

# ERM Environmental Resources Management

Boring/Well No.: DMW-1

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643882.96, 3295272.29

Surface Elev.: 1.25' Boring T.D.: 68 ft. Boring Dia.: 3.25"

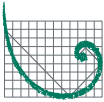
Date Started: 5/27/2020 Date Completed: 5/27/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

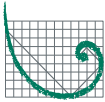
Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite



Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

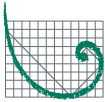
DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			4.0/4.0	0.13	1.5	0-4	0.0-0.7': silty CLAY: topsoil, dark olive brown (2.5Y, 3/3), medium stiff, dry, rootlets, no odor
				2.88	2.7		0.7-4.0': CLAY: olive brown (2.5Y, 4/4), medium stiff, moist, minor orange and black mineral staining, no odor
5			2.6/4.0	2.38	0.7	4-8	4.0-6.6': CLAY: dark grayish brown (2.5Y, 4/2), medium soft to medium stiff, moist, no odor, black and orange mineral staining, large black mottle with no odor at 4.7'
				3.02	3.1		6.6-8.0': No recovery
10			3.0/4.0	2.33	2.3	8-12	8.0-11.0': CLAY: dark grayish brown (10YR, 4/2), grades to very dark gray (10YR, 3/1) at 10.4', medium soft, moist, no odor, minor orange and black mottling
				2.28	4.0		11.0-12.0': No recovery
15			2.5/4.0	1.95	1.1	12-16	12.0-14.5': CLAY: dark gray (10YR, 4/1), medium soft to medium stiff, moist, no odor, minor orange mottling
				3.79	3.3		14.5-16.0': No recovery
20			4.0/4.0	4.64	3.4	16-20	16.0-20.0': silty CLAY to clayey SILT: very dark gray (2.5Y, 3/1), soft, moist to slightly wet, no odor
				7.55	4.1		
25	4.0/4.0	7.53	0.8	20-24	20.0-24.0': Clay: with silt, grades from dark gray (2.5Y, 4/1) to very dark gray (2.5Y, 3/1), soft to medium soft, moist, decreasing silt with depth, no odor		
		8.51	0.8				
25	4.0/4.0	8.78	0.6	24-28	24.0-28.0': CLAY: with minor silt content, dark greenish gray (GLE Y1, 4/10Y), medium soft, moist, minor shells at 25.2-25.4' and 27.5-28.0'		
		9.16	0.5				
30	4.0/4.0	8.35	0.5	28-30	28.0-30.0': CLAY: with silt, dark greenish gray (GLE Y1, 4/10Y), medium soft to medium stiff, dry to moist, no odor, very minor shell content		



DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
30							(Cont. from page 1)
			4.0/4.0	10.69	0.3	30-32	30.0-32.0': CLAY: with silt, dark greenish gray (GLEY1, 4/10Y), medium soft to medium stiff, dry to moist, no odor, very minor shell content
			4.0/4.0	9.61	1.0	32-36	32.0-36.0': CLAY: with silt, dark gray (5Y, 4/1), medium soft, moist, no odor, minor shells throughout, orange and black mineral mottling/staining
				11.39	0.5		
			4.0/4.0	11.49	1.0	36-40	36.0-40.0': CLAY: with silt, olive (5Y, 5/3), medium soft, dry to moist, no odor, some mucky dark gray clay at 37.5-38.0'
				11.71	1.0		
			4.0/4.0	12.37	0.5	40-44	40.0-44.0': CLAY: with very minor silt content, dark gray (5Y, 4/1), medium stiff, moist, no odor, orange mottling
				10.08	0.9		
			4.0/4.0	10.0	0.9	44-48	44.0-48.0': CLAY: gray (5Y, 5/1), stiff, moist, no odor, minor orange mottling
				11.07	0.9		
			2.6/2.0	8.62	0.7	48-50	48.0-50.0': CLAY: gray (5Y, 5/1), very stiff, moist, no odor, increasing orange mottling with depth
				7.58			
			4.0/2.0	5.71	0.7	50-52	50.0-52.0': CLAY: gray (5Y, 5/1), very stiff, moist, no odor, some orange mottling
				5.71			
			4.0/2.0	5.77	0.1	52-54	52.0-54.0': CLAY: greenish gray (GLEY1, 5/10Y), stiff, moist, no odor
				4.58			
			4.0/2.0	2.96	0.6	54-56	54.0-56.0': CLAY: dark gray (5Y, 4/1), very stiff, moist, no odor, orange mottling
				2.36			
			4.0/2.0	2.53	0.5	56-58	56.0-58.0': CLAY: gray (5Y, 6/1), very stiff, moist, no odor, orange mottling
				2.03			
			4.0/2.0	1.90	1.0	58-60	58.0-60.0': CLAY: olive gray (5Y, 5/2), very stiff, moist, no odor, calcium nodules at 58.3', some orange mottling
				2.29			
			4.0/2.0	1.88	0.4	60-62	60.0-62.0': CLAY: mottled olive (5Y, 5/3) and strong brown (7.5Y, 4/6), very stiff, moist, calcium nodules, black mineral nodules at 60.8', no odor
				1.84			
			4.0/2.0	1.29	0.6	62-64	62.0-64.0': CLAY: light brownish gray (10YR, 6/2), very stiff, moist, no odor, ~0.3' silt layer at center (brown [10YR 5/3], loose, saturated), increased silt towards bottom
				1.19			
			4.0/2.0	1.15	0.7	64-66	64.0-66.0': silty CLAY to CLAY: olive (5Y, 5/3), medium soft to very stiff, grades from slightly wet to moist, no odor, orange mottling
				1.60			



DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
							(Cont. from page 2)
			4.0/2.0	2.11 1.94	1.1	66-68	66.0-67.0': CLAY: olive (5Y, 5/3), stiff, moist, no odor 67.0-68.0': Unopened and capped for geotech analysis - CLAY at top and bottom
70							
75							
80							
85							
90							
95							
100							



# ERM Environmental Resources Management

Boring/Well No.: MW-1

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643884.26, 3295273.08

Surface Elev.: 1.30' Boring T.D.: 20 ft. Boring Dia.: 3.25"

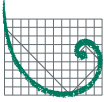
Date Started: 5/28/2020 Date Completed: 5/28/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

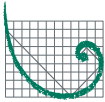
Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite


Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

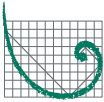
DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			4.0/4.0	0.13	1.5	0-4	0.0-0.7': silty CLAY: topsoil, dark olive brown (2.5Y, 3/3), medium stiff, dry, rootlets, no odor
				2.88	2.7		0.7-4.0': CLAY: olive brown (2.5Y, 4/4), medium stiff, moist, minor orange and black mineral staining, no odor
5			2.6/4.0	2.38	0.7	4-8	4.0-6.6': CLAY: dark grayish brown (2.5Y, 4/2), medium soft to medium stiff, moist, no odor, black and orange mineral staining, large black mottle with no odor at 4.7'
				3.02	3.1		6.6-8.0': No recovery
10			3.0/4.0	2.33	2.3	8-12	8.0-11.0': CLAY: dark grayish brown (10YR, 4/2), grades to very dark gray (10YR, 3/1) at 10.4', medium soft, moist, no odor, minor orange and black mottling
				2.28	4.0		11.0-12.0': No recovery
15			2.5/4.0	1.95	1.1	12-16	12.0-14.5': CLAY: dark gray (10YR, 4/1), medium soft to medium stiff, moist, no odor, minor orange mottling
				3.79	3.3		14.5-16.0': No recovery
20			4.0/4.0	4.64	3.4	16-20	16.0-20.0': silty CLAY to clayey SILT: very dark gray (2.5Y, 3/1), soft, moist to slightly wet, no odor
				7.55	4.1		
25			4.0/4.0	7.53	0.8	20-24	20.0-24.0': Clay: with silt, grades from dark gray (2.5Y, 4/1) to very dark gray (2.5Y, 3/1), soft to medium soft, moist, decreasing silt with depth, no odor
				8.51	0.8		
25	4.0/4.0	8.78	0.6	24-28	24.0-28.0': CLAY: with minor silt content, dark greenish gray (GLE Y1, 4/10Y), medium soft, moist, minor shells at 25.2-25.4' and 27.5-28.0'		
		9.16	0.5				
30	4.0/4.0	8.35	0.5	28-30	28.0-30.0': CLAY: with silt, dark greenish gray (GLE Y1, 4/10Y), medium soft to medium stiff, dry to moist, no odor, very minor shell content		



DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION	
30			4.0/4.0	10.69	0.3	30-32	(Cont. from page 1) 30.0-32.0': CLAY: with silt, dark greenish gray (GLEY1, 4/10Y), medium soft to medium stiff, dry to moist, no odor, very minor shell content	
			4.0/4.0	9.61	1.0	32-36	32.0-36.0': CLAY: with silt, dark gray (5Y, 4/1), medium soft, moist, no odor, minor shells throughout, orange and black mineral mottling/staining	
35					11.39	0.5		
			4.0/4.0	11.49	1.0	36-40	36.0-40.0': CLAY: with silt, olive (5Y,5/3), medium soft, dry to moist, no odor, some mucky dark gray clay at 37.5-38.0'	
				11.71	1.0			
40					12.37	0.5	40-44	40.0-44.0': CLAY: with very minor silt content, dark gray (5Y, 4/1), medium stiff, moist, no odor, orange mottling
				10.08	0.9			
45					10.0	0.9	44-48	44.0-48.0': CLAY: gray (5Y, 5/1), stiff, moist, no odor, minor orange mottling
				11.07	0.9			
			2.6/2.0	8.62	0.7	48-50	48.0-50.0': CLAY: gray (5Y, 5/1), very stiff, moist, no odor, increasing orange mottling with depth	
				7.58				
50					5.71	0.7	50-52	50.0-52.0': CLAY: gray (5Y, 5/1), very stiff, moist, no odor, some orange mottling
				5.71				
			4.0/2.0	5.77	0.1	52-54	52.0-54.0': CLAY: greenish gray (GLEY1, 5/10Y), stiff, moist, no odor	
				4.58				
55					2.96	0.6	54-56	54.0-56.0': CLAY: dark gray (5Y, 4/1), very stiff, moist, no odor, orange mottling
				2.36				
			4.0/2.0	2.53	0.5	56-58	56.0-58.0': CLAY: gray (5Y, 6/1), very stiff, moist, no odor, orange mottling	
				2.03				
			4.0/2.0	1.90	1.0	58-60	58.0-60.0': CLAY: olive gray (5Y, 5/2), very stiff, moist, no odor, calcium nodules at 58.3', some orange mottling	
		2.29						
60			1.88	0.4	60-62	60.0-62.0': CLAY: mottled olive (5Y, 5/3) and strong brown (7.5Y, 4/6), very stiff, moist, calcium nodules, black mineral nodules at 60.8', no odor		
		1.84						
	4.0/2.0	1.29	0.6	62-64	62.0-64.0': CLAY: light brownish gray (10YR, 6/2), very stiff, moist, no odor, ~0.3' silt layer at center (brown [10YR 5/3], loose, saturated), increased silt towards bottom			
		1.19						
65			1.15	0.7	64-66	64.0-66.0': silty CLAY to CLAY: olive (5Y, 5/3), medium soft to very stiff, grades from slightly wet to moist, no odor, orange mottling		
		1.60						



DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
							(Cont. from page 2)
			4.0/2.0	2.11	1.1	66-68	66.0-67.0': CLAY: olive (5Y, 5/3), stiff, moist, no odor
				1.94			67.0-68.0': Unopened and capped for geotech analysis - CLAY at top and bottom
70							
75							
80							
85							
90							
95							
100							



# ERM Environmental Resources Management

Boring/Well No.: MW-2

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643729.14, 3295189.13

Surface Elev.: 0.85' Boring T.D.: 24 ft. Boring Dia.: 3.25"

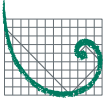
Date Started: 6/4/2020 Date Completed: 6/4/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.2/4.0	1.18	0.6	0-4	0.0-3.2': CLAY: grades from very dark brown (10YR, 2/2) to yellowish brown (10YR, 5/4), hard to stiff, moist, some silt at bottom, no odor 3.2-4.0': No recovery
				0.59	0.6		
5			3.0/4.0	0.66	1.4	4-8	4.0-4.9': silty CLAY: olive (5Y, 4/3), medium soft, moist, no odor 4.9-7.0': CLAY: dark gray (5Y, 4/1), stiff to very stiff, moist, no odor 7.0-8.0': No recovery
					1.22		0.7
10			4.0/4.0	1.03	1.3	8-12	8.0-9.2': CLAY: with silt, olive gray (5Y, 4/2), stiff, moist, no odor, orange mottling 9.2-10.2': silty CLAY, olive gray (5Y, 4/2), soft, wet, no odor 10.2-12.0': CLAY: olive gray (5Y, 4/2), grades from medium soft to very stiff, moist, no odor, minor orange mottling
					0.86		0.9
15			3.8/4.0	1.55	1.5	12-16	12.0-14.0': CLAY: dark gray (10YR, 4/1), stiff, moist, no odor, orange mottling at top, large black (10YR, 2/1) spot at 12.8-13.2' 14.0-14.6': clayey SILT: dark gray (10YR, 4/1), soft, slightly wet, no odor 14.6-15.8': CLAY: dark gray (10YR, 4/1), stiff, moist, no odor 15.8-16.0': No recovery
					0.87		1.2
20			4.0/4.0	0.82	1.2	16-20	16.0-17.6': silty CLAY: dark olive gray (10YR, 4/1), medium stiff, moist, no odor, increasing silt with depth 17.6-19.2': clayey SILT, dark olive gray (5Y, 3/2), soft, wet, no odor 19.2-20.0': CLAY: with silt, dark olive gray (5Y, 3/2), soft, moist, no odor
					1.09		1.2
25			3.2/4.0	1.72	0.4	20-24	20.0-21.7': CLAY: grades from olive gray (5Y, 4/2) to black (5Y, 2.5/1), medium stiff to stiff, moist, no odor 21.7-23.2': silty CLAY: olive (5Y, 5/4), stiff, moist, no odor 23.2-24.0': No recovery
					1.33		0.6
30							



# ERM Environmental Resources Management

Boring/Well No.: MW-3

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643869.34, 3295365.83

Surface Elev.: 1.46' Boring T.D.: 24 ft. Boring Dia.: 3.25"

Date Started: 6/4/2020 Date Completed: 6/4/2020 Well Dia./Materials: 1" Pre-pack PVC

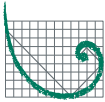
Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.6/4.0	1.44	0.9	0-4	0.0-3.6': CLAY: grades from very dark brown (10YR, 2/2) to olive (5Y, 4/3) back to very dark brown (10YR, 2/2), very stiff, moist, no odor
				1.13	0.6		3.6-4.0': No recovery
5			4.0/4.0	1.39	1.1	4-8	4.0-8.0': CLAY: very dark gray (5Y 3/1), stiff, moist, no odor, orange and black mottling, silty clay at bottom
				0.42	1.1		
10			4.0/4.0	0.50	1.4	8-12	8.0-9.5': grades from silty CLAY to SILT with clay: light olive brown (2.5Y, 5/3), moist to wet, soft, no odor
				1.75	1.2		9.5-12.0': CLAY: with silt, light olive brown (2.5Y, 5/3), grades from medium stiff to very stiff, moist, no odor, silty layer at 10.7-10.9'
15			4.0/4.0	1.21	1.8	12-16	12.0-14.4': CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor, minor orange mottling
				0.93	1.4		14.4-16.0': silty CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor
20			4.0/4.0	0.59	1.6	16-20	16.0-20.0': alternating SILT and silty CLAY: silt at 16.2-16.6', 17.1-17.7', and 18.7-20.0' and is olive gray (5Y, 4/2), medium stiff, wet, no odor, silty clay at 16.0-16.2', 16.6-17.1', and 17.7-18.7' and is olive gray (5Y, 4/2), medium soft, moist, no odor
				0.55	1.4		
25			4.0/4.0	0.72	1.9	20-24	20.0-21.9': CLAY: grades from very dark gray (2.5Y, 3/1) to olive (5Y, 5/3), stiff, moist, no odor
				0.66	1.3		21.9-24.0': silty CLAY: olive (5Y 5/3), stiff, moist, no odor
30							





# ERM Environmental Resources Management

Boring/Well No.: MW-4

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 644047.53, 3295358.68

Surface Elev.: 3.35' Boring T.D.: 44 ft. Boring Dia.: 3.25"

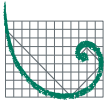
Date Started: 6/3/2020 Date Completed: 6/3/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

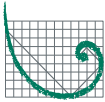
Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.1/4.0	0.45	0.1	0-4	0.0-0.5': FILL: topsoil and shell hash, hard, dry, no odor 0.5-3.1': CLAY: grades from very dark brown (10YR, 2/2) to brown (10YR, 4/3), hard to very stiff, moist, no odor 3.1-4.0': No recovery
				1.53	0.1		
5			4.0/4.0	1.62	0.2	4-8	4.0-8.0': CLAY: olive brown (2.5Y 4/3), stiff, moist, no odor, silty clay at 7.4-8.0'
				0.84	0.1		
10			3.6/4.0	0.89	0.3	8-12	8.0-11.6': silty CLAY to CLAY: dark gray (2.5Y, 4/1), grades from medium soft to stiff at 10.6', moist, no odor, very minor orange mottling 11.6-12.0': No recovery
				1.74	0.3		
15			4.0/4.0	0.56	0.5	12-16	12.0-12.8': clayey SILT: dark gray (2.5Y, 4/1), medium soft, very slightly wet, no odor 12.8-16.0': CLAY: grades from very dark gray (2.5Y, 3/1) to dark gray (2.5Y, 4/1) at 13.7', stiff, moist, no odor, wood fragments at 13.3-13.4'
				1.53	0.4		
20			4.0/4.0	0.55	0.3	16-20	16.0-20.0': grades from clayey SILT to SILT: dark olive gray (5Y, 3/2), medium stiff, slightly wet to saturated, no odor
				0.37	0.2		
25			3.5/4.0	0.65	0.6	20-24	20.0-23.5': clayey SILT: dark olive gray (5Y, 3/2), medium stiff, wet to saturated, no odor, silty clay layers at 20.3-20.8', 21.6-21.8', and 22.5-22.7' 23.5-24.0': No recovery
				0.60	0.5		
30			4.0/4.0	0.55	0.6	24-28	24.0-28.0': clayey SILT: dark olive gray (5Y, 3/2), medium soft, saturated, no odor
				0.54	0.9		
			4.0/4.0	0.47	0.4	28-30	28.0-30.0': clayey SILT: dark olive gray (5Y, 3/2), medium soft, saturated, no odor



DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
30			4.0/4.0	0.53	0.4	30-32	(Cont. from page 1) 30.0-32.0': clayey SILT, dark olive gray (5Y, 3/2), medium soft, saturated, no odor		
			4.0/4.0	0.47	0.6	32-36	32.0-34.7': clayey SILT: dark olive gray (5Y, 3/2), loose to medium stiff, saturated to wet, no odor		
35				0.77	0.4		34.7-36.0': SILT: with clay, dark olive gray (5Y, 3/2), medium stiff, saturated, no odor		
				4.0/4.0	1.05	0.7	36-40	36.0-37.3': CLAY: with silt, dark olive gray (5Y, 3/2), medium stiff, moist, no odor	
40				0.49	0.4	37.3-40.0': clayey SILT: dark olive gray (5Y 3/2), medium stiff, wet to saturated, no odor			
				4.0/4.0	0.70	1.0	40-44	40.0-41.8': clayey SILT: dark olive gray (5Y, 3/2), medium stiff, wet, no odor	
				0.86	0.5	41.8-44.0': CLAY: with silt, olive gray (5Y, 4/2), stiff, moist, no odor			
45									
50									
55									
60									
65									



# ERM Environmental Resources Management

Boring/Well No.: MW-5

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643893.06, 3295087.44

Surface Elev.: -0.13' Boring T.D.: 24 ft. Boring Dia.: 3.25"

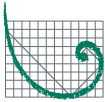
Date Started: 6/5/2020 Date Completed: 6/5/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.5/4.0	0.39	0.2	0-4	0.0-3.5': CLAY: grades from very dark brown (10YR, 2/2) to brown (10YR, 4/3) with orange mottling, very stiff to medium stiff, moist, no odor
				0.68	0.2		3.5-4.0': No recovery
5			4.0/4.0	0.73	1.4	4-8	4.0-8.0': CLAY: olive gray (5Y, 4/2), very stiff, moist, no odor, orange mottling
				1.38	0.8		
10			4.0/4.0	1.22	1.4	8-12	8.0-12.0': CLAY: grades from dark olive gray (5Y, 3/2) to black (5Y, 2.5/1) to olive (5Y, 4/2), stiff, moist, no odor, some silt at bottom
				0.73	1.4		
15			4.0/4.0	1.11	1.4	12-16	12.0-13.8': CLAY: olive gray (5Y, 4/2), stiff, moist, no odor, orange mottling, large black mottle at 12.6'
				0.94	1.3		13.8-14.3': clayey SILT: olive gray (5Y, 4/2), soft, very slightly wet, no odor 14.3-16.0': silty CLAY, olive gray (5Y, 4/2), medium stiff, moist, no odor, orange mottling
20			4.0/4.0	0.60	1.3	16-20	16.0-16.8': clayey SILT: olive gray (5Y, 4/2), medium soft, wet, no odor
				0.75	2.1		16.8-18.0': silty CLAY: olive gray (5Y, 4/2), medium soft, moist, no odor 18.0-20.0': clayey SILT, olive gray (5Y, 4/2), soft, wet, no odor
25			4.0/4.0	0.58	1.3	20-24	20.0-20.9': clayey SILT: olive gray (5Y, 4/2), soft, wet, no odor
				0.88	1.5		20.9-21.7': clayey SAND: sand is very coarse and appears to be composed of calcium nodules, medium dense, wet, no odor 21.7-24.0': CLAY: very dark gray (5Y, 3/1), medium stiff, moist, no odor
30							



# ERM Environmental Resources Management

Boring/Well No.: MW-6

Project: Louisiana Wetlands, et al., vs Energen, et al.

Project No.: 0494247

Location: St. Mary Parish, Louisiana

Coordinates: UTM 15R 644003.16, 3294681.61

Surface Elev.: -1.32' Boring T.D.: 28 ft. Boring Dia.: 3.25"

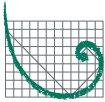
Date Started: 6/10/2020 Date Completed: 6/10/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.6/4.0	0.75	0.3	0-4	0.0-1.0': silty CLAY: topsoil, very dark brown (10YR, 2/2), soft to stiff, moist, no odor, abundant rootlets
				1.17	0.2		1.0-3.6': CLAY: olive (5Y, 4/3), very stiff to hard, moist to dry, friable, forms hard angular pieces, no odor, orange mottling
5			3.3/4.0	1.29	0.2	4-8	4.0-7.3': CLAY: dark olive brown (2.5Y, 3/3), very stiff, moist, minor silt content at top, orange mottling, no odor
				1.94	0.1		7.3-8.0': No recovery
10			3.3/4.0	1.88	0.2	8-12	8.0-9.5': CLAY: very dark grayish brown (2.5Y, 3/2), stiff, moist, no odor
				0.73	0.2		9.5-10.4': silty CLAY: olive (5Y, 4/4), medium stiff, moist, no odor
15			4.0/4.0	0.77	0.2	12-16	10.4-11.3': clayey SILT, olive (5Y, 4/3), medium stiff, slightly wet to wet, no odor
				0.81	0.1		11.3-12.0': No recovery
20			4.0/4.0	1.03	0.2	16-20	12.0-16.0': SILT: with clay, grades from olive (5Y, 4/4) to dark olive gray (5Y, 3/2), medium stiff, saturated, no odor, silty clay layer at 13.0-13.1'
				0.88	0.2		16.0-20.0': SILT: with clay, dark olive gray (5Y, 3/2), medium stiff, saturated, no odor, clayey silt at 19.3-19.6'
25			4.0/4.0	1.20	0.2	20-24	20.0-24.0': SILT: with clay, dark olive gray (5Y, 3/2), medium soft, saturated, no odor, clayey silt layers at 21.4-21.6' and 22.4-23.0'
				1.20	0.3		
30			4.0/4.0	1.17	0.3	24-28	24.0-25.3': SILT: with clay, dark olive gray (5Y, 3/3), medium soft, saturated, no odor, possible flow in
				1.14	0.2		25.3-28.0': CLAY: with silt, very dark gray (5Y, 3/1), moist, medium stiff, no odor



# ERM Environmental Resources Management

Boring/Well No.: MW-7

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643801.73, 3294582.96

Surface Elev.: -1.66' Boring T.D.: 24 ft. Boring Dia.: 3.25"

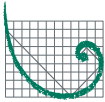
Date Started: 6/11/2020 Date Completed: 6/11/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.2/4.0	1.16	0.1	0-4	0.0-0.5': silty CLAY: topsoil, very dark gray (10YR, 2/2), soft to very stiff, moist, no odor, rootlets
				1.12	0.2		0.5-3.2': CLAY: dark olive gray (5Y, 3/2), very stiff, moist, orange and black mottling, no odor 3.2-4.0': No recovery
5			2.8/4.0	1.58	0.2	4-8	4.0-6.8': CLAY: olive (5Y, 4/3), moist, very stiff, no odor, orange mottling
				1.89	0.3		6.8-8.0': No recovery
10			4.0/4.0	2.11	0.2	8-12	8.0-12.0': CLAY: grades from olive (5Y, 4/3) to very dark gray (5Y, 3/1), very stiff to stiff, moist, orange mottling, no odor
				2.55	0.3		
15			4.0/4.0	1.90	0.3	12-16	12.0-13.7': CLAY: grades from black (5Y, 2.5/1) to dark olive gray (5Y, 3/2), stiff, moist, no odor
				1.12	0.2		13.7-16.0': clayey SILT: olive (5Y, 4/3), medium soft, very slightly wet, no odor
20			4.0/4.0	1.19	0.2	16-20	16.0-20.0': clayey SILT: olive (5Y, 4/3), medium soft, slightly wet to wet, no odor, silty clay layers at 16.5-16.6', 17.5-18.5', 19.2-19.3', and 19.8-20.0'
				1.38	0.3		
25			4.0/4.0	1.38	0.3	20-24	20.0-24.0': CLAY: grades from dark olive gray (5Y, 3/2) to black (5Y, 2.5/1) to dark gray (5Y, 4/1), medium stiff, moist, slightly wet silty clay layers at 20.5-20.7' and 20.8-21.1', abundant small calcium nodules at 23.0-24.0'
				1.09	0.2		
30							



# ERM Environmental Resources Management

Boring/Well No.: MW-8

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643952.98, 3294498.88

Surface Elev.: -1.36' Boring T.D.: 24 ft. Boring Dia.: 3.25"

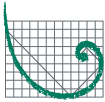
Date Started: 6/11/2020 Date Completed: 6/11/2020 Well Dia./Materials: 1" Pre-pack PVC

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION	
0			3.2/4.0	1.73	0.2	0-4	0.0-1.2': CLAY: with silt, topsoil, very dark brown (10YR, 2/2), soft to very stiff, dry to moist, no odor	
				2.08	0.4		1.2-3.2': CLAY: dark olive gray (5Y, 3/2), very stiff to hard, moist, no odor, orange mottling	
5				3.4/4.0	1.85	0.3	4-8	3.2-4.0': No recovery
			2.23		0.3	4.0-7.4': CLAY: dark olive gray (5Y, 3/2), very stiff, moist, no odor, orange mottling, minor silt content		
10				3.4/4.0	1.91	0.2	8-12	7.4-8.0': No recovery
			1.50		0.2	8.0-9.6': CLAY: dark olive gray (5Y, 3/2), very stiff, moist, no odor, some orange and black mottling		
15				2.6/4.0	1.21	0.2	12-16	9.6-10.0': CLAY: with silt, very dark brown (10YR, 2/2), medium soft, moist, no odor
			1.95		0.1	10.0-10.9': CLAY: dark olive gray (5Y, 3/2), very stiff, moist, no odor, orange mottling		
20				4.0/4.0	1.17	0.2	16-20	10.9-11.4': silty CLAY: olive (5Y, 4/3), medium soft, moist, no odor
			0.95		0.2	11.4-12.0': No recovery		
25				4.0/4.0	1.21	0.2	20-24	12.0-12.9': silty CLAY: olive (5Y, 4/3), soft, moist, no odor
			1.26		0.1	12.9-14.6': CLAY: olive (5Y, 4/3), stiff, moist, no odor		
30							14.6-16.0': No recovery	
							16.0-19.0': silty CLAY: olive (5Y, 4/3), medium soft, moist to very slightly wet, no odor	
							19.0-20.0': clayey SILT: olive (5Y, 4/3), soft, wet, no odor	
							20.0-24.0': CLAY: grades from olive (5Y, 4/3) to black (5Y, 2.5/1) to very dark gray (5Y, 3/1), medium soft to medium stiff, moist, no odor, some silt content at top and bottom, abundant small calcium nodules at bottom	



# ERM Environmental Resources Management

Boring/Well No.: EN-4R

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643903, 3295275

Surface Elev.: NM Boring T.D.: 40 ft. Boring Dia.: 3.25"

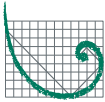
Date Started: 6/1/2020 Date Completed: 6/1/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

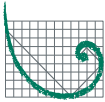
DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.7/4.0	2.68	1.0	0-4	0.0-2.7': CLAY: very dark gray (2.5Y, 3/1), medium soft to medium stiff, moist, no odor
				11.71	1.7		2.7-4.0': No recovery
5			2.2/4.0	13.19	0.8	4-8	4.0-6.2': CLAY: very dark gray (5Y, 3/1), medium soft to medium stiff, moist, faint odor
				15.04	0.9		6.2-8.0': No recovery
10			2.1/4.0	15.05	32.4	8-12	8.0-10.1': CLAY: grades from very dark gray (5Y, 3/1) to black (5Y, 2.5/1), medium soft to medium stiff, moist, faint odor at top to strong odor and slight sheen at bottom
				19.07	47.2		10.1-12.0': No recovery
15			2.3/4.0	14.20	61.2	12-16	12.0-14.3': CLAY: very dark gray (5Y, 3/1) to black (5Y, 2.5/1), medium stiff to very soft at bottom, moist, increasing odor and sheen with depth, grout at 13.3'
				9.89	68.8		14.3-16.0': No recovery
20			3.3/4.0	14.33	95.2	16-20	16.0-17.4': CLAY with minor silt content: black (5YR, 2.5/1), soft, moist, odor and sheen
				11.09	12.2		17.4-19.3': SILT with clay: dark olive gray (5Y, 3/2), medium stiff, wet, has odor and slight sheen
25			4.0/4.0	10.05	4.0	20-24	19.3-20.0': No recovery
				12.75	1.8		20.0-24.0': SILT: with clay, very dark gray (5Y, 3/1), medium soft to medium stiff, wet, faint to no odor, silty clay layers at 20.0-20.2' and 21.7-21.9'
30	4.0/4.0	12.23	1.1	24-28	24.0-28.0': SILT: with clay, very dark gray (5Y, 3/1), medium stiff, wet to saturated, faint odor		
		11.65	2.3		28.0-30.0': grades from SILT with clay to silty CLAY: very dark gray (5Y, 3/1), medium stiff, grades from saturated to slightly wet, faint to no odor, slight sheen		
	4.0/4.0	16.57	1.2	28-30			



Project No.: 0494247 Date Drilled: 6/1/2020

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
30			4.0/4.0	12.30	0.7	30-32	(Cont. from page 1) 30.0-32.0': grades from SILT with clay to silty CLAY: very dark gray (5Y, 3/1), medium stiff, grades from saturated to slightly wet, faint to no odor, slight sheen
			4.0/4.0	Over Range	1.1	32-36	32.0-34.0': clayey SILT: very dark gray (5Y, 3/1), medium stiff, wet, no odor 34.0-36.0': CLAY: with silt, dark greenish gray (GLEY1, 4/5GY), medium stiff, moist, no odor
35				15.66	0.9		
			4.0/4.0	14.71	1.3	36-40	36.0-40.0': CLAY: with silt, very dark gray (5Y, 3/1), medium soft, moist, no odor
40				13.29	1.9		
45							
50							
55							
60							
65							





# ERM Environmental Resources Management

Boring/Well No.: SB-1

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643952, 3295303

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

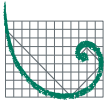
Date Started: 5/28/2020 Date Completed: 5/28/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			3.4/4.0	1.31	1.5	0-4	0.0-3.4': CLAY: very dark gray (10YR, 3/1), stiff, dry at top to moist, minor orange and black mottling throughout, no odor		
				1.41	1.1		3.4-4.0': No recovery		
5			3.2/4.0	1.38	1.4	4-8	4.0-7.2': CLAY: with minor silt, olive gray (5Y, 4/2), medium stiff, moist, no odor, minor orange and black mottling		
				1.96	0.7		7.2-8.0': No recovery		
10			3.4/4.0	1.54	1.4	8-12	8.0-12.0': CLAY: grades from olive (5Y, 4/3) to black (5Y, 2.5/1) to dark olive gray (5Y, 3/2), medium stiff to medium soft, moist, no odor, increased silt content at 11.0-11.4', minor orange mottling		
				1.01	2.0				
15			4.0/4.0	0.95	2.0	12-16	12.0-16.0': grades from silty CLAY to SILT with clay: olive (5Y, 4/3), medium soft, slightly wet to wet, no odor		
				0.88	1.0				
20			4.0/4.0	1.46	0.7	16-20	16.0-17.5': clayey SILT: very dark grayish brown (2.5Y, 3/2), medium soft, moist to slightly wet, no odor 17.5-20.0': SILT with clay: very dark grayish brown (2.5Y, 3/2), medium soft, wet, no odor, increasing clay content with depth		
				2.61	1.5				
25									
30									



# ERM Environmental Resources Management

Boring/Well No.: SB-2

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643901, 3295317

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

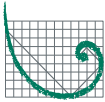
Date Started: 5/28/2020 Date Completed: 5/28/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			2.7/4.0	1.47	0.5	0-4	0.0-2.7': CLAY: grades from very dark gray (2.5Y, 3/1) to dark grayish brown (2.5Y, 4/2), stiff, moist, no odor		
				1.77	0.5		2.7-4.0': No recovery		
5			2.8/4.0	1.47	0.9	4-8	4.0-6.8': CLAY: grades from olive (5Y, 4/3) to dark olive gray (5Y, 3/2), medium soft to soft, moist, no odor, minor orange mottling		
				1.67	1.3		6.8-8.0': No recovery		
10			3.2/4.0	1.49	1.8	8-12	8.0-11.2': CLAY: dark olive gray (5Y, 3/2), medium soft, moist, no odor, dark brown no odor area at bottom		
				1.21	0.8		11.2-12.0': No recovery		
15			3.2/4.0	0.97	2.5	12-16	12.0-14.8': CLAY: with minor silt content, dark olive gray (5Y, 3/2), medium stiff, moist, no odor		
				1.28	1.7		14.8-15.2': clayey SILT: dark olive gray (5Y, 3/2), medium soft, moist, no odor		
20			4.0/4.0	1.33	1.3	16-20	16.0-20.0': alternating clayey SILT and silty CLAY: dark olive gray (5Y, 3/2), medium soft, moist (silty clay) to wet (clayey silt), no odor, clayey silt at 16.2-16.7', 17.0-17.3', and 17.7-20.0'		
				2.47	1.3				
25									
30									



# ERM Environmental Resources Management

Boring/Well No.: SB-3

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643927, 3295264

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

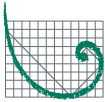
Date Started: 5/28/2020 Date Completed: 5/28/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			2.8/4.0	1.63	0.1	0-4	0.0-2.8': CLAY: grades from very dark gray (5Y, 3/1) to olive gray (5Y, 4/2), medium, stiff, moist, no odor, some silt near bottom		
				2.12	0.5		2.8-4.0': No recovery		
5			2.6/4.0	2.37	0.8	4-8	4.0-6.6': CLAY: with silt, olive (5Y, 4/3), medium soft, moist, no odor, minor orange and black mineral staining		
				2.56	1.1		6.6-8.0': No recovery		
10			4.0/4.0	3.29	1.4	8-12	8.0-12.0': CLAY: grades from dark olive gray (5Y, 3/2) to black (5Y, 2.5/1) to olive (5Y, 5/3), medium soft, moist, no odor		
				3.56	1.4				
15			4.0/4.0	3.43	1.3	12-16	12.0-16.0': clayey SILT: very dark grayish brown (2.5Y, 3/2), medium soft, slightly wet, no odor, clay layers at 12.0-12.5' and 15.0-15.5'		
				5.02	0.7				
20			4.0/4.0	6.81	0.7	16-20	16.0-20.0': clayey SILT to SILT with clay: very dark grayish brown (2.5Y, 3/2), medium soft, wet, no odor		
				9.92	2.2				
25									
30									



# ERM Environmental Resources Management

Boring/Well No.: SB-4

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643927, 3295304

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

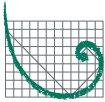
Date Started: 6/2/2020 Date Completed: 6/2/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.3/4.0	1.19	0.8	0-4	0.0-3.3': CLAY: grades from very dark brown (10YR, 2/2) to very dark gray (5Y, 3/1), very stiff to stiff, moist, dry with silt at top, faint odor at bottom 3.3-4.0': No recovery
				6.43	1.2		
5			3.0/4.0	7.55	5.3	4-8	4.0-7.0': CLAY with silt: dark olive gray (5Y, 3/2), medium stiff to stiff, moist, black (5Y 2.5/1) layer at 4.5-4.9', faint odor at 4.9-5.0' 7.0-8.0': No recovery
				7.16	1.9		
10			3.5/4.0	7.44	6.1	8-12	8.0-11.5': CLAY with silt: very dark gray (5Y, 3/1), stiff, moist, black (5Y, 2.5/1) layer at 10.8-11.1', slight sheen and odor at 8.0-8.6' 11.5-12.0': No recovery
				3.82	3.2		
15			2.6/4.0	3.83	2.0	12-16	12.0-14.6': silty CLAY: dark olive gray (5Y, 3/2), medium soft, moist, no odor 14.6-16.0': No recovery
				3.77	1.8		
20			4.0/4.0	4.37	2.4	16-20	16.0-20.0': clayey SILT: very dark gray (5Y, 3/1), soft, moist, grades to wet at 17.7', no odor
				5.69	2.0		
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-5

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643931, 3295294

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

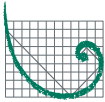
Date Started: 5/29/2020 Date Completed: 5/29/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.0/4.0	1.29	0.0	0-4	0.0-3.0': CLAY: grades from dark olive brown (2.5Y, 3/3), to dark olive gray (5Y, 3/2), stiff, moist, dry with some silt and rootlets at 0-0.3', hydrocarbon odor at 1.8-3.0'
				7.53	2.7		3.0-4.0': No recovery
5			2.6/4.0	7.50	9.5	4-8	4.0-6.6': CLAY: grades from very dark gray (5Y, 3/1) to dark gray (5Y, 4/1), medium soft to medium stiff, moist, hydrocarbon odor slightly decreasing with depth
				7.02	0.8		6.6-8.0': No recovery
10			4.0/4.0	6.12	0.1	8-12	8.0-8.8': CLAY: dark gray (5Y, 4/1), very soft, moist to slightly wet, no odor
				3.35	0.1		8.8-12.0': CLAY: dark olive gray (5Y, 3/2), grades from stiff to soft, moist, no odor
15			3.3/4.0	4.02	0.0	12-16	12.0-15.3': CLAY: with minor silt content, olive (5Y, 4/3), medium soft to medium stiff, moist, no odor
				3.13	0.1		15.3-16.0': No recovery
20			4.0/4.0	3.25	0.0	16-20	16.0-16.9': CLAY: dark gray (5Y, 4/1), medium soft, moist, no odor
				5.66	0.0		16.9-20.0': clayey SILT: dark olive gray (5Y, 3/2), soft, wet, no odor, increasing clay at bottom
25							
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# ERM Environmental Resources Management

Boring/Well No.: SB-6

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643918, 3295274

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

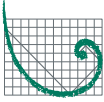
Date Started: 5/28/2020 Date Completed: 5/28/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.9/4.0	1.66	9.7	0-4	0.0-2.9': CLAY: olive brown (2.5Y, 4/2), medium stiff, moist, petroleum odor and black staining below 0.9'
				6.24	8.1		2.9-4.0': No recovery
5			2.6/4.0	6.75	5.8	4-8	4.0-6.6': CLAY: very dark gray (10YR, 3/1), medium soft to medium stiff, moist, hydrocarbon odor, some black staining
				4.59	2.2		6.6-8.0': No recovery
10			4.0/4.0	3.15	0.6	8-12	8.0-12.0': clayey SILT to silty CLAY: grades from olive (5Y, 4/3) to black (5Y, 2.5/1) to dark olive gray (5Y, 3/2), medium stiff, slightly wet at top to moist at bottom, no odor
				4.02	1.4		
15			3.5/4.0	4.47	2.0	12-16	12.0-15.5': silty CLAY: olive gray (5Y, 4/2), medium soft, moist, no odor, increasing silt with depth
				7.13	1.6		15.5-16.0': No recovery
20			4.0/4.0	7.36	1.3	16-20	16.0-19.5': CLAY: very dark gray (5Y, 3/1), medium soft, moist, no odor
				10.49	1.7		19.5-20.0': clayey SILT: very dark gray (5Y, 3/1), medium soft, slightly wet, very faint odor
25							
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# ERM Environmental Resources Management

Boring/Well No.: SB-7

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643910, 3295301

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

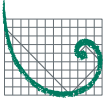
Date Started: 6/2/2020 Date Completed: 6/2/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			3.4/4.0	1.21	1.1	0-4	0.0-3.4': CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor, minor black and orange mottling, top is very dark brown (10YR, 2/2) and dry 3.4-4.0': No recovery		
				2.31	0.6				
5			2.4/4.0	2.57	2.1	4-8	4.0-6.4': CLAY with silt: olive gray (5Y, 4/2), stiff, moist, no odor, orange and black mottling at 5.1-6.4' 6.4-8.0': No recovery		
				2.75	1.5				
10			3.0/4.0	2.56	1.4	8-12	8.0-11.0': CLAY: olive gray (5Y, 4/2), medium stiff, moist, no odor, black (5Y, 2.5/1) layer at 10.2-10.5', some silt at bottom 11.0-12.0' No recovery		
				2.36	1.8				
15			3.2/4.0	2.75	1.5	12-16	12.0-15.2': Alternating silty CLAY and clayey SILT, olive (5Y, 4/3), medium soft to medium stiff, moist, no odor, minor orange mottling, increased silt and slightly wet at 14.8-15.2' 15.2-16.0': No recovery		
				3.86	1.5				
20			4.0/4.0	5.91	1.0	16-20	16.0-17.5': grades from SILT to silty CLAY: olive (5Y, 4/3), soft to medium stiff, saturated to moist, no odor, clay layer at 16.5-16.6' 17.5-20.0': silty CLAY, olive (5Y, 4/3), medium stiff to medium soft, moist, no odor, moist, wet silt layer at 18.2-18.7'		
				7.04	1.2				
25									
30									



# ERM Environmental Resources Management

Boring/Well No.: SB-8

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643916, 3295289

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

Date Started: 6/1/2020 Date Completed: 6/1/2020 Well Dia./Materials: NA

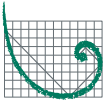
Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			3.2/4.0	1.13	0.8	0-4	0.0-0.9': silty CLAY: dark brown (10YR, 3/3), very stiff, dry, no odor		
				3.23	0.8		0.9-1.1': clayey SILT: dark yellowish brown (10YR, 4/6), hard concretions, dry, no odor		
5			2.3/4.0	3.38	1.0	4-8	1.1-3.2': CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor		
				3.50	0.9		3.2-4.0': No recovery		
10			2.5/4.0	3.37	0.9	8-12	4.0-4.6': clayey SILT: dark olive gray (5Y, 3/2), medium soft, moist, no odor, minor orange mottling		
				3.28	0.8		4.6-6.3': CLAY: grades from very dark gray (2.5Y, 3/1) to dark olive gray (5Y, 3/2), stiff, moist, no odor, minor orange and black mottling		
15			2.8/4.0	3.58	0.7	12-16	6.3-8.0': No recovery		
				6.83	0.8		8.0-10.5': CLAY: olive (5Y, 4/3), medium stiff, moist, no odor, black layer (5Y, 2.5/1) at 9.7-9.9', no odor or sheen, some silt at top		
20			3.3/4.0	7.36	0.9	16-20	10.5-12.0': No recovery		
				9.19	0.7		12.0-14.8': CLAY with silt: olive (5Y, 4/3), medium soft to medium stiff, moist, no odor		
25									14.8-16.0': No recovery
30									16.0-17.8': CLAY with silt: olive (5Y, 4/3), stiff, moist, no odor
							17.8-19.3': Clayey SILT: olive (5Y, 4/3), medium soft, slightly wet, no odor		
							19.3-20.0': No recovery		





# ERM Environmental Resources Management

Boring/Well No.: SB-9

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643935, 3295288

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

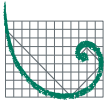
Date Started: 5/29/2020 Date Completed: 5/29/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION		
0			2.8/4.0	1.54	0.5	0-4	0.0-2.3': CLAY: very dark gray (5Y, 3/2), medium stiff, moist, no odor		
				5.83	13.4		2.3-2.8': CLAY: black (5Y, 2.5/1), medium soft, moist, hydrocarbon odor and staining		
5			3.5/4.0	5.70	2.0	4-8	4.0-5.1': CLAY: very dark gray (5Y, 3/1), medium stiff, moist, faint odor		
				5.94	0.4		5.1-6.0': CLAY: black (5Y, 2.5/1), soft, moist, hydrocarbon odor, visible sheen/hydrocarbon product		
10			4.0/4.0	5.94	0.3	8-12	6.0-7.5': CLAY: grades from very dark gray (5Y, 3/1) to olive gray (5Y, 4/2), stiff, moist, decreasing odor with depth, some silt at bottom		
				3.37	0.2		7.5-8.0': No recovery		
15			3.5/4.0	2.75	0.2	12-16	8.0-12.0': CLAY: grades from dark olive gray (5Y, 3/2) to black (5Y, 2.5/1) to olive (5Y, 4/1), stiff to medium soft, moist, no odor, increasing minor silt with depth		
				2.51	0.1		12.0-13.5': clayey SILT: olive (5Y, 4/3), medium soft, slightly wet, no odor		
20			4.0/4.0	6.16	0.1	16-20	13.5-14.6': silty CLAY: olive (5Y, 4/3), medium stiff, moist, no odor		
				7.25	0.1		14.6-15.5': SILT with clay: olive (5Y, 4/3), medium soft, wet, no odor		
25									15.5-16.0': No recovery
30									16.0-20.0': alternating clayey SILT and silty CLAY: very dark gray (5Y 3/1), medium soft to medium stiff, clayey silt is wet, silty clay is moist, clayey silt layers at 16.2-16.6', 17.2-17.4', 18.0-18.4', 19.0-20.0'



# ERM Environmental Resources Management

Boring/Well No.: SB-10

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643897, 3295290

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

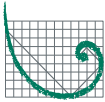
Date Started: 6/2/2020 Date Completed: 6/2/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.0/4.0	1.99	0.4	0-4	0.0-3.0': CLAY: grades from dark brown (10YR, 3/3) to very dark gray (5Y, 3/1), stiff, moist, dry with some silt at top, odor and slight sheen at 2.3-3.0'
				7.00	14.4		3.0-4.0': No recovery
5			2.7/4.0	6.26	2.1	4-8	4.0-6.7': CLAY: dark olive gray (5Y, 3/2), medium stiff, moist, faint odor at top
				5.59	1.7		6.7-8.0': No recovery
10			4.0/4.0	5.49	2.0	8-12	8.0-8.6': silty CLAY: dark gray (5Y, 4/1), medium soft, very slightly wet, no odor
				4.68	1.5		8.6-9.4': CLAY with minor silt: dark gray (5Y, 4/1), medium stiff, moist, no odor
15			2.7/4.0	4.68	1.6	12-16	9.4-10.0': clayey SILT: dark gray (5Y, 4/1), medium soft, slightly wet, no odor
				5.28	1.2		10.0-12.0': grades from CLAY to clayey SILT: dark gray (5Y, 4/1), medium soft, moist, no odor, black (5Y 2.5/1) layer at 10.7-11.0'
20			3.6/4.0	4.68	1.6	16-20	12.0-14.7': silty CLAY to clayey SILT: olive (5Y, 4/3), medium soft to medium stiff, moist, no odor
				5.64	2.5		14.7-16.0': No recovery
25				9.20	2.7		16.0-19.6': silty CLAY to CLAY with silt: olive (5Y, 4/3), medium soft to medium stiff, slightly wet at 16.3-16.9', wet at 18.4-19.6', otherwise moist, no odor
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-11

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643898, 3295282

Surface Elev.: NM Boring T.D.: 20 ft. Boring Dia.: 3.25"

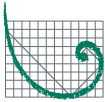
Date Started: 6/2/2020 Date Completed: 6/2/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.1/4.0	2.05	0.7	0-4	0.0-3.1': CLAY: grades from very dark brown (10YR, 2/2) to olive gray (5Y, 4/2), stiff to medium stiff, moist, dry at top, odor and staining at 2.7-3.1'
				4.08	8.5		3.1-4.0': No recovery
5			2.0/4.0	8.15	2.1	4-8	4.0-6.0': CLAY: dark olive gray (5Y, 3/2), medium stiff, moist, faint to no odor
				8.33	1.6		6.0-8.0': No recovery
10			2.2/4.0	8.07	2.4	8-12	8.0-10.2': CLAY, dark olive gray (5Y, 3/2), medium stiff, moist, no odor, black (5Y, 3/2) layer at 9.6-9.8', some silt content at bottom
				6.89	1.6		10.2-12.0': No recovery
15			3.2/4.0	7.67	3.1	12-16	12.0-15.2': CLAY: with silt, olive (5Y, 4/3), medium stiff, no odor, slightly wet clayey silt layer at 13.6-14.2'
				7.00	2.0		15.2-16.0': No recovery
20			3.7/4.0	7.62	2.6	16-20	16.0-17.6': silty CLAY: olive (5Y, 4/3), medium stiff, grades from moist to slightly wet, no odor
				8.65	1.6		17.6-18.3': CLAY, olive (5Y, 4/3), stiff, moist, no odor 18.3-19.7': clayey SILT: very dark gray (5Y, 3/1), medium soft, slightly wet, no odor 19.7-20.0': No recovery
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-12

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643950, 3294642

Surface Elev.: NM Boring T.D.: 8 ft. Boring Dia.: 3.25"

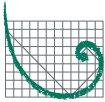
Date Started: 6/10/2020 Date Completed: 6/10/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			3.3/4.0	0.49	0.3	0-4	0.0-1.9': CLAY: dark brown (10YR, 3/3), stiff to hard, moist, no odor, friable, breaks into hard angular pieces, very dark brown (10YR, 2/2) with rootlets at top
1.06				0.3	1.9-2.3': CLAY: black (10YR, 2/1), hard, moist, no odor		
5			3.2/4.0	1.59	0.3	4-8	2.3-3.3': CLAY: dark olive gray (5Y, 3/2), hard, moist, no odor, minor orange mottling
1.12				0.4	3.3-4.0': No recovery		
10							4.0-7.2': CLAY: olive gray (5Y, 4/2), very stiff to medium stiff, moist, no odor, orange mottling, some silt near bottom
15							7.2-8.0': No recovery
20							
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-13

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643974, 3294591

Surface Elev.: NM Boring T.D.: 8 ft. Boring Dia.: 3.25"

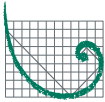
Date Started: 6/10/2020 Date Completed: 6/10/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.8/4.0	2.20	0.3	0-4	0.0-0.7': CLAY: topsoil, very dark brown (10YR, 2/2), hard, dry to moist, no odor 0.7-2.8': CLAY: olive (5Y, 4/3) with orange mottling, stiff, moist, no odor 2.8-4.0': No recovery
3.94				0.3			
5			3.6/4.0	4.28	0.5	4-8	4.0-7.6': CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor, minor silt content at 4.0-5.8', orange mottling at 6.1-7.6' 7.6-8.0': No recovery
6.76				0.4			
10							
15							
20							
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-14

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643915, 3294615

Surface Elev.: NM Boring T.D.: 8 ft. Boring Dia.: 3.25"

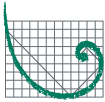
Date Started: 6/10/2020 Date Completed: 6/10/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Direct Push - Geoprobe 7822DT Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Geoprobe tube with acetate liner

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0							
			3.6/4.0	1.40	0.4	0-4	0.0-1.1': silty CLAY: topsoil, very dark brown (10YR, 2/2), stiff, dry to moist, no odor, calcium concretions 1.1-3.6': CLAY: dark olive gray (5Y, 3/2) with orange mottling, stiff, moist, no odor 3.6-4.0': No recovery
				4.18	0.4		
5			3.2/4.0	4.38	0.4	4-8	4.0-7.2': CLAY: dark olive gray (5Y, 3/2), stiff, moist, no odor, orange mottling 7.2-8.0': No recovery
				4.35	0.4		
10							
15							
20							
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-15

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643644, 3294522



Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

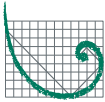
Date Started: 6/9/2020 Date Completed: 6/9/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Hand Auger Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.0/2.0	1.01	0.2	0-2	0.0-2.0': silty CLAY: yellowish brown (10YR, 5/4), medium soft to medium stiff, moist, no odor, minor orange mottling, rootlets at top
			2.0/2.0	1.61	0.2	2-4	2.0-4.0': CLAY with minor silt: olive brown (2.5Y, 4/3), stiff, moist, no odor, some orange mottling
5							
10							
15							
20							
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-16

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643668, 3294544

Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

Date Started: 6/9/2020 Date Completed: 6/9/2020 Well Dia./Materials: NA

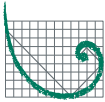
Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Hand Auger Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.0/2.0	0.20	3.8	0-2	0.0-2.0': SILT: topsoil, dark yellowish brown (10YR, 4/4), medium soft, moist, no odor, rootlets
			2.0/2.0	1.48	0.3	2-4	2.0-4.0': CLAY with silt: brown (10YR, 5/3), stiff, moist, no odor, orange mottling
5							
10							
15							
20							
25							
30							





# ERM Environmental Resources Management

Boring/Well No.: SB-17

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643652, 3294556

Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

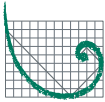
Date Started: 6/9/2020 Date Completed: 6/9/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Billy Smith

Drilling Method: Hand Auger Grouting Method: Portland/Bentonite

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	WELL CONSTRUCTION	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0			2.0/2.0	1.22	0.3	0-2	0.0-2.0': CLAY with minor silt: dark grayish brown (2.5Y, 4/2), medium stiff, moist, no odor
			2.0/2.0	1.07	0.3	2-4	2.0-4.0': CLAY with minor silt content: olive gray (5Y, 4/2) with orange mottling, medium stiff to stiff, moist, no odor
5							
10							
15							
20							
25							
30							



# ERM Environmental Resources Management

Boring/Well No.: SB-24

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643645, 3294546

Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

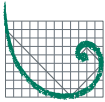
Date Started: 8/11/2020 Date Completed: 8/11/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Michael Weimer

Drilling Method: Hand Auger Grouting Method: Backfilled with soil cuttings

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0		2.0/2.0	NM	NM	0-2	0.0-2.0': SILT: topsoil, brown, medium soft, slightly moist, rootlets, no odor
		2.0/2.0	NM	NM	2-4	2.0-4.0': CLAY: brownish gray, very stiff, moist, no odor
5						
10						
15						
20						
25						
30						



# ERM Environmental Resources Management

Boring/Well No.: SB-25

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643660, 3294587

Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

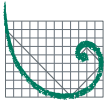
Date Started: 8/11/2020 Date Completed: 8/11/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Michael Weimer

Drilling Method: Hand Auger Grouting Method: Backfilled with soil cuttings

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0		2.0/2.0	NM	NM	0-2	0.0-2.0': CLAY: with silt, grayish brown, stiff, moist, rootlets at top, no odor
		2.0/2.0	NM	NM	2-4	2.0-4.0': CLAY: grayish brown, very stiff, moist, no odor
5						
10						
15						
20						
25						
30						



# ERM Environmental Resources Management

Boring/Well No.: SB-26

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643704, 3294556

Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

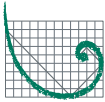
Date Started: 8/11/2020 Date Completed: 8/11/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Michael Weimer

Drilling Method: Hand Auger Grouting Method: Backfilled with soil cuttings

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0		2.0/2.0	NM	NM	0-2	0.0-2.0': CLAY: with silt, grayish brown, medium stiff, moist, rootlets at top, no odor
		2.0/2.0	NM	NM	2-4	2.0-4.0': CLAY: grayish brown, stiff, moist, no odor
5						
10						
15						
20						
25						
30						



# ERM Environmental Resources Management

Boring/Well No.: SB-27

Project: Louisiana Wetlands, et al., vs Energen, et al. Project No.: 0494247

Location: St. Mary Parish, Louisiana Coordinates: UTM 15R 643675, 3294526

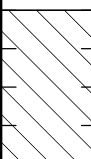
Surface Elev.: NM Boring T.D.: 4 ft. Boring Dia.: 3"

Date Started: 8/11/2020 Date Completed: 8/11/2020 Well Dia./Materials: NA

Drilling Company: Walker Hill Driller: Michael Weimer

Drilling Method: Hand Auger Grouting Method: Backfilled with soil cuttings

Logged by: Shawn Wiggins, P.G. Soil Sample Method: Hand Auger

DEPTH (FEET)	LITHOLOGY (GRAPHIC LOG)	SAMPLE RECOVERY (FEET/FEET)	FIELD EC (mS/cm)	PID (PPMV)	DESCRIPTION INTERVAL (FEET)	SOIL DESCRIPTION
0		2.0/2.0	NM	NM	0-2	0.0-2.0': CLAY: with silt, grayish brown, stiff, moist, rootlets at top, no odor
		2.0/2.0	NM	NM	2-4	2.0-4.0': CLAY: grayish brown, stiff, moist, no odor
5						
10						
15						
20						
25						
30						