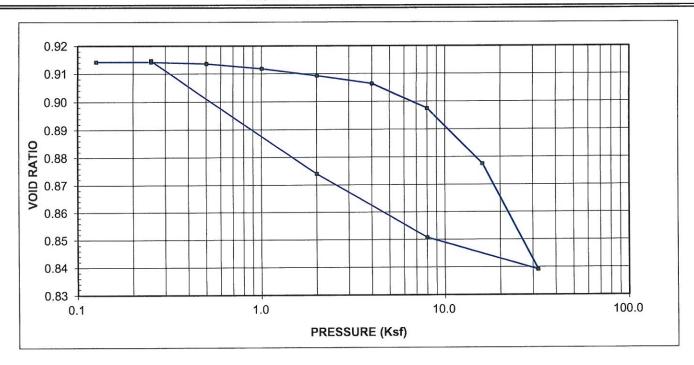
DESCRIPTION CLAY, trace fine to coarse sand; gray.

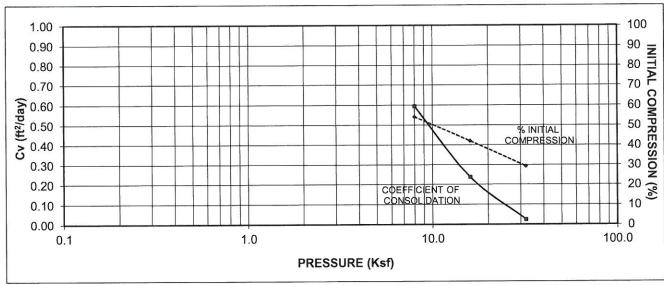
USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH TW
START DATE 2/14/14
CHECK CALM
REVIEW APPROVE

ONE - DIMENSIONAL CONSOLIDATION ASTM D 2435 Method A





Note: Void Ratio vs. axial stress curve is plotted using the end of primary consolidation, using the square root of time method.

SAMPLE ID SAMPLE TYPE SAMPLE DEPTH

FTN B-9R	
UD	
38.0-40.0'	

LL 64
PL 24
PI 40
Gs 2.71

Dry Unit Weight (pcf) Wet Unit Weight (pcf) Moisture Content Void Ratio Degree of Saturation

Initial	Final
88.4	88.4
117.6	118.9
33.1%	34.6%
0.915	0.915
98%	100%

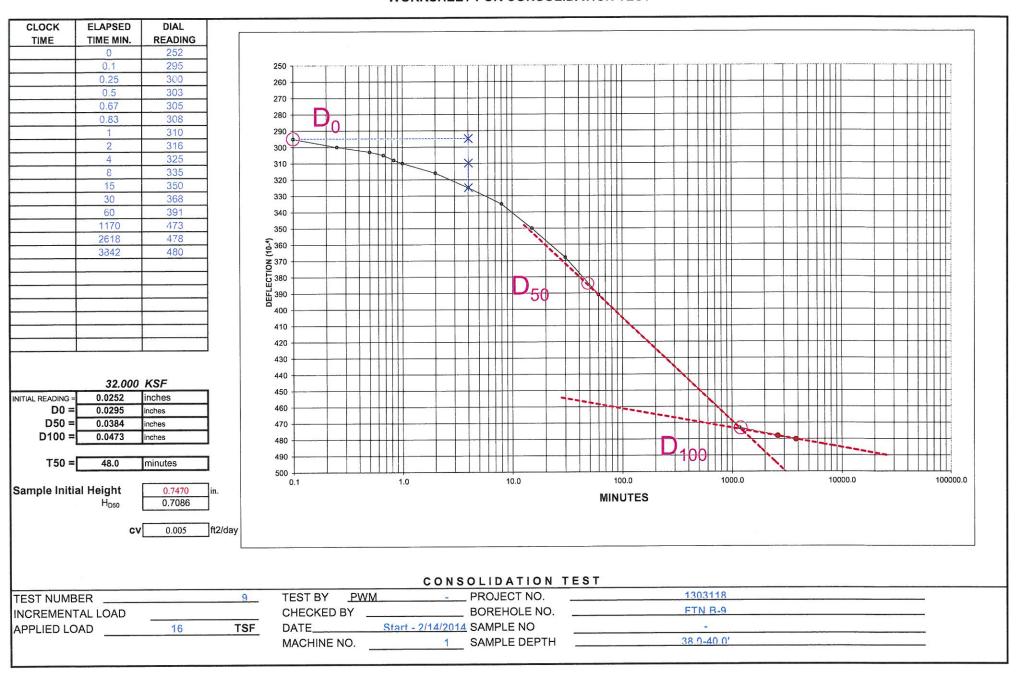
DESCRIPTION CLAY, trace fine to coarse sand; gray.

USCS CH

FTN/ENTERGY WHITE BLUFF LF/AR 1303118

TECH TW
START DATE 2/14/14
CHECK REVIEW APPROVE

WORKSHEET FOR CONSOLIDATION TEST



METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE FTN/ENTERGY WHITE BLUFF/AR PROJECT NUMBER 1776955 SAMPLE ID MW-10D 40.0-42.01 SAMPLE TYPE UD

9 Board # 2 Flow Pump 12 Flow Pump Speed Technician SDM/PWM

COMMENTS

Sample Data, Initial 3.121 B-Value, f 1.00 Height, inches Diameter, inches 2.830 Cell Pres. 113.0 Area, cm² 40.58 Bot. Pres. 80.0 Volume, cm3 321.70 Top Pres. 80.0 578.02 Tot. B.P. 80.0 Mass, g 40.43 183.59 Moisture Content, % Head, max. 183.59 Dry Density, pcf 79.84 Head, min. 23.26 Spec. Gravity (assumed) 2.700 Max. Grad. Volume Solids, cm3 152.45 Min. Grad. 23.26 Volume Voids, cm3 169.26 Void Ratio 1.11

Sample Data, Final 3.107 Height, inches Diameter, inches 2.841 Area, cm2 40.90 Volume, cm³ 322.76 578.33 Mass, g 40.51 Moisture Content, % Dry Density, pcf 79.58 Volume Solids, cm3 152.45 Volume Voids, cm3 170.31 **Void Ratio** 1.12 Saturation, % 97.9%

Sample WATER CONTENTS Initial 578.02 Wt Soil & Tare, i Wt Soil & Tare, f 411.61 Wt Tare 0.00 Wt Moisture Lost 166.41 Wt Dry Soil 411.61 g 40.43% Water Content %

Sample Final 586.62 419.94 8.44 166.68 411.50 40.51%

Flow Pump Rate

98.3%

Saturation, %

4.35E-06 cm³/sec

USCS

CH

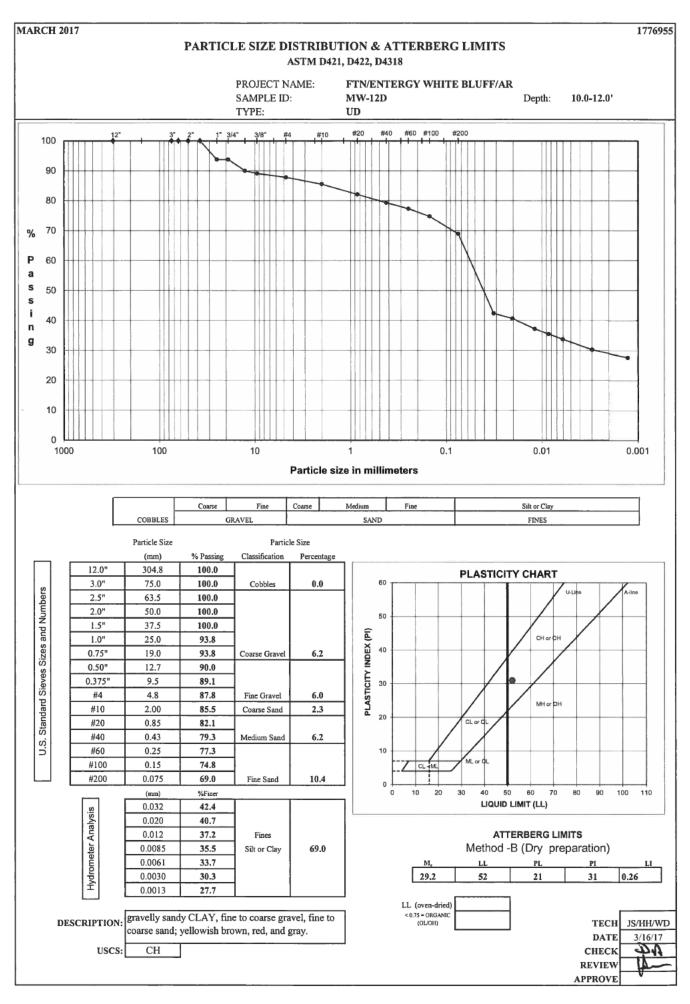
DESCRIPTION CLAY, trace fine to coarse sand; dark olive.

	TIME FUNCTIONS, SECONDS													
DATE	DAY	HOUR	MIN	ТЕМР	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	F	ermeability	y
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)			(cm/sec)	
03/22/17	42816	15	30	20.0	0	0	0	0	2.61	183.59	23.26		4.6E-09	
03/22/17	42816	15	35	20.0	5	5	300	300	2.61	183.59	23.26		4.6E-09	
03/22/17	42816	15	40	20.0	5	10	300	600	2.61	183.59	23.26		4.6E-09	
03/22/17	42816	15	45	20.0	5	15	300	900	2.61	183.59	23.26		4.6E-09	*
03/22/17	42816	15	50	20.0	5	20	300	1200	2.61	183.59	23.26		4.6E-09	*
03/22/17	42816	15	55	20.0	5	25	300	1500	2.61	183.59	23.26		4.6E-09	*
03/22/17	42816	16	0	20.0	5	30	300	1800	2.61	183.59	23.26	L	4.6E-09	*

*TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 4.6E-09 cm/sec **

DATE 3/22/17 CHECK REVIEW APPROVE



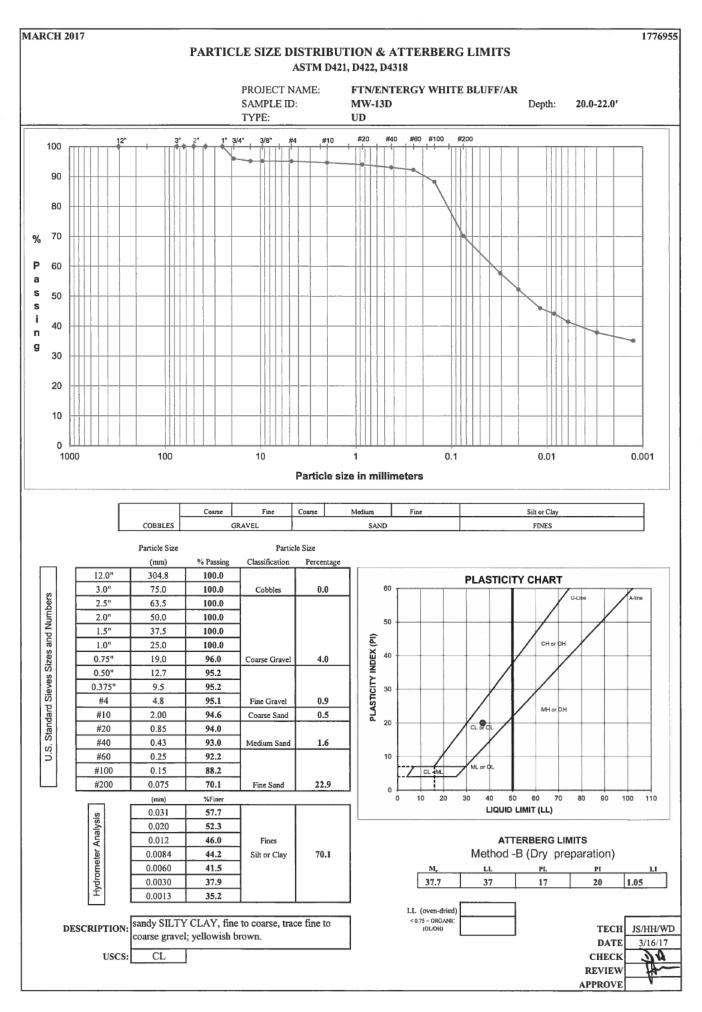
FLEXIBLE WALL TRIAXIAL PERMEABILITY ASTM D 5084 METHOD C, FALLING HEAD W/INCREASING TAIL WATER PRESSURE

PROJECT TITLE	FTN/ENTERGY WHI	TE BLUFF/AR]	Using Pip	ettes Only	YES	COMMENTS	1.11 1.500-551111-	22.0	
PROJECT NUMBER	1776955		Usin	g Pipettes &	& Burettes	NO				
SAMPLE ID	MW-12D	10.0-12.01	BOARD#	5	TECH	PWM/DA	-			
SAMPLE TYPE	UD		CELL#	5	DATE	3/19/17				

Sample Data, Initial									
Height, inches	3.137			_	Sample Data, Final		Water Contents	Initial	Final
Diameter, inches	2.824	B-Value,f	0.96]	Height, inches	3.146	Wt soil&tare, i	619.08	631.61
Area, cm^2	40.41	Cell Pres.	59.0	psi	Diameter, inches	2.842	Wt soil&tare, f	479.05	487.25
Volume, cm^3	321.98	Bot. Pres.	52.0	psi	Area, cm ²	40.93	Wt Tare	0.00	8.37
Mass, g	619.08	Top Pres.	50.0	psi	Volume, cm ³	327.04	Wt Moisture Lost	140.03	144.36
Moisture Content, %	29.2	Head, cm	140.68	1	Mass, g	623.46	Wt Dry Soil	479.05	478.88
Dry Density, pcf	92.8	Max. Grad.	20.66]	Moisture Content %	30.15	Water Content	29.23%	30.15%
Spec. Gravity (assumed)	2.700	Min. Grad.	19.45]	Dry Density, pcf	91.40			
Volume Solids, cm^3	177.43	Max. E.S.	9.00]	Saturation	96.5%	DESCRIPTION gravelly sa	indy CLAY, fine to	o coarse gravel,
/olume Voids, cm^3	144.56	Min. E.S.	7.00	1	Inflow Volume per (cc)	1.00	fine to coa	rse sand; yellowis	h brown, red, and
Void Ratio	0.81	•		-	Outflow Volume per (cc)	1.00	gray.		
Saturation	96.9%						USCS CH		

TIN	ИЕ FUNCTI	ON	REAL	DINGS		TIME	E IN MINUT	TES & SECO	ONDS			VOL	UME	PERMEABILITY
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@ 20 Degrees C
			(cc)	(cc)		(min)	(sec)	(sec)	(cm)	(inc.)		(cc)	(cc)	(cm/sec)
03/19/17	13	8	0.0	25.0	18.0	0.0	0.0	0	165.10		20.66	0.00	0.00	0.0
03/19/17	13	26	1.6	23.6	18.0	18.0	1080	1080	162.17	1.02	20.30	1.60	1.40	1.7E-06
03/19/17	14	16	5.2	20.3	18.0	50.0	3000	4080	155.45	1.04	19.45	3.60	3.30	1.5E-06
03/20/17	9	2	0.0	25.0	18.7	1126.0	67560	71640	165.10	0.94	20.66	0.00	0.00	-
03/20/17	9	12	0.8	24.2	18.7	10.0	600	72240	163.54	1.01	20.47	0.80	0.80	1.6E-06 *
03/20/17	9	31	2.1	22.9	18.7	19.0	1140	73380	161.00	1.02	20.15	1.30	1.30	1.4E-06 *
03/20/17	9	41	2.8	22.3	18.7	10.0	600	73980	159.74	1.01	19.99	0.70	0.60	1.3E-06 *
03/20/17	10	9	4.8	20.4	18.7	28.0	1680	75660	155.94	1.02	19.51	2.00	1.90	1.5E-06 *
											,			
		10000000												
	Inflow Dat		0.000132	1							*DE	DMEARII	ITV DEPO	RTED AS 1 4F-06 cm/sec

DATE 3/19/17
CHECK
REVIEW
APPROVE



METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WHITE BLUFF/AR				
PROJECT NUMBER	1776955				
SAMPLE ID	MW-13D	20.0-22.0'			
SAMPLE TYPE	UD				

Board #	6
Flow Pump	2
Flow Pump Speed	10
Technician	PWM

COMMENTS

1											
Sample Data, Initial		_		Sample Data, Final							
Height, inches	3.106	B-Value, f	1.00	Height, inches	3.105				Sample		Sample
Diameter, inches	2.859	Cell Pres.	97.0	Diameter, inches	2.875	,	WATER CONTENTS	S	Initial		Final
Area, cm²	41.42	Bot. Pres.	80.0	Area, cm²	41.88	,	Wt Soil & Tare, i	g	600.19		609.17
Volume, cm ³	326.75	Top Pres.	80.0	Volume, cm3	330.32	,	Wt Soil & Tare, f	g	435.89		444.20
Mass, g	600.19	Tot. B.P.	80.0	Mass, g	600.91	,	Wt Tare	g	0.00		8.45
Moisture Content, %	37.69	Head, max.	117.47	Moisture Content, %	37.86	,	Wt Moisture Lost	g	164.30		164.97
Dry Density, pcf	83.24	Head, min.	117.47	Dry Density, pcf	82.34	,	Wt Dry Soil	g	435.89		435.75
Spec. Gravity (assumed)	2.700	Max. Grad.	14.89	Volume Solids, cm3	161.44	,	Water Content	%	37.69%		37.86%
Volume Solids, cm ³	161.44	Min. Grad.	14.89	Volume Voids, cm ³	168.88						
Volume Voids, cm ³	165.31			Void Ratio	1.05						
Void Ratio	1.02			Saturation, %	97.7%	_1	DESCRIPTION				
Saturation, %	99.4%					ŀ	sandy SILTY CLAY,	fine to coars	e, trace fine to	o coarse gravel; yellov	vish brown.
	Flow Pum	p Rate	2.25E-05 cm ³ /sec	USCS	CL						

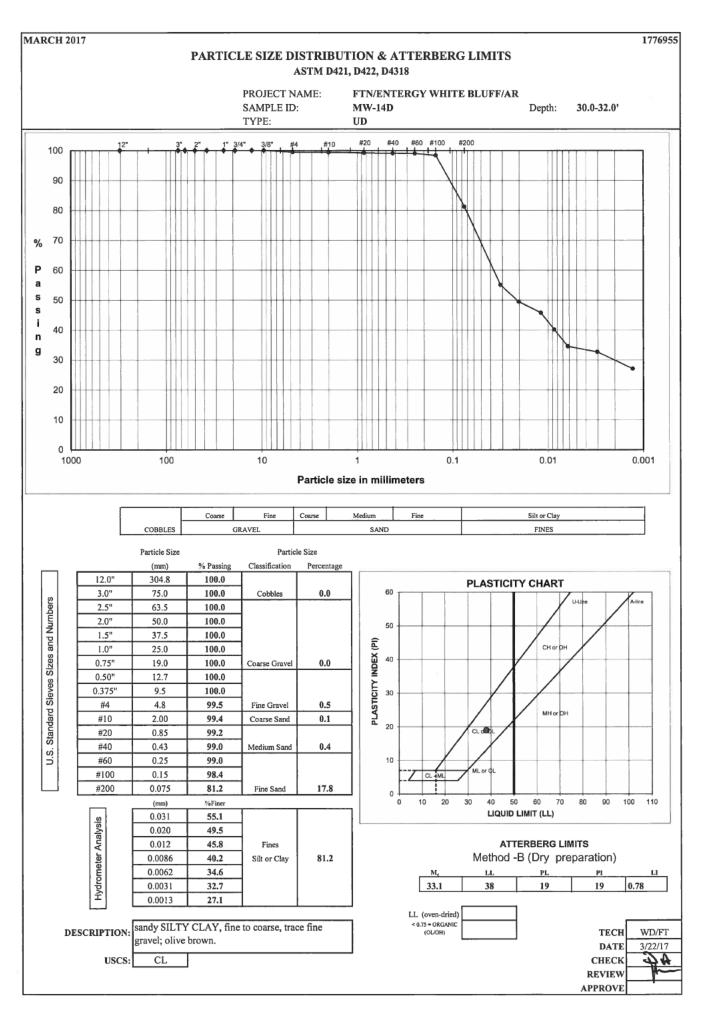
TIME FUNCTIONS, SECONDS							dP					
DATE	DAY	HOUR	MIN	ТЕМР	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	_(sec)	(psi)	(cm)		(cm/sec)
03/20/17	42814	14	30	19.6	0	0	0	0	1.67	117.47	14.89	3.6E-08
03/20/17	42814	14	35	19.6	5	5	300	300	1.67	117.47	14.89	3.6E-08
03/20/17	42814	14	40	19.6	5	10	300	600	1.67	117.47	14.89	3.6E-08
03/20/17	42814	14	45	19.6	5	15	300	900	1.67	117.47	14.89	3.6E-08 *
03/20/17	42814	14	50	19.6	5	20	300	1200	1.67	117.47	14.89	3.6E-08 *
03/20/17	42814	14	55	19.6	5	25	300	1500	1.67	117.47	14.89	3.6E-08 *
03/20/17	42814	15	0	19.6	5	30	300	1800	1.67	117.47	14.89	3.6E-08 *

^{*}TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 3.6E-08 cm/sec **

CHECK

DATE 3/20/17 APPROVE



METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WHITE BLUFF/AR					
PROJECT NUMBER	1776955					
SAMPLE ID	MW-14D	30.0-32				
SAMPLE TYPE	UD					

Board #	11
Flow Pump	2
Flow Pump Speed	10
Technician	SDM

COMMENTS

Sample Data, Initial			
Height, inches	3.102	B-Value, f	0.99
Diameter, inches	2.847	Cell Pres.	105.0
Area, cm²	41.07	Bot. Pres.	80.0
Volume, cm ³	323.60	Top Pres.	80.0
Mass, g	610.19	Tot. B.P.	80.0
Moisture Content, %	33.12	Head, max.	180.07
Dry Density, pcf	88.39	Head, min.	180.07
Spec. Gravity (assumed)	2.700	Max. Grad.	22.94
Volume Solids, cm ³	169.77	Min. Grad.	22.94
Volume Voids, cm ³	153.83		
Void Ratio	0.91	1	

Sample Data, Final	
Height, inches	3.090
Diameter, inches	2.860
Area, cm²	41.45
Volume, cm ³	325.30
Mass, g	607.84
Moisture Content, %	32.60
Dry Density, pcf	87.93
Volume Solids, cm3	169.77
Volume Voids, cm3	155.52
Void Ratio	0.92
Saturation, %	96.1%
-	

WATER CONTENT	rs	Sample Initial
Wt Soil & Tare, i	g	610.19
Wt Soil & Tare, f	g	458.39
Wt Tare	g	0.00
Wt Moisture Lost	g	151.80
Wt Dry Soil	g	458.39
Water Content	%	33.12%

Sample
Final
616.23
466.80
8.48
149.43
458.32
32.60%

Flow Pump Rate

98.7%

Saturation, %

2.25E-05 cm³/sec

30.0-32.01

USCS

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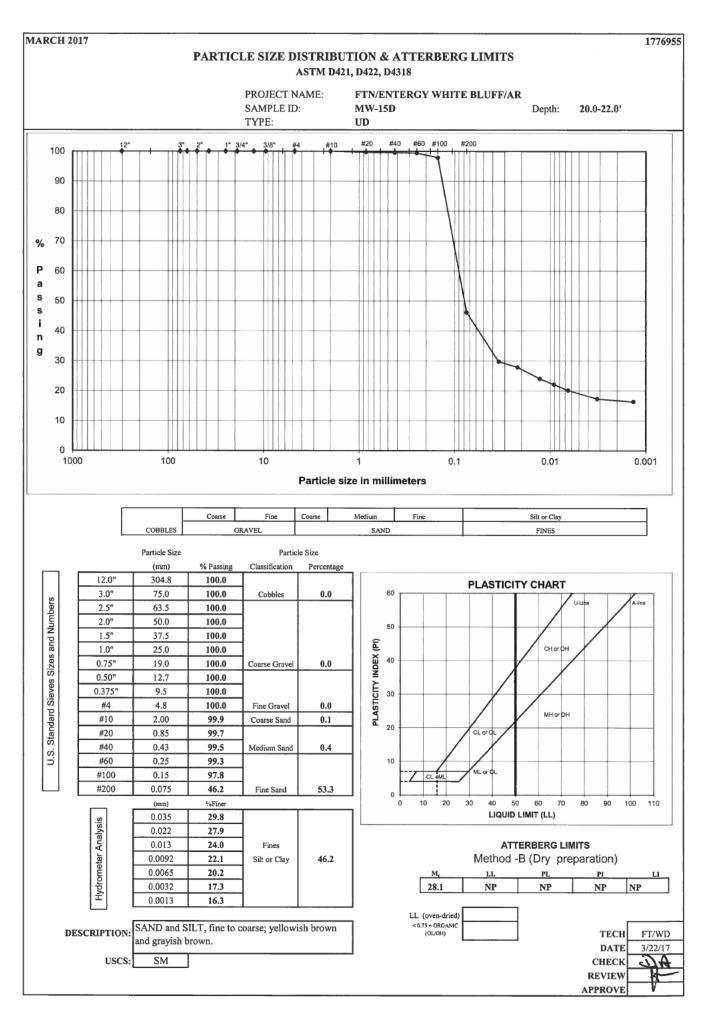
DESCRIPTION sandy SILTY CLAY, fine to coarse, trace fine gravel; olive brown.

		TIM	E FUNCTIO	ONS, SECO	NDS			dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
03/22/17	42816	15	15	19.6	0	0	0	0	2.56	180.07	22.94	2.4E-08
03/22/17	42816	15	20	19.6	5	5	300	300	2.56	180.07	22.94	2.4E-08
03/22/17	42816	15	25	19.6	5	10	300	600	2.56	180.07	22.94	2.4E-08
03/22/17	42816	15	30	19.6	5	15	300	900	2.56	180.07	22.94	2.4E-08 *
03/22/17	42816	15	35	19.6	5	20	300	1200	2.56	180.07	22.94	2.4E-08 *
03/22/17	42816	15	40	19.6	5	25	300	1500	2.56	180.07	22.94	2.4E-08 *
03/22/17	42816	15	45	19.6	5	30	300	1800	2.56	180.07	22.94	2.4E-08 *

*TRANSCRIBED FROM ORIGINAL DATA SHEETS

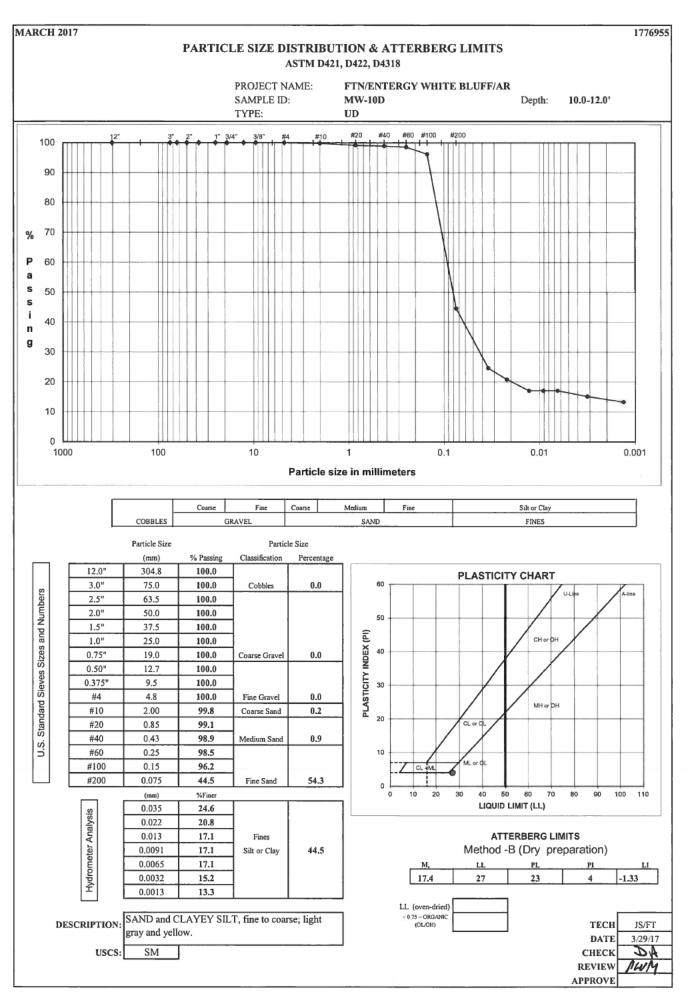
PERMEABILITY REPORTED AS ** 2.4E-08 cm/sec **

DATE 3/22/17 CHECK APPROVE



FLEXIBLE WALL TRIAXIAL PERMEABILITY

PROJECT TITLE FTN/ENTERGY WHITE BLUFF/AR Using Pipettes Only VES Using Pipettes & Burettes NO SAMPLE ID MW-15D 20.0-22.0' BOARD# 12 TECH SDM/PWM SAMPLE TYPE UD CELL# 12 DATE 3/21/17 Sample Data, Initial Height, inches 3.096 Sample Data, Final Diameter, inches 2.836 B-Value, f 0.98 Height, inches 3.092 Wt soil&tare, i 614.11 623.27
PROJECT NUMBER 1776955 SAMPLE ID SAMPLE TYPE WW-15D SAMPLE TYPE UD Sample Data, Initial Height, inches 3.096 Sample Data, Final Water Contents Initial Final
SAMPLE ID MW-15D 20.0-22.0' BOARD# 12 TECH SDM/PWM DATE 3/21/17 Sample Data, Initial Height, inches 3.096 Sample Data, Final Water Contents Initial Final
SAMPLE TYPE UD CELL# 12 DATE 3/21/17 Sample Data, Initial Height, inches 3.096 Sample Data, Final Water Contents Initial Final
Sample Data, Initial Height, inches 3.096 Sample Data, Final Water Contents Initial Final
Height, inches 3.096 Sample Data, Final Water Contents Initial Final
Diameter, inches 2.836 B-Value, f 0.98 Height, inches 3.092 Wt soil&tare, i 614.11 623.27
Area, cm^2 40.75 Cell Pres. 87.0 psi Diameter, inches 2.820 Wt soil&tare, f 479.23 487.61
Volume, cm ² 320.48 Bot. Pres. 53.0 psi Area, cm ² 40.30 Wt Tare 0.00 8.50
Mass, g 614.11 Top Pres. 50.0 psi Volume, cm ³ 316.47 Wt Moisture Lost 134.88 135.66
Moisture Content, % 28.1 Head, cm 211.02 Mass, g 614.92 Wt Dry Soil 479.23 479.11
Dry Density, pcf 93.3 Max. Grad. 29.98 Moisture Content % 28.32 Water Content 28.15% 28.32%
Spec. Gravity (assumed) 2.700 Min. Grad. 28.40 Dry Density, pcf 94.49
Volume Solids, cm ^{^3} 177.49 Max. E.S. 37.00 Saturation 97.6% DESCRIPTION SAND and SILT, fine to coarse; yellowish
Volume Voids, cm ^{^3} 142.99 Min. E.S. 34.00 Inflow Volume per (cc) 1.00 brown and grayish brown.
Void Ratio 0.81 Outflow Volume per (cc) 1.00
Saturation 94.3% USCS SM
PERMEANT: Deaired Tap Water
TIME FUNCTION READINGS TIME IN MINUTES & SECONDS VOLUME PERMEABILITY
DATE HOUR MIN Inflow Outflow Temp. dt dt dt, acc Head (H1/H2) Gradient Inflow Outflow @ 20 Degrees C
(cc) (cc) (min) (sec) (sec) (cm) (inc.) (cc) (cc) (cm/sec)
03/21/17 14 45 0.0 25.0 19.7 0.0 0.0 0 235.44 29.98 0.00 0.00 0.0
03/21/17 14 56 1.1 23.9 19.7 11.0 660 660 233.29 1.01 29.70 1.10 1.10 1.4E-06
03/21/17 15 14 2.3 22.7 19.8 18.0 1080 1740 230.95 1.01 29.41 1.20 1.20 9.2E-07
03/21/17 15 40 3.6 21.4 19.8 26.0 1560 3300 228.42 1.01 29.08 1.30 1.30 7.0E-07
03/21/17 15 55 4.2 20.9 19.8 15.0 900 4200 227.30 1.00 28.94 0.60 0.55 5.4E-07 *
03/21/17 16 31 5.5 19.5 20.0 36.0 2160 6360 224.72 1.01 28.61 1.30 1.35 5.2E-07 *
03/21/17 16 41 6.0 19.2 20.0 10.0 600 6960 224.00 1.00 28.52 0.45 0.29 5.2E-07 *
03/21/17 16 55 6.4 18.7 20.0 14.0 840 7800 223.06 1.00 28.40 0.45 0.52 4.9E-07 *
1
Inflow Date 10,00021
Inflow Rate
Outflow/Inflow Ratio 0.98 DATE 3/21/17
CHECK ZA
REVIEW W
APPROVE



METHOD D, CONSTANT RATE OF FLOW

PROJECT TITLE	FTN/ENTERGY WHITE BLUFF/AR									
PROJECT NUMBER	1776955									
SAMPLE ID	MW-10D 10.0-12.0'									
SAMPLE TYPE	UD									

Board #	5
Flow Pump	2
Flow Pump Speed	7
Technician	SDM

COMMENTS

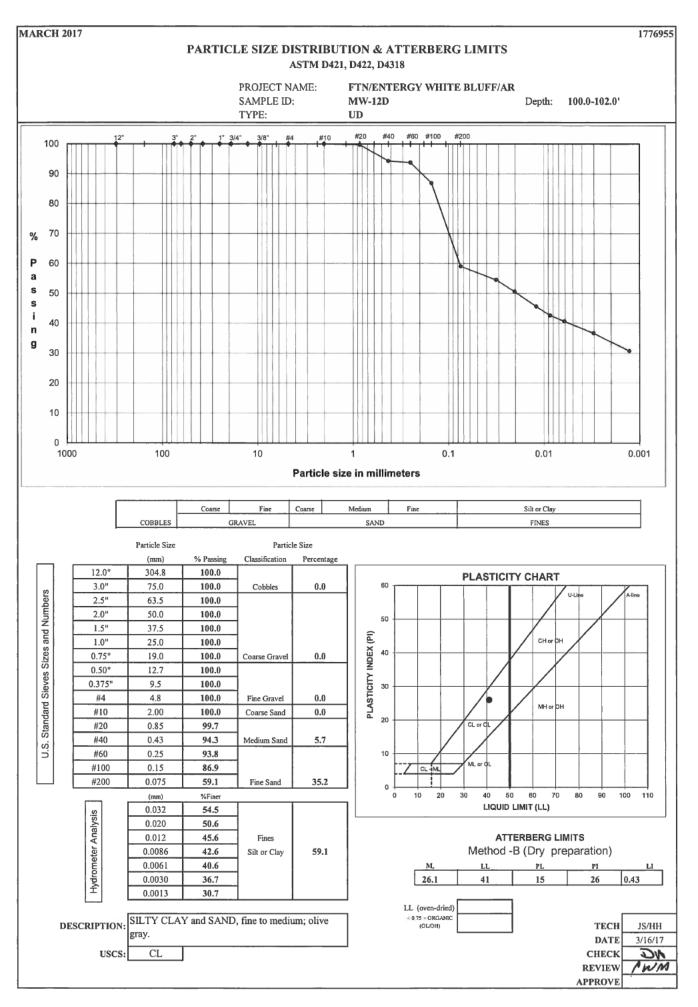
Sample Data, Initial				Sample Data, Final			
Height, inches	3.145	B-Value, f	0.99	Height, inches	3.058	Samp	ole Sample
Diameter, inches	2.793	Cell Pres.	89.0	Diameter, inches	2.802	WATER CONTENTSIniti	al Final
Area, cm ²	39.53	Bot. Pres.	80.0	Area, cm²	39.78	Wt Soil & Tare, i g 674.0	675.90
Volume, cm ³	315.76	Top Pres.	80.0	Volume, cm ³	309.00	Wt Soil & Tare, f g 574.0	581.80
Mass, g	674.00	Tot. B.P.	80.0	Mass, g	668.25	Wt Tare g 0.00	8.23
Moisture Content, %	17.41	Head, max.	139.98	Moisture Content, %	16.41	Wt Moisture Lost g 99.9	3 94.10
Dry Density, pcf	113.45	Head, min.	139.98	Dry Density, pcf	115.93	Wt Dry Soil g 574.0	573.57
Spec. Gravity (assumed)	2.700	Max. Grad.	18.02	Volume Solids, cm ³	212.62	Water Content % 17.41	% 16.41%
Volume Solids, cm ³	212.62	Min. Grad.	18.02	Volume Voids, cm ³	96.39		
Volume Voids, cm ³	103.14]		Void Ratio	0.45		
Void Ratio	0.49]		Saturation, %	97.7%	DESCRIPTION	
Saturation, %	96.9%					SAND and CLAYEY SILT, fine to coarse;	light gray and yellow.
	Flow Pump	p Rate	2.38E-04 c	m³/sec USCS	SM		

		TIM	E FUNCTIO	ONS, SECO	NDS			dP				
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
03/29/17	42823	13	30	20.4	0	0	0	0	1.99	139.98	18.02	3.3E-07
03/29/17	42823	13	35	20.4	5	5	300	300	1.99	139.98	18.02	3.3E-07
03/29/17	42823	13	40	20.4	5	10	300	600	1.99	139.98	18.02	3.3E-07
03/29/17	42823	13	45	20.4	5	15	300	900	1.99	139.98	18.02	3.3E-07 *
03/29/17	42823	13	50	20.4	5	20	300	1200	1.99	139.98	18.02	3.3E-07 *
03/29/17	42823	13	55	20.4	5	25	300	1500	1.99	139.98	18.02	3.3E-07 *
03/29/17	42823	_14	0	20.4	5	30	300	1800	1.99	139.98	18.02	3.3E-07 *

*TRANSCRIBED FROM ORIGINAL DATA SHEETS

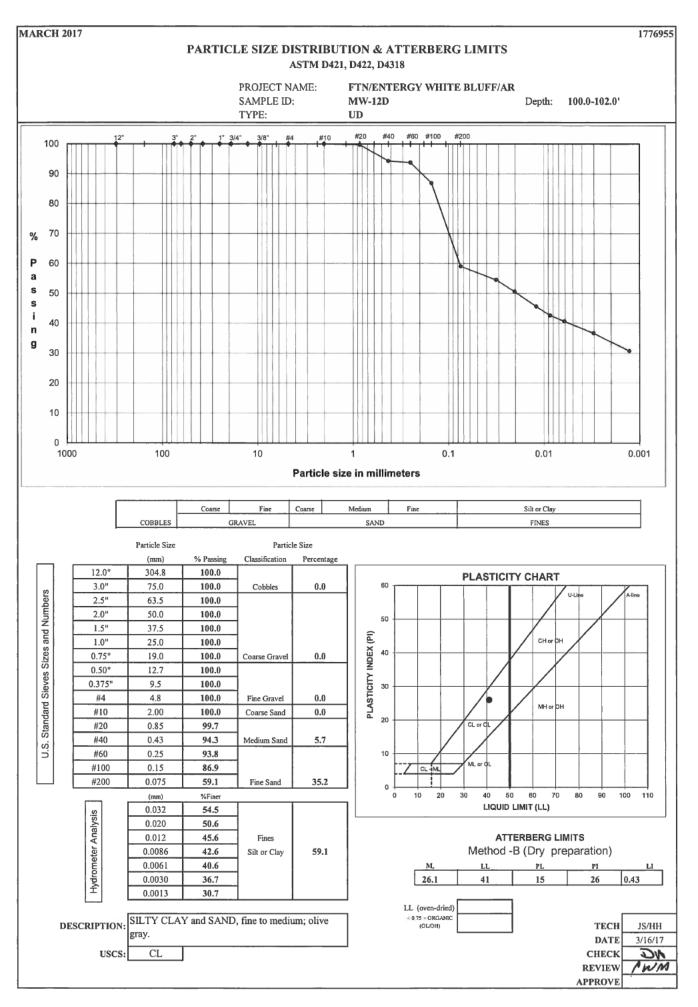
PERMEABILITY REPORTED AS ** 3.3E-07 cm/sec **

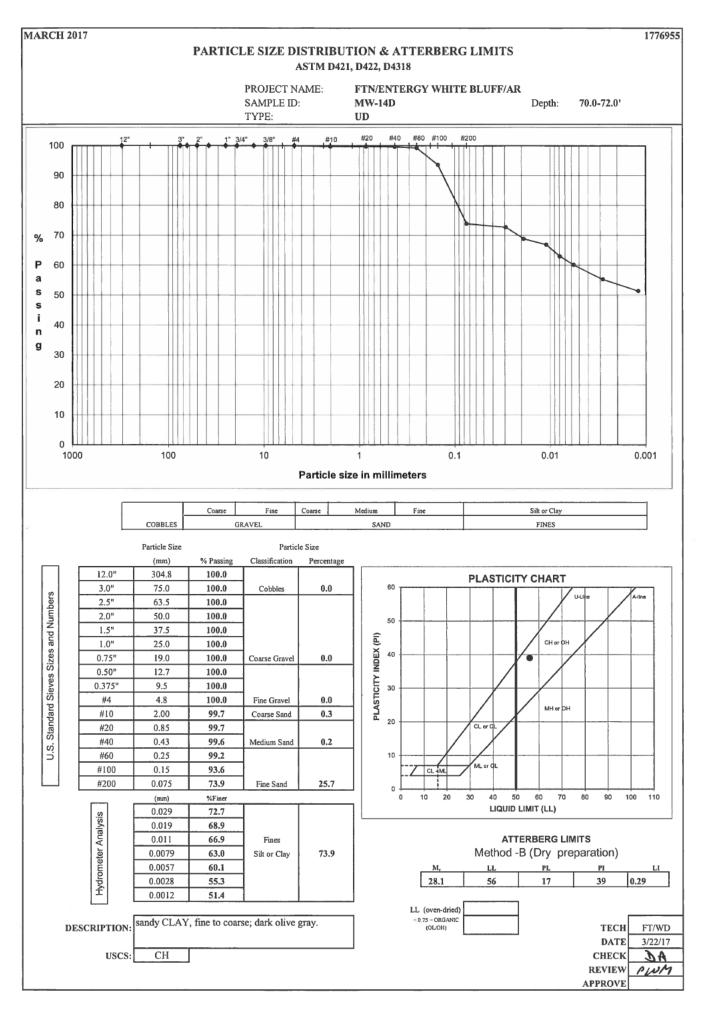
DATE 3/29/17
CHECK DA
REVIEW APPROVE



FLEXIBLE WALL TRIAXIAL PERMEABILITY

ASTM D 5084 METHOD C, FALLING HEAD W/INCREASING TAIL WATER PRESSURE																
PROJECT	י דודו ד	ETN/ENT	EDCV WH	ITE BLUFF		, FALLIN		oettes Only	YES		MMENTS					
PROJECT			EKGI WII	IIE BLUFF	TAIN	l Ileir	ng Pipettes		NO		MIMENTS					
SAMPLE		MW-12D		100.0	102.0'	BOARD#	1g 1 ipeties	TECH								
SAMPLE		UD		100.0-	102.0	CELL#	4	DATE								
		0.0							5.2							
Sample Da	ta. Initial															
Height, incl	,	3.087	1				Sample Da	ıta, Final			Water Cor	itents	Initial		Final	
Diameter, in		2.826	1	B-Value,f	0.97	1	Height, inc	hes	3.075		Wt soil&ta	re, i	650.92		648.28	
Area, cm^2		40.47	1	Cell Pres.	115.0	psi	Diameter, i	inches	2.825		Wt soil&ta	re, f	516.05	1	524.37	
Volume, cn	n^3	317.30	1	Bot. Pres.	45.0	psi	Area, cm^2	2	40.44		Wt Tare		0.00	1	8.42	
Mass, g		650.92	1	Top Pres.	40.0	psi	Volume, cr	n^3	315.89		Wt Moistu	re Lost	134.87	1	123.91	
Moisture C	ontent, %	26.1	1	Head, cm	351.70	1	Mass, g		639.99		Wt Dry So	il	516.05	1 🗆	515.95	
Dry Density	y, pcf	101.5]	Max. Grad.	48.16	1	Moisture C	Content %	24.02		Water Con	tent	26.13%		24.02%	
Spec. Gravit	y (assumed)	2.700]	Min. Grad.	47.46]	Dry Densit	y, pcf	101.94							
Volume So	,	191.13]	Max. E.S.	75.00]	Saturation		99.3%	DESC	RIPTION	SILTY CL	AY and SAN	ND, fine to med	dium;	
Volume Vo	ids, cm^3	126.17]	Min. E.S.	70.00		Inflow Vol	ume per (cc)	1.00			olive gray.				
Void Ratio		0.66]			Outflow Volume per (cc) 1.00										
Saturation		100.0%									USCS	CL				
	PERMEANT: Deaired Tap Water															
TIN	AE FUNCT	ION	REAL	DINGS		TIMI	E IN MINU	TES & SEC	ONDS			VOL	UME	PEI	RMEABILIT	Y
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@	20 Degrees	C
			(cc)	(cc)		(min)	(sec)	(sec)	(cm)	(inc.)		(cc)	(cc)		(cm/sec)	
03/24/17	8	50	0.0	25.0	18.9	0.0	0.0	0	376.12		48.16	0.00	0.00		0.0	
03/25/17	15	28	1.0	24.1	18.9	1838.0	110280	110280	374.27	1.00	47.92	1.00	0.90		4.5E-09	
03/26/17	14	58	1.6	23.5	18.6	1410.0	84600	194880	373.10	1.00	47.77	0.60	0.60	ı	3.7E-09	
03/27/17	7	44	2.0	23.0	19.0	1006.0	60360	255240	372.22	1.00	47.66	0.40	0.50	ı	3.9E-09 *	
03/27/17	17	4	2.3	22.8	20.4	560.0	33600	288840	371.73	1.00	47.59	0.25	0.25	ı	3.7E-09 *	
03/28/17	7	45	2.7	22.4	19.2	881.0	52860	341700	371.00	1.00	47.50	0.40	0.35	ı	3.7E-09 *	
03/28/17	14	0	2.8	22.2	20.3	375.0	22500	364200	370.66	1.00	47.46	0.15	0.20		3.9E-09 *	
						1										
	Inflow Ra		0.0000077				L				*PE	RMEABIL	LITY REPO	RTED AS .	3.8E-09 c	m/sec
	Outflow Rate 0.0000077 Outflow/Inflow Ratio 1.00 DATE 3/24/17															
	Outflow/I	nflow Ratio	1.00]										DATE		
		APPROVE														





ELEVIRIE WALL TRIAVIAL DEDMEARILITY

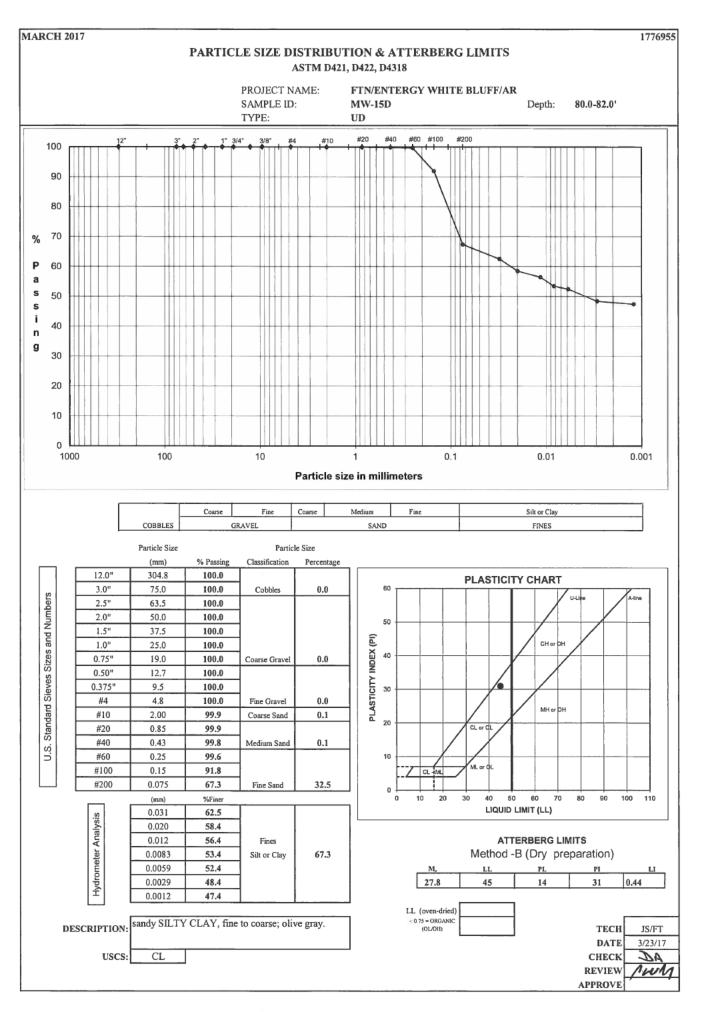
	ASTM D 5084														
				341	THOD O	EATTE					en nnece	TIDE			
				MI	тнорс	, FALLIN	G HEAD	W/INCKE	ASING TA	AIL WATI	ER PRES	SURE			
PROJECT	TITLE	FTN/ENT	ERGY WH	ITE BLUFE	/AR	1	Using Pip	ettes Only	YES	CO	MMENTS				
PROJECT	NUMBER	1776955				Usir	Using Pipettes & Burettes NO								
SAMPLE I	D	MW-14D		70.0-	72.0'	BOARD#	10	TECH	SDM/PWM						
SAMPLE 7	ГҮРЕ	UD				CELL#	10	DATE	3/22/17						
Sample Da	Sample Data, Initial														
	Height, inches 3.109 Sample Data, Final Water Contents Initial Final														
Diameter, in	nches	2.835	1	B-Value,f	0.98]	Height, inc	hes	3.011		Wt soil&ta	ıre, i	625.98	615.84	
Area, cm^2												496.73			
Volume, cm															
Mass, g		625.98		Top Pres.	50.0	psi	Volume, cr	n^3	305.56		Wt Moistu		137.41	119.11	
Moisture Co		28.1		Head, cm	351.70	ļ	Mass, g		607.73		Wt Dry So		488.57	488.36	
Dry Density		94.8		Max. Grad.	49.18	[Moisture C		24.39		Water Con	tent	28.13%	24.39%	
Spec. Gravity		2.700		Min. Grad.	48.54		Dry Densit	y, pcf	99.77						
Volume Sol	,	180.95		Max. E.S.	57.00		Saturation		95.6%	DESC	DESCRIPTION sandy CLAY, fine to coarse; dark olive gray.				
Volume Vo	ids, cm^3	140.65	ļ	Min. E.S.	52.00			ume per (cc)	1.00						
Void Ratio		0.78					Outflow Vol	lume per (cc)	1.00		NO.CO	CII			
Saturation		97.7%				DCDA	(EANE D	1.00	37		USCS	СН	J		
						PERM	MEANI: D	eaired Tap V	water						
TIN	1E FUNCTI	ION	REAL	DINGS		TIM	E IN MINU	TES & SECO	ONDS			VOL	UME	PERMEABILITY	
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@ 20 Degrees C	
			(cc)	(cc)		(min)	(sec)	(sec)	(cm)	(inc.)		(cc)	(cc)	(cm/sec)	
03/22/17	9	14	0.0	25.0	18.6	0.0	0.0	0	376.12		49.18	0.00	0.00	0.0	
03/23/17	7	42	0.3	24.2	18.7	1348.0	80880	80880	375.04	1.00	49.04	0.30	0.80	3.5E-09	
03/23/17	16	57	0.4	24.0	20.3	555.0	33300	114180	374.75	1.00	49.00	0.10	0.20	2.2E-09	
03/24/17	9	30	0.6	23.8	20.3	993.0	59580	173760	374.36	1.00	48.95	0.20	0.20	1.7E-09	
03/25/17	15	29	1.2	23.3	18.9	1799.0	107940	281700	373.29	1.00	48.81	0.60	0.50	2.6E-09	

TIN	AE FUNCTI	ION	REAL	DINGS		TIME	E IN MINUT	ES & SECC	DNDS			VOL	UME	PERMEABILITY
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@ 20 Degrees C
			(cc)	(cc)		(min)	(sec)	(sec)	(cm)	(inc.)		(cc)	(cc)	(cm/sec)
03/22/17	9	14	0.0	25.0	18.6	0.0	0.0	0	376.12		49.18	0.00	0.00	0.0
03/23/17	7	42	0.3	24.2	18.7	1348.0	80880	80880	375.04	1.00	49.04	0.30	0.80	3.5E-09
03/23/17	16	57	0.4	24.0	20.3	555.0	33300	114180	374.75	1.00	49.00	0.10	0.20	2.2E-09
03/24/17	9	30	0.6	23.8	20.3	993.0	59580	173760	374.36	1.00	48.95	0.20	0.20	1.7E-09
03/25/17	15	29	1.2	23.3	18.9	1799.0	107940	281700	373.29	1.00	48.81	0.60	0.50	2.6E-09
03/26/17	15	0	1.5	22.9	18.6	1411.0	84660	366360	372.61	1.00	48.72	0.30	0.40	2.1E-09
03/27/17	7	45	1.8	22.5	19.0	1005.0	60300	426660	371.97	1.00	48.64	0.25	0.40	2.8E-09
03/27/17	17	5	2.0	22.3	20.4	560.0	33600	460260	371.58	1.00	48.59	0.20	0.20	3.0E-09
03/28/17	7	46	2.1	22.1	19.2	881.0	52860	513120	371.19	1.00	48.54	0.15	0.25	1.9E-09
03/28/17	9	0	0.0	25.0	19.3	74.0	4440	517560	376.12	0.99	49.18	0.00	0.00	-
03/29/17	8	39	0.4	24.6	19.7	1419.0	85140	602700	375.34	1.00	49.08	0.40	0.40	2.4E-09
03/29/17	16	47	0.5	24.5	20.9	488.0	29280	631980	375.14	1.00	49.05	0.10	0.10	1.7E-09
03/30/17	10	33	0.8	24.2	19.6	1066.0	63960	695940	374.56	1.00	48.98	0.30	0.30	2.4E-09 *
03/31/17	10	15	1.2	23.8	19.6	1422.0	85320	781260	373.78	1.00	48.87	0.40	0.40	2.4E-09 *
04/01/17	12	48	1.6	23.4	19.1	1593.0	95580	876840	373.00	1.00	48.77	0.40	0.40	2.1E-09 *
04/03/17	9	- 6	2.2	22.5	19.2	2658.0	159480	1036320	371.54	1.00	48.58	0.60	0.90	2.4E-09 *
										L			L	

Inflow Rate 0.0000042 **Outflow Rate** 0.0000048 Outflow/Inflow Ratio 1.14

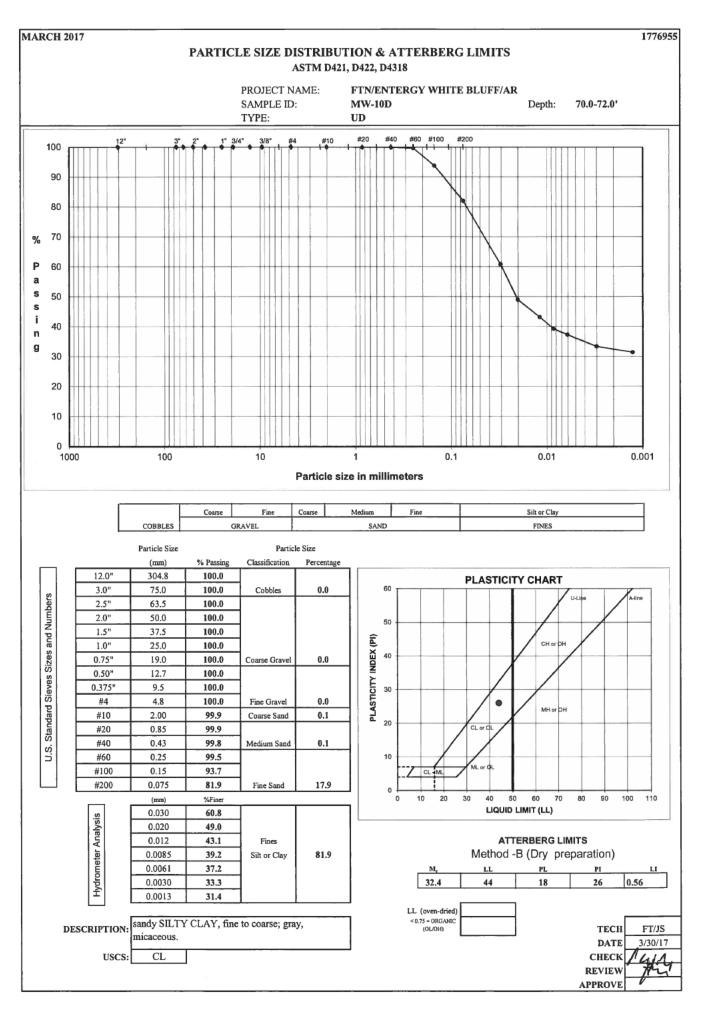
*PERMEABILITY REPORTED AS | 2.3E-09 | cm/sec

DATE 3/22/17 CHECK REVIEW APPROVE



FLEXIBLE WALL TRIAXIAL PERMEABILITY

ASTM D 5084 METHOD C, FALLING HEAD W/INCREASING TAIL WATER PRESSURE															
PROJECT PROJECT SAMPLE I SAMPLE 1	NUMBER ID		ERGY WH	TE BLUFF	F/AR	Using Pipettes Only YES Using Pipettes & Burettes NO BOARD# 15 TECH SDM/PWM CELL# 15 DATE 3/26/17				MMENTS					
Sample Data, Initial Height, inches 3.119 Diameter, inches 2.885 Area, cm^2 42.17 Volume, cm^3 334.12 Mass, g 636.80 Moisture Content, % 27.8 Dry Density, pcf 93.1 Spec. Gravity (assumed) 2.700 Volume Solids, cm^3 184.54 Volume Voids, cm^3 149.58 Void Ratio 0.81 Saturation 92.6%						psi psi psi PERM	Outflow Vol	hes nches n^3	1.00	DESC	Water Contents Initial Final Wt soil&tare, i 636.80 633.87 Wt soil&tare, f 498.26 506.50 Wt Tare 0.00 8.37 Wt Moisture Lost 138.54 127.37 Wt Dry Soil 498.26 498.13 Water Content 27.81% 25.57% DESCRIPTION sandy SILTY CLAY, fine to coarse; olive gray.				
TIN	1E FUNCT	ION	REAL	DINGS		TIME	E IN MINUT	TES & SECO	ONDS			VOL	UME	PERMEABILITY	
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@ 20 Degrees C	
03/26/17 03/27/17 03/27/17 03/28/17 03/28/17 03/29/17 03/30/17 03/31/17 04/03/17	15 7 17 7 9 8 10 10 9	5 45 5 46 8 40 32 15 5	(cc) 0.0 0.1 0.2 0.2 0.0 0.1 0.4 0.5 1.0	(cc) 25.0 24.9 24.8 24.7 25.0 24.9 24.8 24.7 24.2	18.6 19.0 20.4 19.2 19.3 19.7 19.6 19.6	(min) 0.0 1000.0 560.0 881.0 82.0 1412.0 1552.0 1423.0 4250.0	(sec) 0.0 60000 33600 52860 4920 84720 93120 85380 255000	(sec) 0 60000 93600 146460 151380 236100 329220 414600 669600	(cm) 376.12 375.92 375.78 375.63 376.12 375.92 375.53 375.29 374.36	(inc.) 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1	48.23 48.21 48.19 48.17 48.23 48.21 48.16 48.13 48.01	(cc) 0.00 0.10 0.05 0.05 0.00 0.10 0.30 0.10 0.50	(cc) 0.00 0.10 0.10 0.10 0.10 0.10 0.10 0.1	0.0 8.4E-10 1.1E-09 7.1E-10 - 5.9E-10 * 1.1E-09 * 7.3E-10 * 9.4E-10 *	
	Outflow R		0.0000015								r	THE POIL	ALL REI O	DATE 3/26/17 CHECK DA REVIEW WM	
														APPROVE	



FLEXIBLE WALL TRIAXIAL PERMEABILITY **ASTM D 5084**

METHOD C, FALLING HEAD W/INCREASING TAIL WATER PRESSURE												
		ERGY WHITE BLUFE	/AR]	Using Pipettes Only		COMMENTS					
PROJECT NUMBER					g Pipettes & Burettes							
SAMPLE ID	MW10D	70.0-	72.0'	BOARD#	8 TECH	PWM						
SAMPLE TYPE	UD			CELL#	8 DATE	3/30/17						
Sample Data, Initial												
Height, inches	3.116	1			Sample Data, Final		Water Contents	Initial	Final			
Diameter, inches	2.829	B-Value,f	0.99	1	Height, inches	3.003	Wt soil&tare, i	626.18	610.01			
Area, cm^2	40.55	Cell Pres.	107.0	psi	Diameter, inches	2.829	Wt soil&tare, f	473.12	481.17			
Volume, cm^3	320.96	Bot. Pres.	60.0	psi	Area, cm^2	40.55	Wt Tare	0.00	8.26			
Mass, g	626.18	Top Pres.	50.0	psi	Volume, cm ³	309.32	Wt Moisture Los	t 153.06	128.84			
Moisture Content, %	32.4	Head, cm	703.40	1	Mass, g	602.02	Wt Dry Soil	473.12	472.91			
Dry Density, pcf	92.0	Max. Grad.	95.42		Moisture Content %	27.24	Water Content	32.35%	27.24%			
Spec. Gravity (assumed)	2.700	Min. Grad.	95.16	1	Dry Density, pcf	95.44						
Volume Solids, cm^3	175.23	Max. E.S.	57.00	1	Saturation	96.1%	DESCRIPTION sandy	SILTY CLAY, fir	ne to coarse; gray,			
Volume Voids, cm^3	145.73	Min. E.S.	47.00	1	Inflow Volume per (cc)	1.00	mica	ceous.				

PERMEANT: Deaired Tap Water

Outflow Volume per (cc)

1.00

USCS

CL

TIN	1E FUNCTI	ON	REAL	DINGS		TIME IN MINUTES & SECONDS				VOLUME			PERMEABILITY	
DATE	HOUR	MIN	Inflow	Outflow	Temp.	dt	dt	dt, acc	Head	(H1/H2)	Gradient	Inflow	Outflow	@ 20 Degrees C
			(cc)	(cc)		(min)	(sec)	(sec)	(cm)	(inc.)		(cc)	(cc)	(cm/sec)
04/03/17	17	40	0.0	25.0	20.3	0.0	0.0	0	727.82		95.42	0.00	0.00	0.0
04/04/17	- 11	0	0.2	24.9	19.7	1040.0	62400	62400	727.53	1.00	95.38	0.20	0.10	6.1E-10
04/05/17	8	51	0.5	24.6	19.6	1311.0	78660	141060	726.94	1.00	95.30	0.30	0.30	9.7E-10
04/06/17	8	46	0.7	24.4	20.0	1435.0	86100	227160	726.55	1.00	95.25	0.20	0.20	5.9E-10
04/06/17	18	51	0.8	24.3	20.0	605.0	36300	263460	726.36	- 1.00	95.23	0.10	0.10	7.0E-10
04/07/17	8	33	0.9	24.1	19.2	822.0	49320	312780	726.06	1.00	95.19	0.10	0.20	7.9E-10
04/07/17	16	30	1.0	24.0	19.6	477.0	28620	341400	725.87	1.00	95.16	0.10	0.10	8.9E-10
									_					
		Warner et												

Inflow Rate 0.0000029 0.0000029 **Outflow Rate** Outflow/Inflow Ratio 1.00

0.83

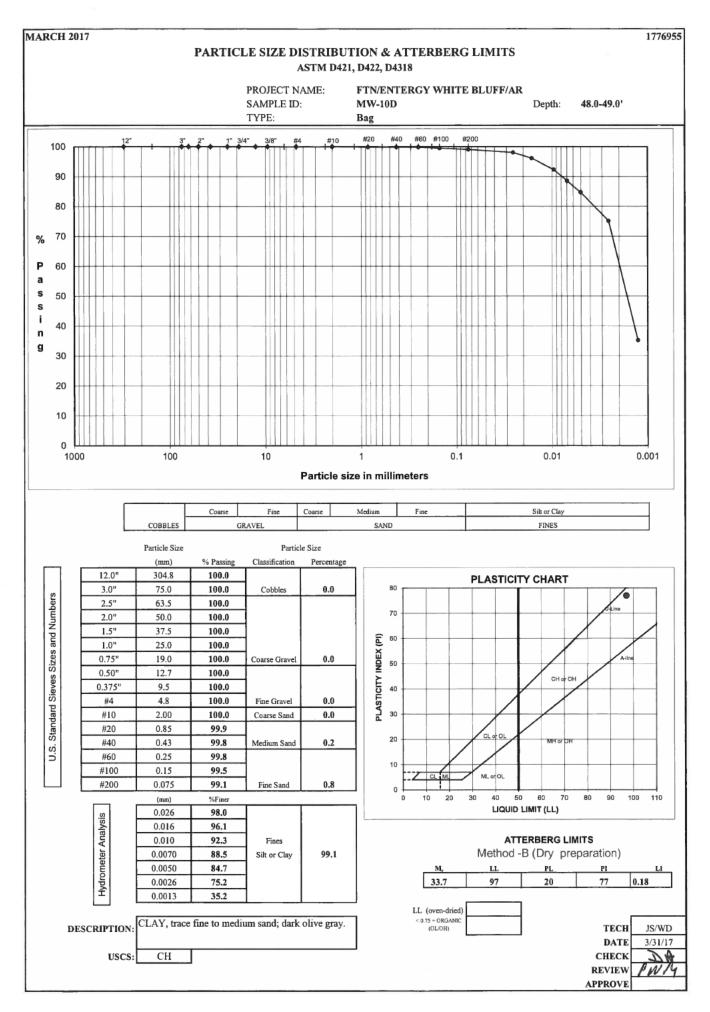
100.0%

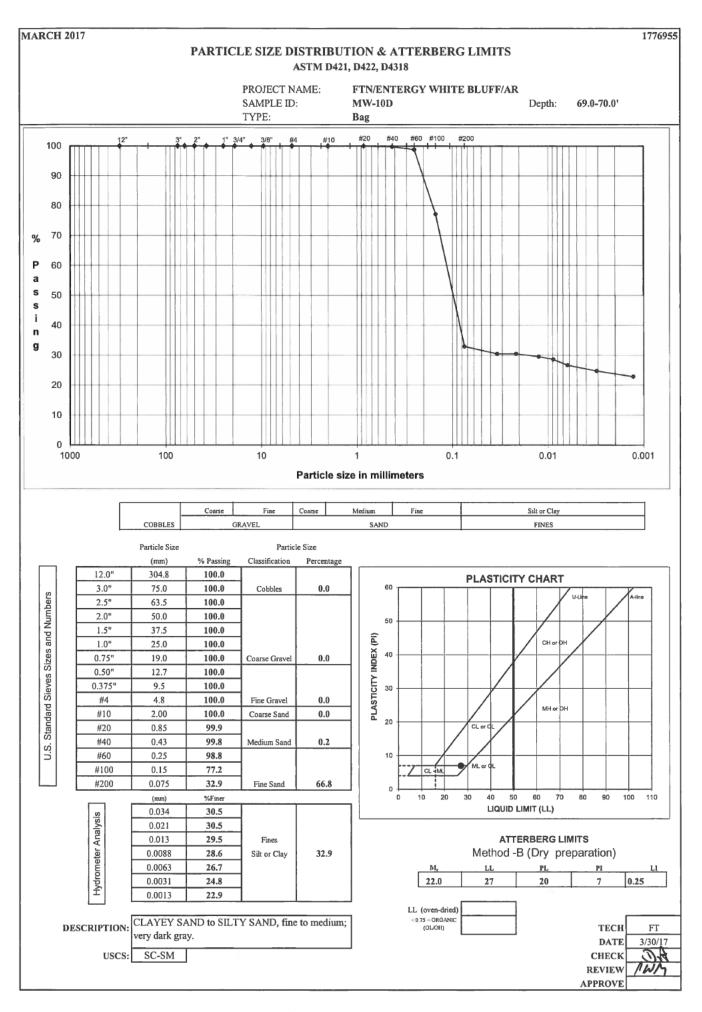
Void Ratio

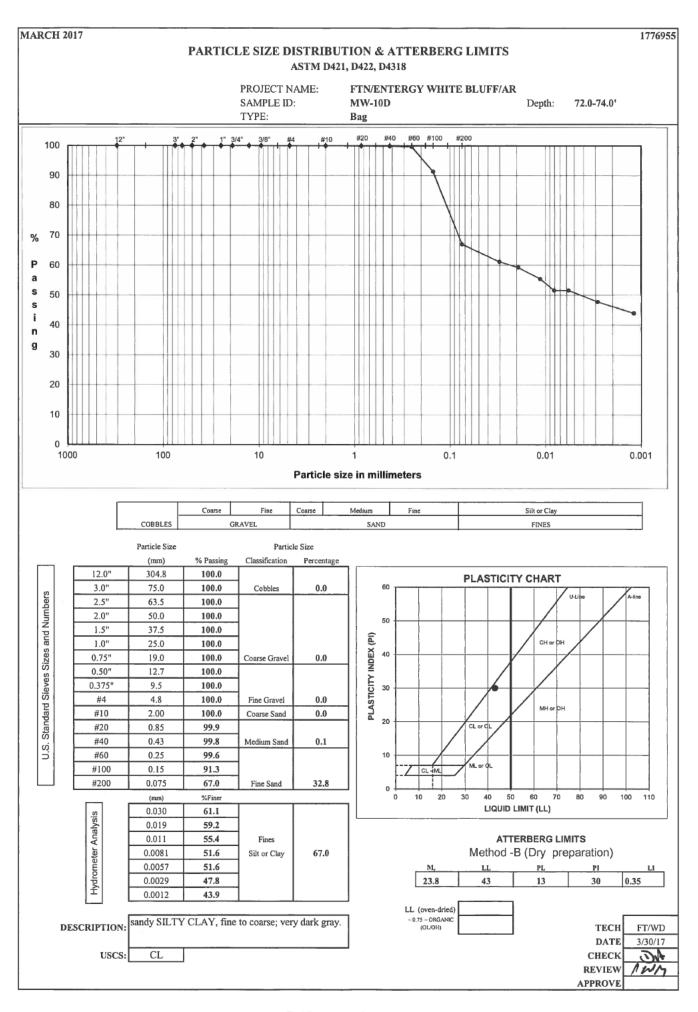
Saturation

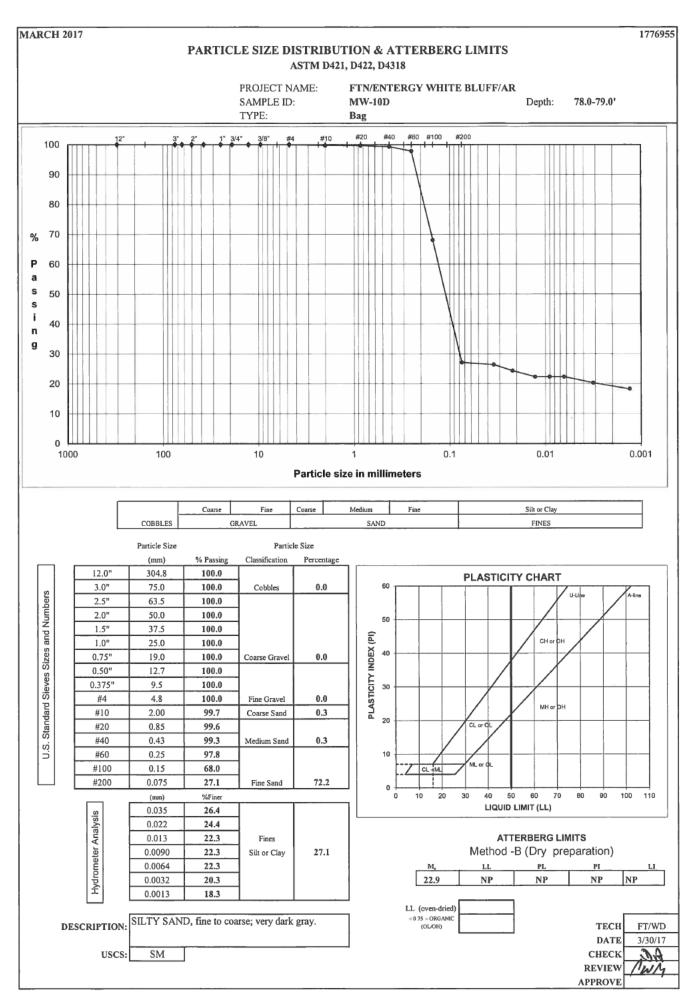
*PERMEABILITY REPORTED AS 7.4E-10 cm/sec

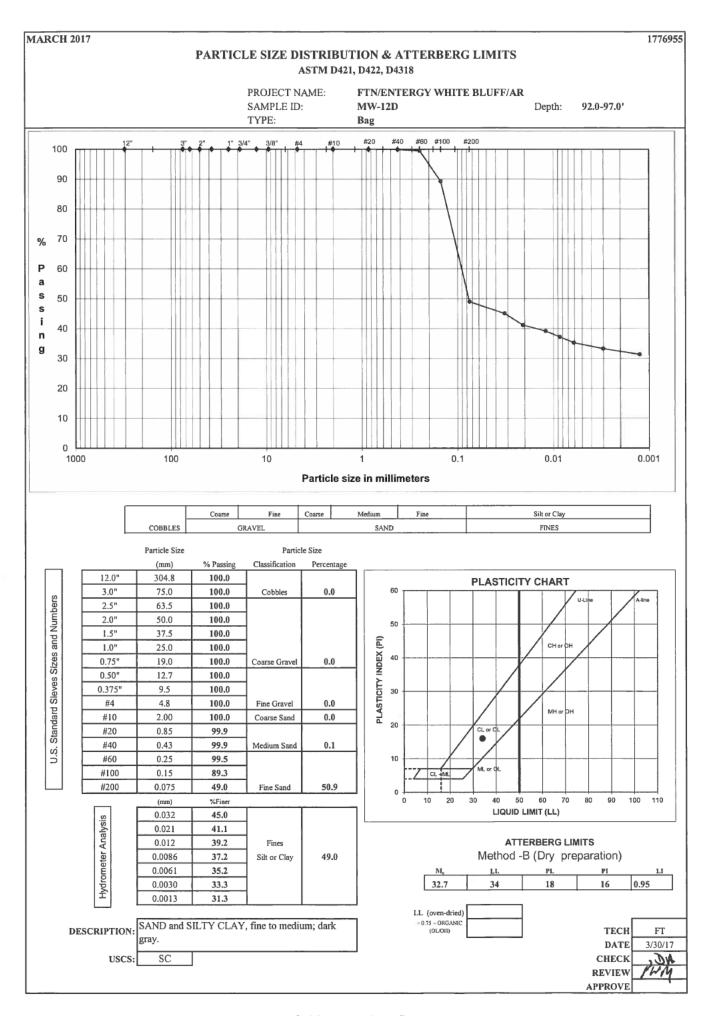
DATE 4/3/17 CHECK REVIEW 1/1/1/1 APPROVE

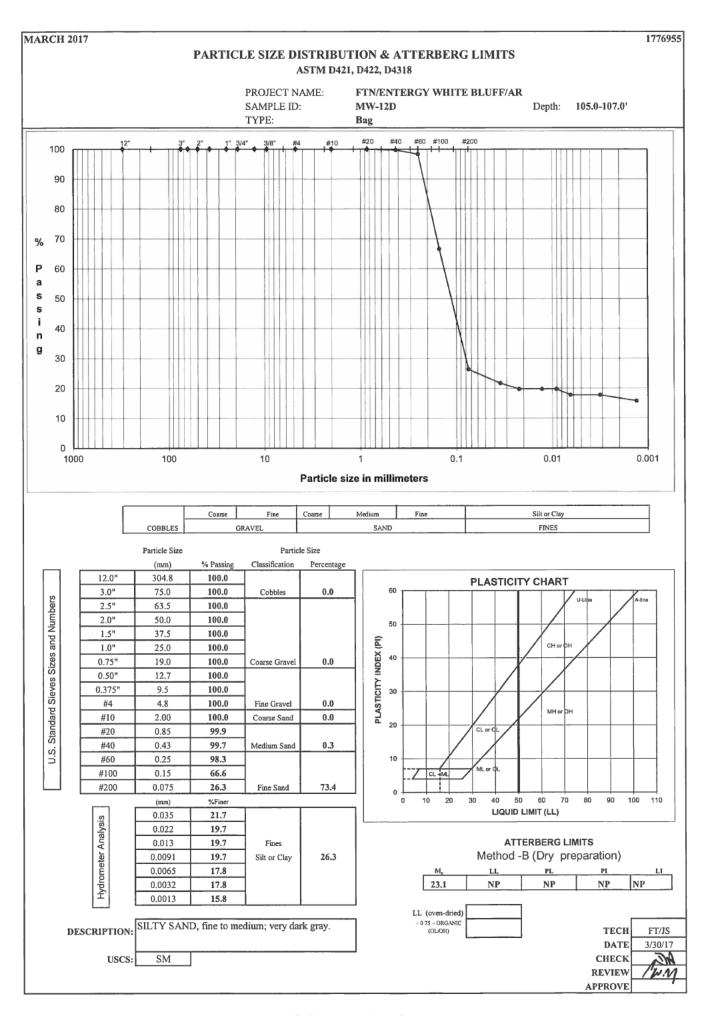


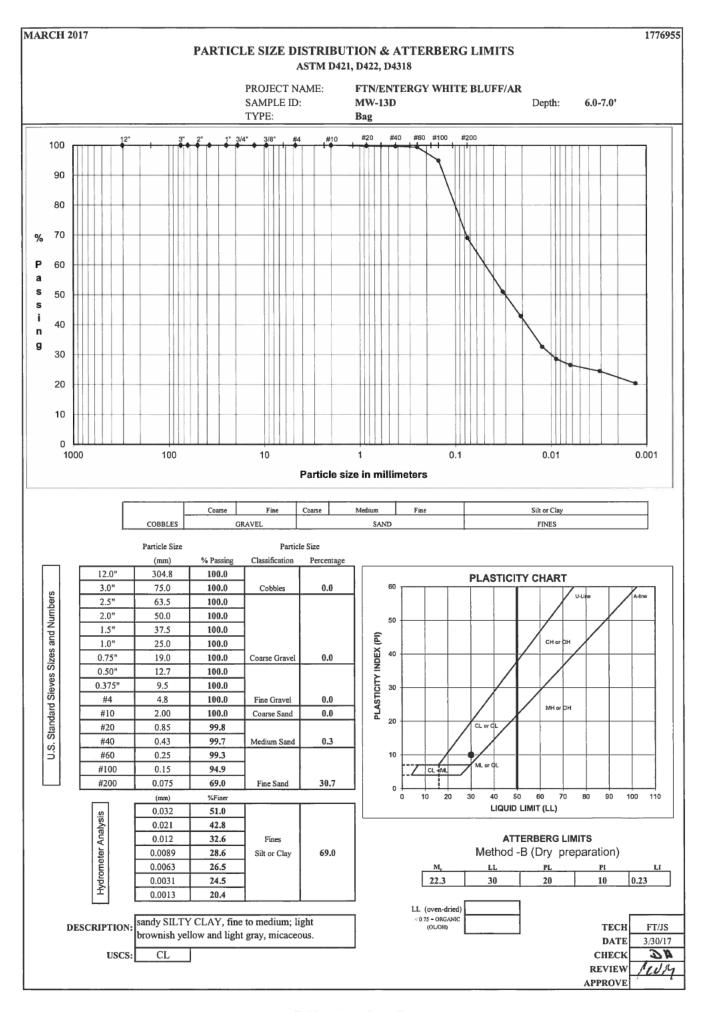


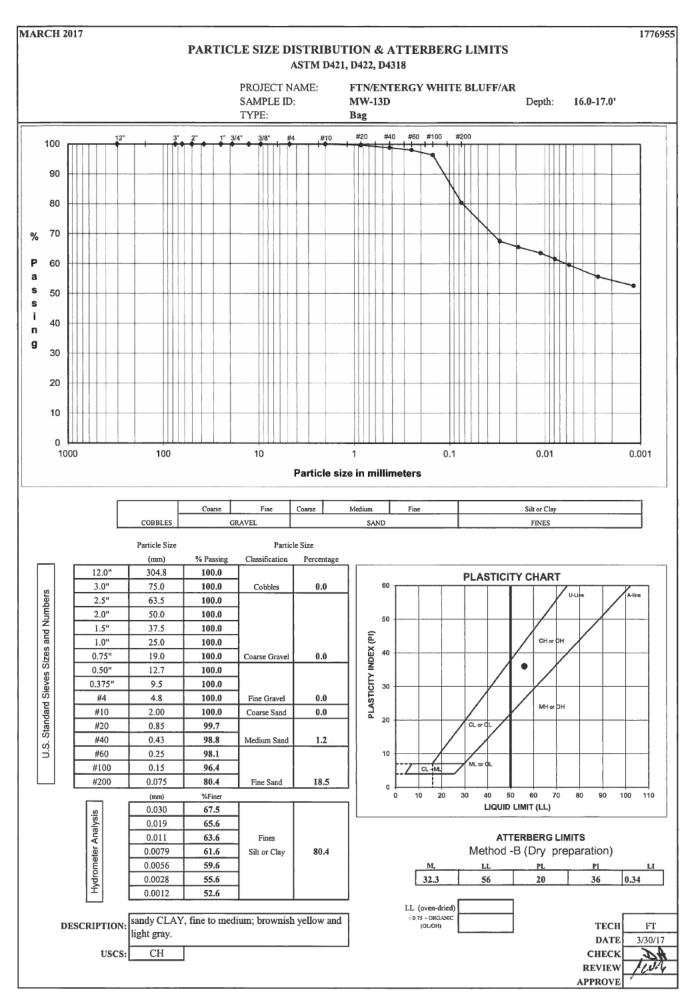


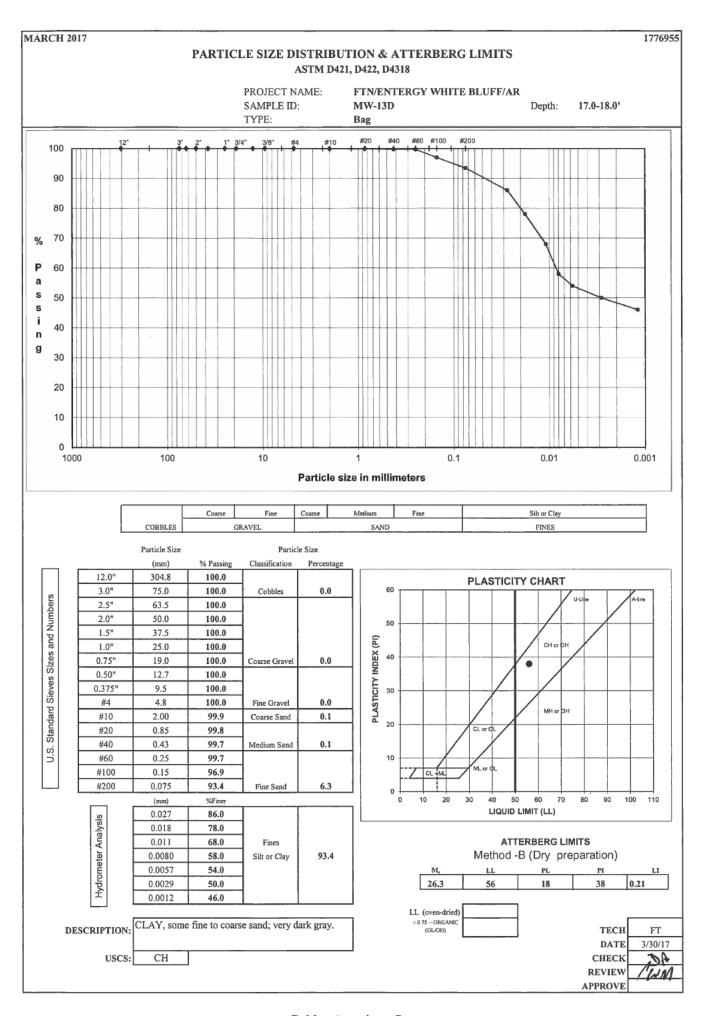


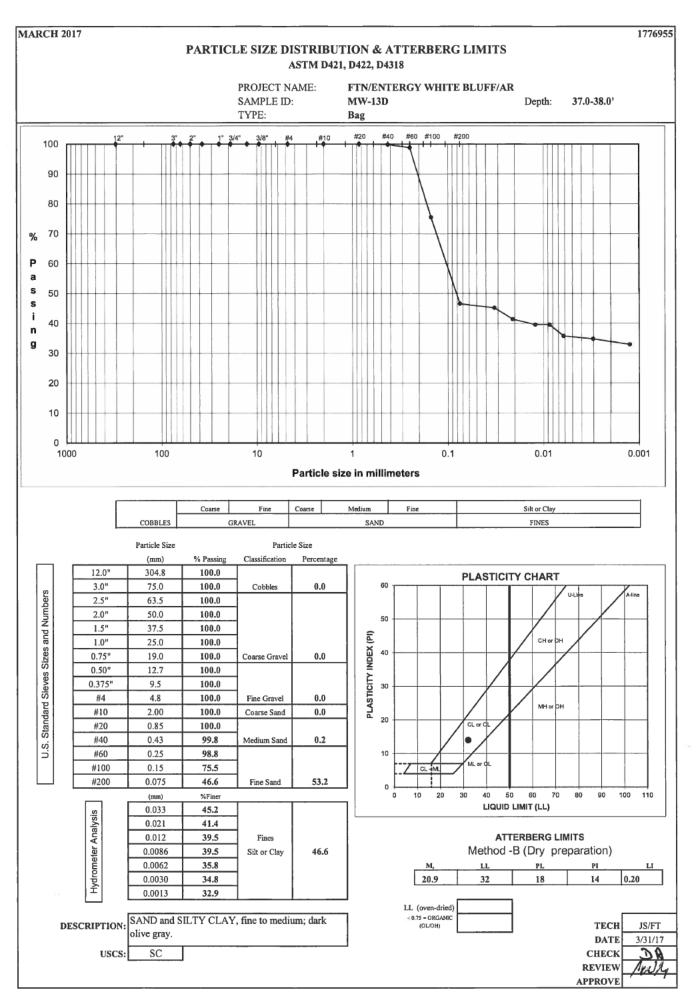


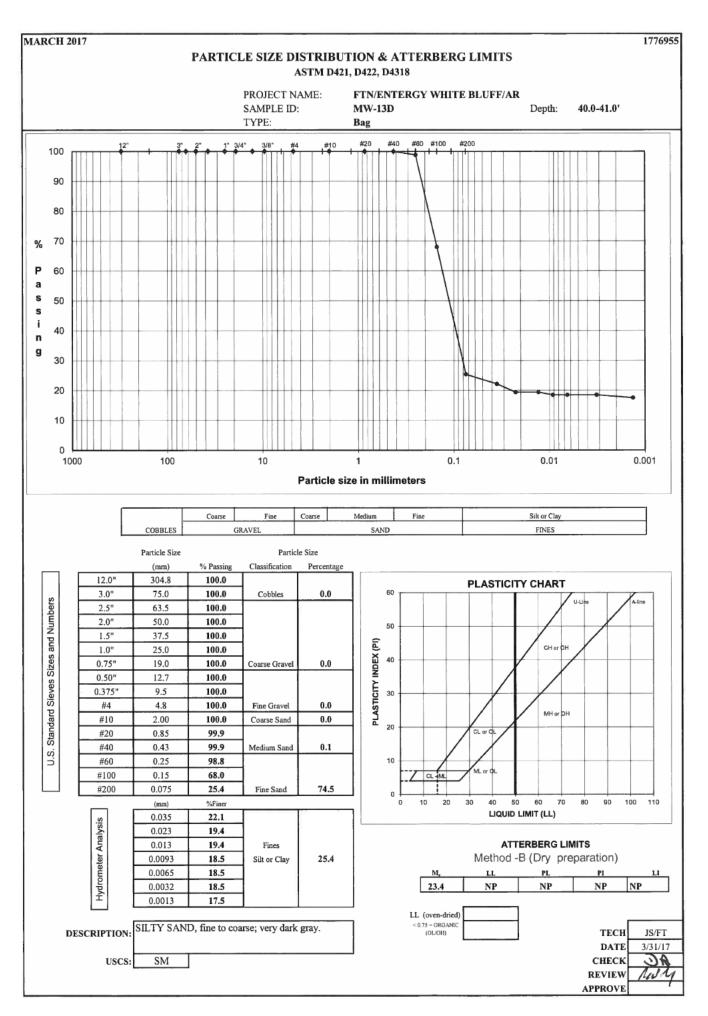


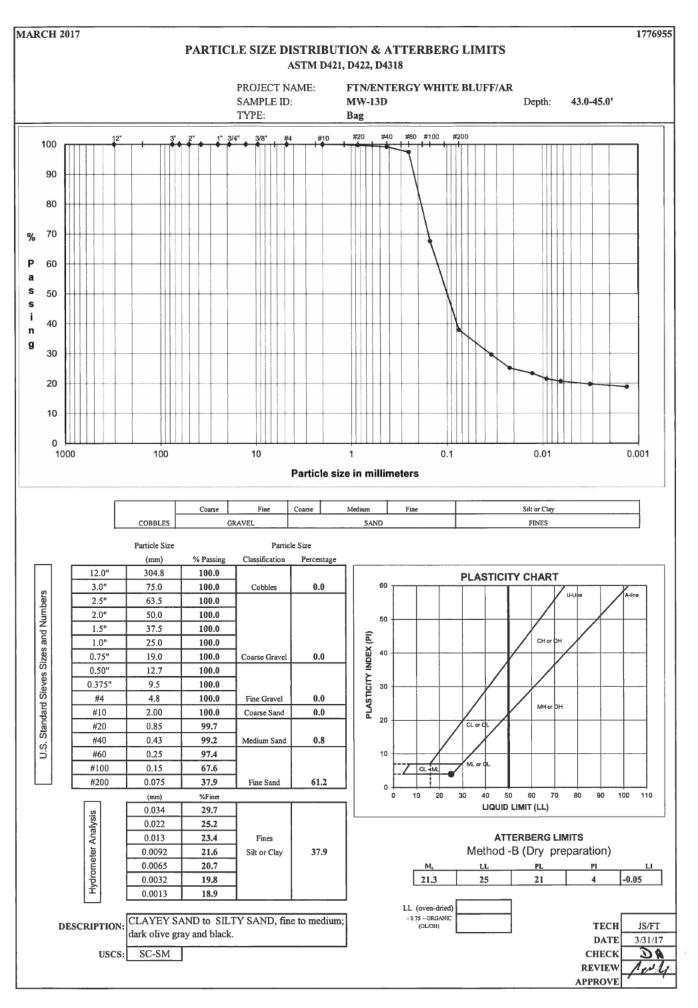


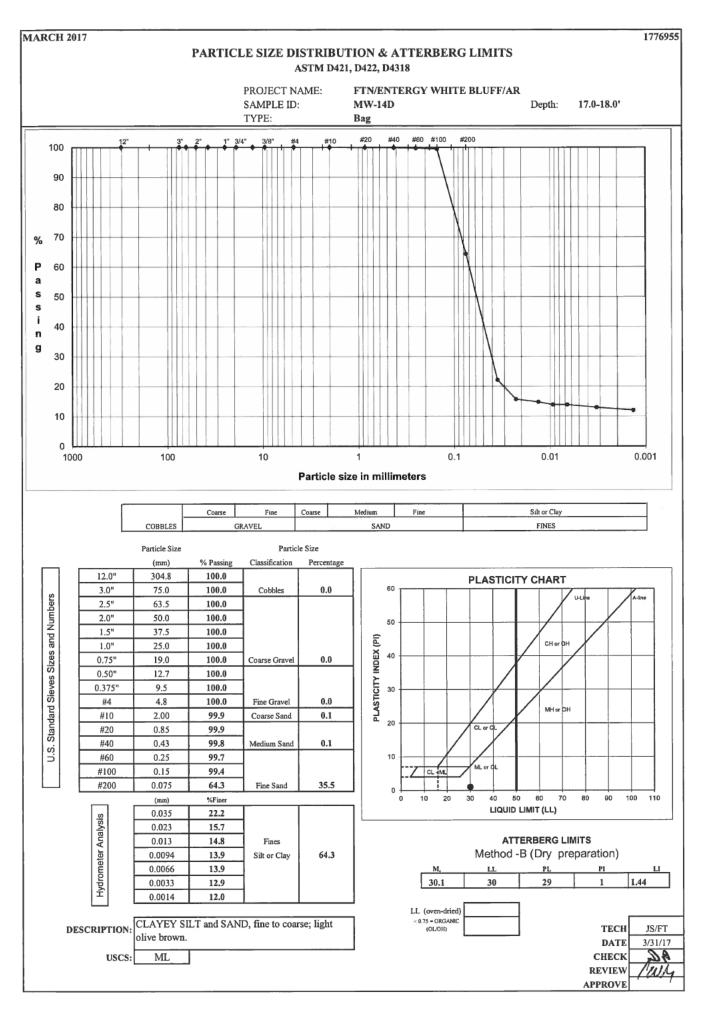


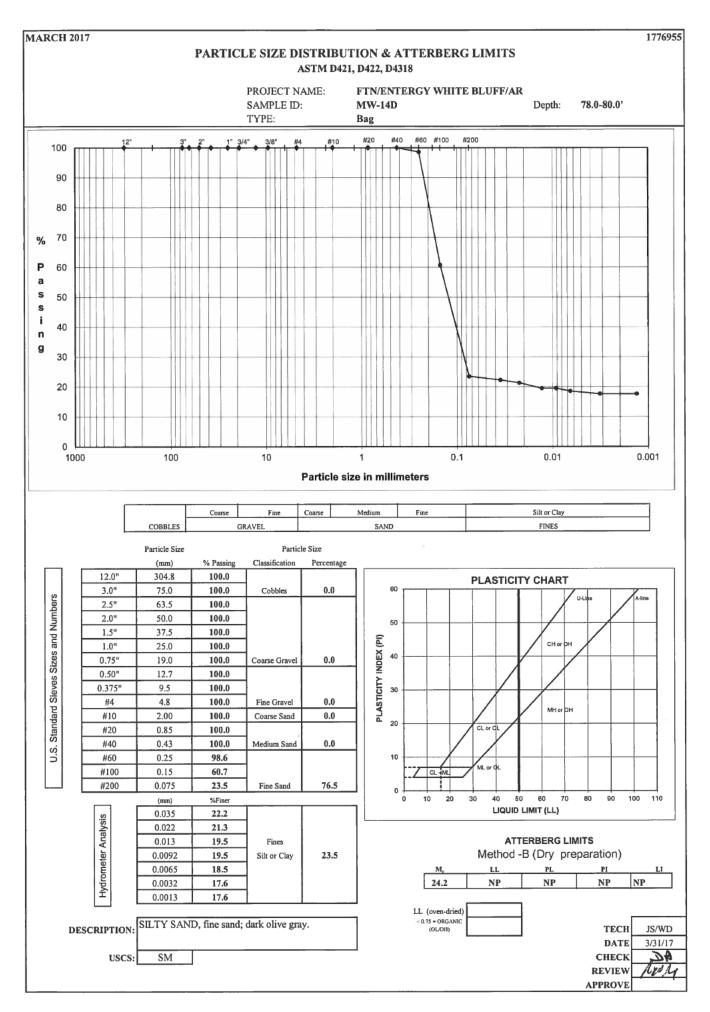


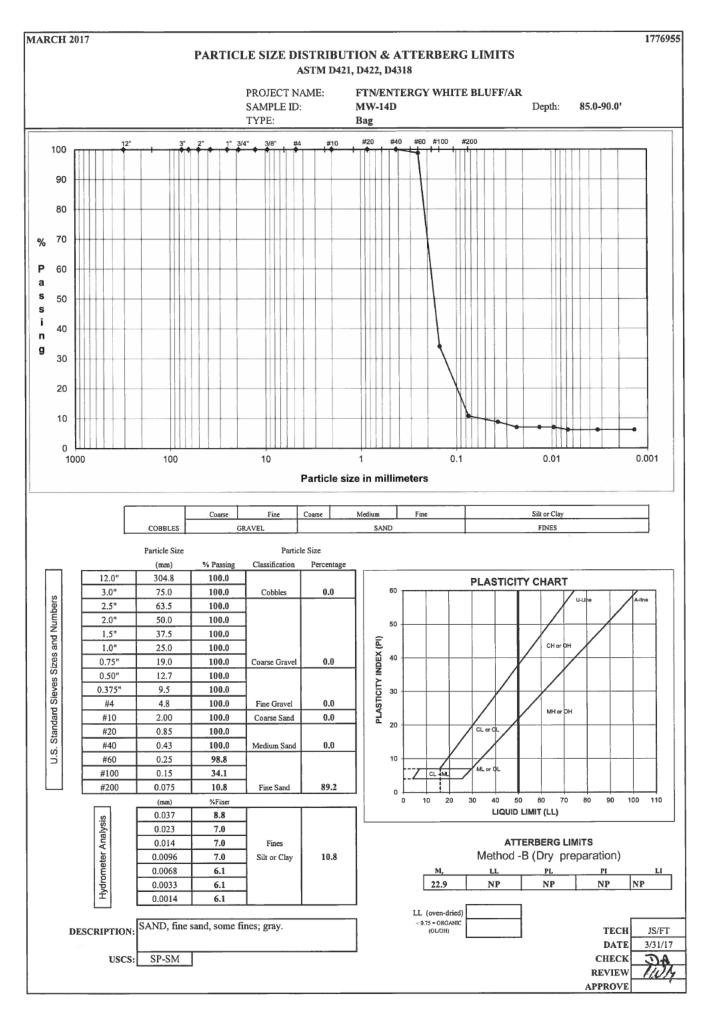


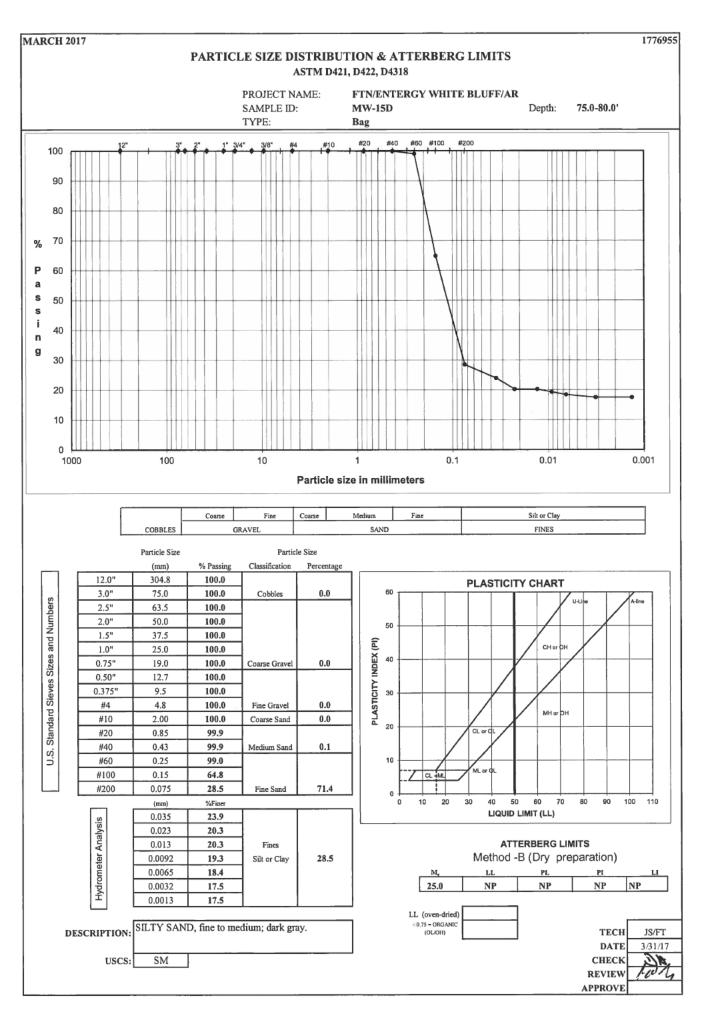


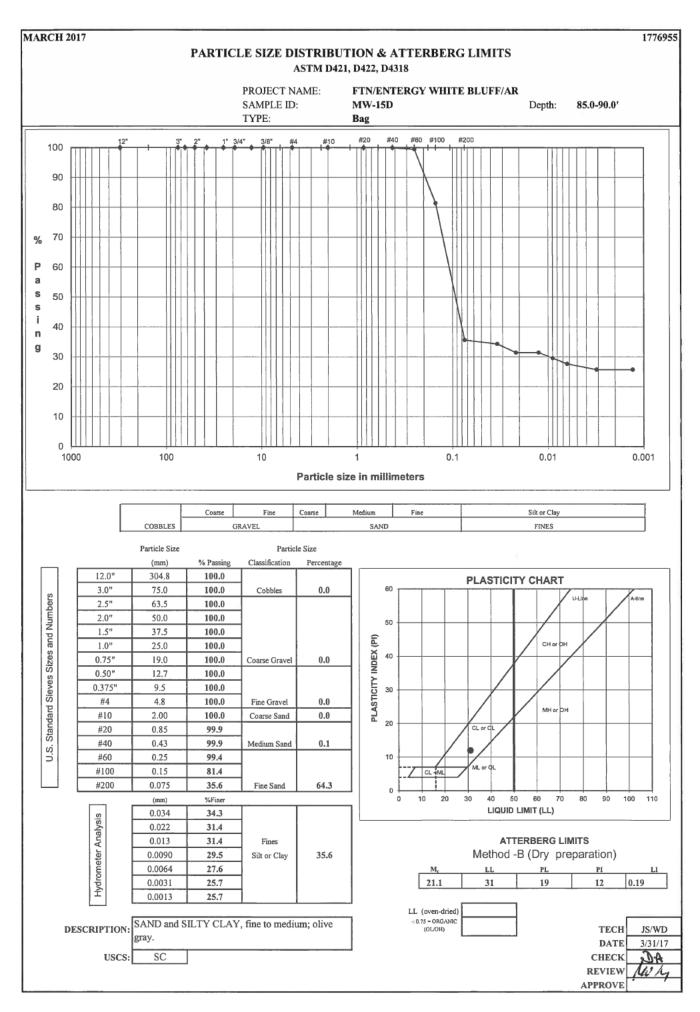












FLEXIBLE WALL PERMEABILITY ASTM D 5084

				ASTM D 50	84			
			METHOD D	, CONSTANT	RATE OF FLOW			
PROJECT TITLE	FTN/ENTERGY W	HITE BLUFF/AR	Board #	7	COMMENTS			
PROJECT NUMBER	1776955		Flow Pump	2				
SAMPLE ID	MW-13D	30.0-32.0'	Flow Pump Speed	12				
SAMPLE TYPE	UD		Technician	Technician DA/SDM				
ample Data, Initial			Sample Data, Final					
leight, inches	3.112 B-Value	e, f 1.00	Height, inches	3.075			Sample	Sample
iameter, inches	2.805 Cell Pro	es. 105.0	Diameter, inches	2.816	WATER CONTEN	TS	Initial	Final
rea, cm²	39.87 Bot. Pro	es. 80.0	Area, cm ²	40.18	Wt Soil & Tare, i	g	613.32	610.69
olume, cm ³	315.13 Top Pro	es. 80.0	Volume, cm ³	313.84	Wt Soil & Tare, f	g	465.03	473.23
Iass, g	613.32 Tot. B.I	P. 80.0	Mass, g	602.52	Wt Tare	g	0.00	8.32
loisture Content, %	31.89 Head, n	nax. 130.13	Moisture Content, %	29.57	Wt Moisture Lost	g	148.29	137.46
ry Density, pcf	92.08 Head, n	nin. 130.13	Dry Density, pcf	92.46	Wt Dry Soil	g	465.03	464.91
pec. Gravity (assumed)	2.700 Max. G	rad. 16.66	Volume Solids, cm3	172.23	Water Content	%	31.89%	29.57%
olume Solids, cm ³	172.23 Min. G	ad. 16.66	Volume Voids, cm ³	141.60				
olume Voids, cm ³	142.90		Void Ratio	0.82				
oid Ratio	0.83		Saturation, %	97.1%	DESCRIPTION			
aturation, %	103.8%		,		sandy gravelly CLA	Y, fine to c	oarse; gray	
	Flow Pump Rate	4.35E-06 cm ³ /so	ec USCS	СН	1			

TIME FUNCTIONS, SECONDS							dP					
DATE	DAY	HOUR	MIN	TEMP	dt	dt,acc	dt	dt,acc	Reading	Head	Gradient	Permeability
				(°C)	(min)	(min)	(sec)	(sec)	(psi)	(cm)		(cm/sec)
04/10/17	42835	10	0	18.9	0	0	0	0	1.85	130.13	16.66	6.7E-09
04/10/17	42835	10	5	18.9	5	5 -	300	300	1.85	130.13	16.66	6.7E-09
04/10/17	42835	10	10	18.9	5	10	300	600	1.85	130.13	16.66	6.7E-09
04/10/17	42835	10	15	18.9	5	15	300	900	1.85	130.13	16.66	6.7E-09 *
04/10/17	42835	10	20	18.9	5	20	300	1200	1.85	130.13	16.66	6.7E-09 *
04/10/17	42835	10	25	18.9	5	25	300	1500	1.85	130.13	16.66	6.7E-09 *
04/10/17	42835	10	30	18.9	5	30	300	1800	1.85	130.13	16.66	6.7E-09 *

*TRANSCRIBED FROM ORIGINAL DATA SHEETS

PERMEABILITY REPORTED AS ** 6.7E-09 cm/sec **

DATE 4/10/17
CHECK
REVIEW / 4//1
APPROVE