

From: Edmund Q B Henriques <EHenriques@smeinc.com>
Sent: Tuesday, November 24, 2020 10:59 AM
To: Kuhn, Kimberly M. <kuhnm@dhec.sc.gov>
Cc: Bumgarner, Bill <BBUMGARN@marshfurniture.com>; Braswell, Bruce <BBRASWEL@marshfurniture.com>
Subject: Marsh Lumber - Baseline Event Data Report

***** Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. *****

Good morning Kim, I hope you and your family are well. Appended is the data report for the baseline sampling event at Marsh Lumber. Please review at your convenience and let me know if you have any questions.

I hope you and your family enjoy time together this Thanksgiving.

Kind Regards, Ed

Edmund Q.B. Henriques, P.G.

Senior Geologist / Senior Project Manager

ehenriques@smeinc.com



S&ME
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November 24, 2020

South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708

Attention: Ms. Kimberly Kuhn transmitted by email to kuhnm@dhec.sc.gov

Reference: **Baseline Sampling Data Report**
Marsh Lumber – VCC Number 16-5858 RP
Pamplico, South Carolina
S&ME Project No. 1584-98-146C

Dear Ms. Kuhn:

S&ME, Inc. (S&ME) has prepared this data report for the Marsh Lumber site, VCC number 16-5858-RP. This report documents the installation of four groundwater monitoring wells, installation of new and replacement bio-sparge wells, and the completion of a base-line monitoring event for Phase 1 of the bio-sparge pilot test expansion.

◆ Monitoring Well Installation

In accordance with S&ME's *Work Plan, Bio-Sparge Pilot Test Expansion, Marsh Lumber Site, VCC Number 16-5858-RP* dated September 3, 2020, new monitoring wells MW-31, MW-32, MW-33, MW-34 were installed to refine delineation and distribution of pentachlorophenol (PCP) and to provide additional data points for monitoring of the expanded pilot test. The wells were installed and developed between September 28 and 29, 2020. Completed *Water Well Record, Bureau of Water* (Form DHEC 1903) are contained in **Attachment I**.

The new well locations were recorded use a non-survey grade GPS unit. Top of casing elevations were determined relative to existing monitoring well top of casing elevations, using a level and rod.

◆ Bio-Sparge Well Installation

S&ME completed the installation of the seven new Class V.A.-1 wells as authorized by Underground Injection Control Permit #SCHE03020255M3, and corresponding Permit to Construct received from SCDHEC. The seven new wells are identified as BSW-9, BSW-10, BSW-11, BSW-12, BSW-13, BSW-14, and BSW-15. The UIC permit also involved six pre-existing wells identified as BSW-3, BSW-4, BSW-5, BSW-6, BSW-7, and BSW-8. The new well locations were recorded use a non-survey grade GPS unit. The existing and new wells will be utilized as bio-sparge wells during Phase I of the expanded Pilot Study. **Attachment II** contains a copy of S&ME's *Underground Injection Control Permit, Marsh Lumber – VCC Number 16,-5858-RP* letter dated October 29, 2020, which contained documentation of well installation activities completed.

The UIC Permit to operate was received from SCDHEC. Final system installation activities are scheduled for November 30, 2020, with Phase 1 bio-sparging targeted to commence shortly thereafter.



◆ **Baseline Groundwater Monitoring**

In accordance with S&ME's *Work Plan, Bio-Sparge Pilot Test Expansion, Marsh Lumber Site, VCC Number 16-5858-RP* dated September 3, 2020, monitoring wells MW-10, MW-21, MW-22, MW-24, MW-25, MW-26, MW-27, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, and MW-34 were sampled between September 29 and 30, 2020. The collected groundwater samples were analyzed for PCP by Method 8151. **Attachment III** contains:

- Groundwater sampling field data sheets for the baseline event,
- Laboratory analytical report for the baseline event,
- Updated Table 1 and Table 2; and
- Figure 1 depicting groundwater elevation contours (computer generated) and an estimate of the extent of PCP based on the September 2020 analytical data and prior analytical data noted.

◆ **Closure**

Please contact the undersigned if you have any questions.

Sincerely,

S&ME, Inc.

A handwritten signature in black ink that reads "Edmund Q.B. Henriques".

Edmund Q.B. Henriques
Senior Project Manager
ehenriques@smeinc.com

Attachments

cc Bill Bumgarner, Marsh Furniture Company, P.O. Box 870, High Point, NC 27261
Bruce Braswell, Marsh Furniture Company, P.O. Box 870, High Point, NC 27261

Attachments

Attachment I – Water Well Records

Attachment II – UIC Well Records



October 29, 2020

South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708

Attention: Mr. Bruce Crawford

Reference: **Underground Injection Control Permit**
Marsh Lumber - VCC Number 16-5858-RP
Pamplico, South Carolina
S&ME Project No. 1584-98-146C

Dear Mr. Crawford:

S&ME, Inc. (S&ME) on behalf of Marsh Furniture Company has completed the installation of the seven new Class V.A.-1 wells as authorized by Underground Injection Control Permit #SCHE03020255M3, and corresponding Permit to Construct received from SCDHEC. The seven new wells are identified as BSW-9, BSW-10, BSW-11, BSW-12, BSW-13, BSW-14, and BSW-15. The UIC permit also involves the six pre-existing wells identified as BSW-3, BSW-4, BSW-5, BSW-6, BSW-7, and BSW-8. The existing and new wells will be utilized as bio-spargers during the pending Pilot Study. Figure B-1 depicts actual well locations which were generally consistent with the proposed locations. Attached are the Water Well Records (Form DHEC 1903) for the seven new wells and six existing wells. Also attached are photographs of the new well head completions. Please advise regarding a schedule for the SCDHEC well inspection and the pending approval of the Permit to Operate.

Please contact me at 336-312-3330 if you have any questions.

S&ME, Inc.

A handwritten signature in black ink that reads "Edmund Q.B. Henriques".

Edmund Q.B. Henriques
Senior Project Manager
ehenriques@smeinc.com

cc Bill Bumgarner, Marsh Furniture Company, P.O. Box 870, High Point, NC 27261
Bruce Collins, Marsh Lumber Co., 6th Avenue, Pamplico, SC 29583

Attachment I – Well Records

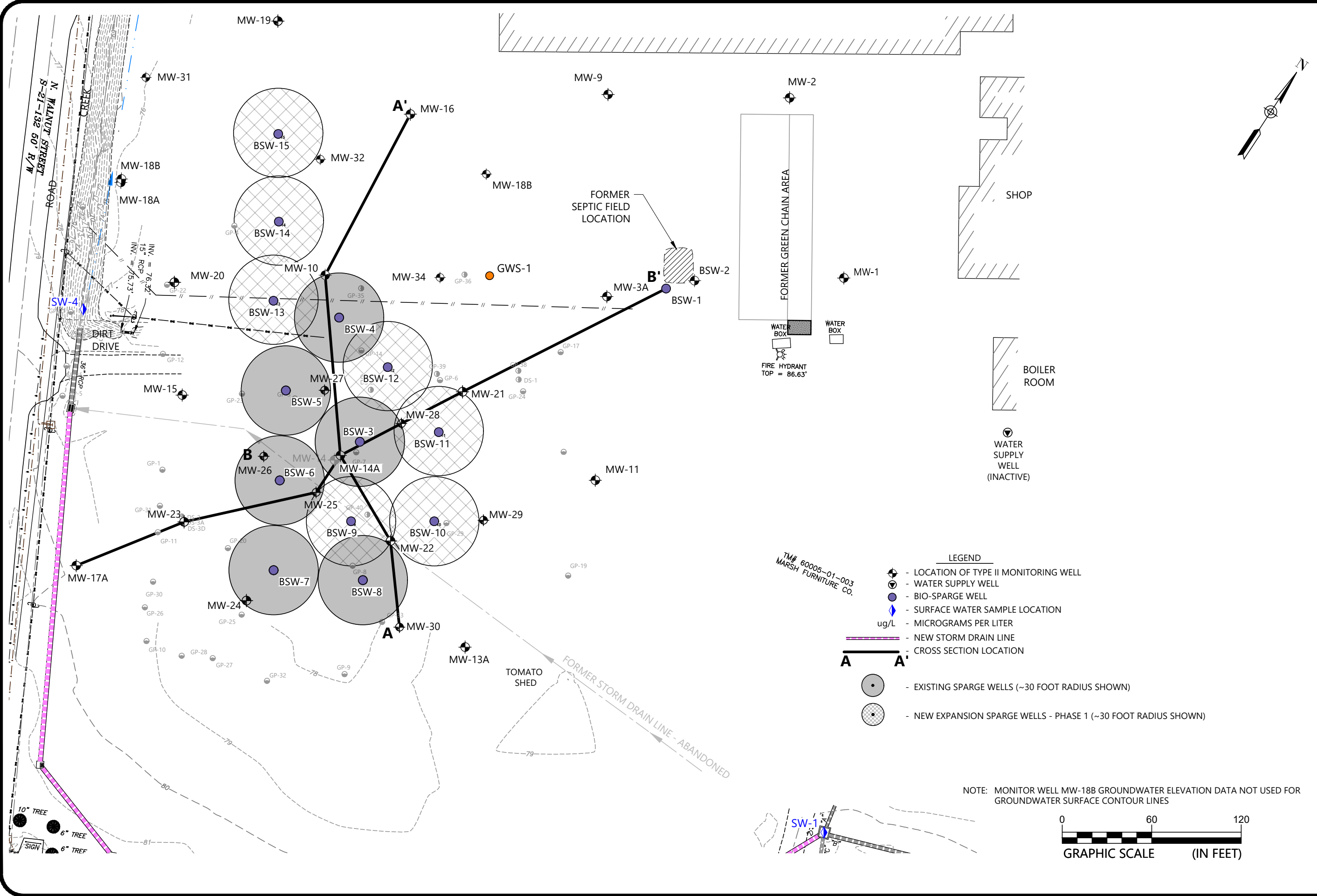


**BIO-SPARGE WELL NETWORK
(OCTOBER 2020)**

MARSH LUMBER
PAMPlico, SOUTH CAROLINA

SCALE:
AS SHOWN
DATE:
SEPT. 2020
PROJECT NUMBER
1584-98-146C
FIGURE NO.

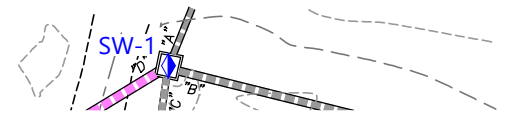
B-1



Drawing path: Q:\1584\98\146 - MARSH LUMBER\C\19-20\Pamplico Figures.dwg

TM# 60005-01-003
MARSH FURNITURE CO.

10" TREE
6" TREE
6" TREE
SIGN





Water Well Record
Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release.

1. WELL OWNER INFORMATION:

Name: Marsh Furniture Company
Address: PO Box 870
City: High Point State: NC Zip: 27261
Telephone: Work: 336.884.7363 Home:

2. LOCATION OF WELL: COUNTY:

Name: Marsh Lumber
Street Address: 119 East 6th Avenue
City: Famplico, SC Zip: 29583
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: Yes No
Give Details Below

Grouted Depth: from ft. to ft.

Table with 3 columns: Formation Description, Thickness of Stratum, Depth to Bottom of Stratum. Includes note: *Indicate Water Bearing Zones (Use a 2nd sheet if needed)

5. REMARKS:

Well ID #: BSW-10

6. TYPE: Mud Rotary Jettied Bored Dug Air Rotary Driven Cable tool Other

7. PERMIT NUMBER:

8. USE:

Residential Public Supply Process Irrigation Air Conditioning Emergency Test Well Monitor Well Replacement

9. WELL DEPTH (completed)

18 ft. Date Started: 9-30-20 Date Completed: 9-30-20

10. CASING: Threaded Welded

Diam.: 2" Height: Above/Below Surface Weight Drive Shoe? PVC Galvanized Steel Other 16 in. to 0 ft. depth

11. SCREEN:

Type: PVC Diam.: 2" Slot/Gauge: 0.01/sch. 40 Length: 2' Set Between: 18 ft. and 16 ft. Sieve Analysis Yes No

12. STATIC WATER LEVEL

13. PUMPING LEVEL Below Land Surface.

ft. after hrs. Pumping G.P.M. Pumping Test: Yes No Yield:

14. WATER QUALITY

Chemical Analysis Yes No Bacterial Analysis Yes No Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack)

Installed from 18 ft. to 14 ft. Effective size #2 med Uniformity Coefficient Sand

16. WELL GROUTED? Yes No

Neat Cement Bentonite Bentonite/Cement Other Depth: From 14 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:

Type Well Disinfected Yes No Type: Amount:

18. PUMP: Date installed:

Mfr. Name: Model No.: H.P. Volts Length of drop pipe ft. Capacity gpm TYPE: Submersible Jet (shallow) Turbine Jet (deep) Reciprocating Centrifugal

19. WELL DRILLER: Josh Furnish

Address: (Print) 17538 Greenhill Rd. Charlotte NC 28278 Telephone No.: 704.607.7529 Fax No.: CERT. NO.: 2824 Level: A B C D (circle one)

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under

my direction and this report is true to the best of my knowledge and belief.

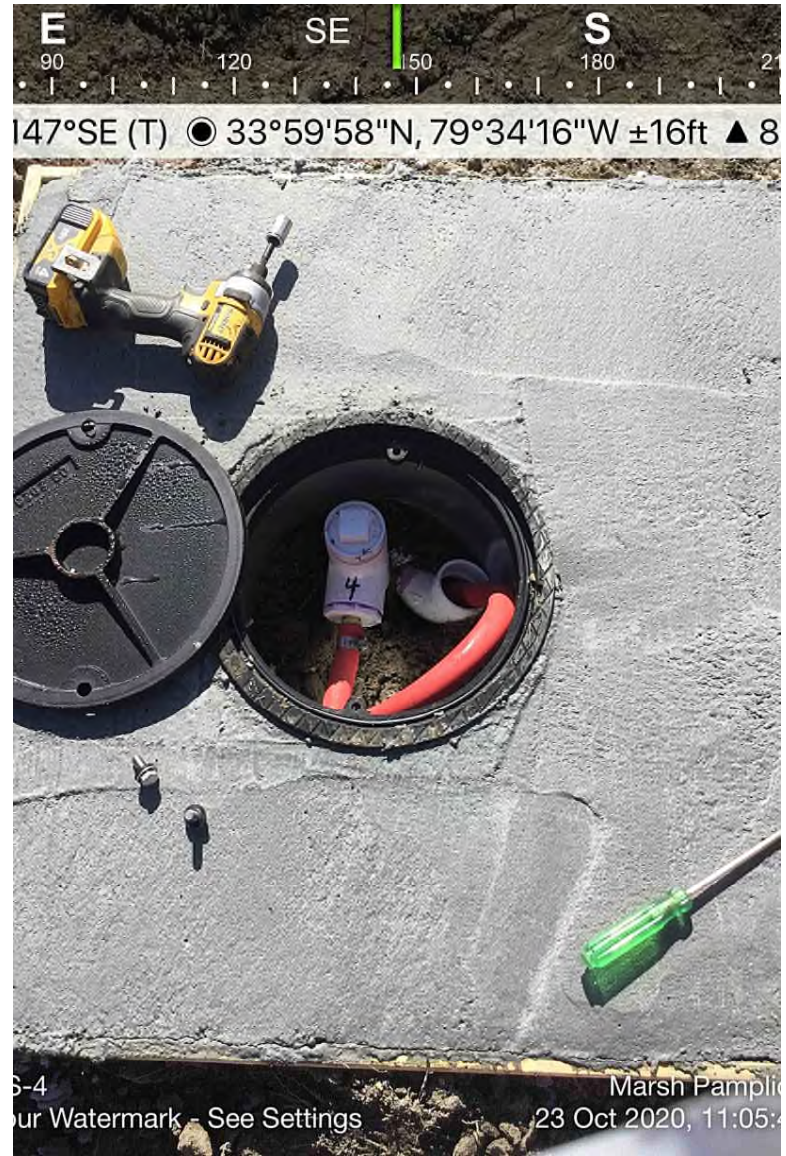
Signed: [Signature] Date: 10/19/20 Well Driller

If D Level Driller, provide supervising driller's name:

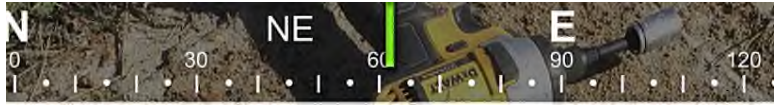
Attachment II – Photographs



BSW-15 (NEW)



BSW-4 (Existing)



32°NE (T) ● 33°59'57"N, 79°34'16"W ±16ft ▲ 8



S-5
Your Watermark - See Settings

Marsh Pampl
23 Oct 2020, 11:03

BSW-5 (EXISTING)



172°S (T) ● 33°59'56"N, 79°34'16"W ±16ft ▲ 8



S-6
Your Watermark - See Settings

Marsh Pampl
23 Oct 2020, 11:01

BSW-6 (EXISTING)



19°N (T) ● 33°59'56"N, 79°34'16"W ±16ft ▲ 8



S-7 Marsh Pampl
our Watermark - See Settings 23 Oct 2020, 11:00:

BSW-7 (EXISTING)



102°E (T) ● 33°59'56"N, 79°34'15"W ±16ft ▲ 8



S-8 Marsh Pampl
our Watermark - See Settings 23 Oct 2020, 10:59:

BSW-8 (EXISTING)



217°SW (T) ● 33°59'56"N, 79°34'15"W ±16ft ▲ 9



S-
our Watermark - See Settings

Marsh Pampl
23 Oct 2020, 10:58:3

BSW-9 (NEW)



74°E (T) ● 33°59'57"N, 79°34'15"W ±16ft ▲ 7



S-10
our Watermark - See Settings

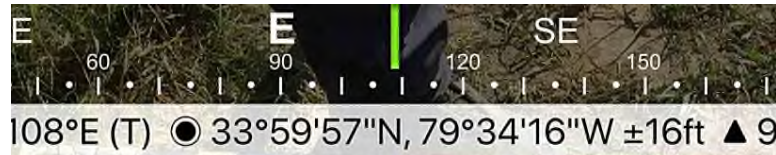
Marsh Pampl
23 Oct 2020, 10:57:0

BSW-10 (NEW)



S-11 Marsh Pampl
our Watermark - See Settings 23 Oct 2020, 10:55:4

BSW-11 (NEW)



S-12 Marsh Pampl
our Watermark - See Settings 23 Oct 2020, 11:04:3

BSW-12 (NEW)



BSW-13 (NEW)



BSW-14 (NEW)

**Attachment III – Laboratory Analytical Report, Groundwater
Sampling Field Data Sheets, Table 1, Table 2, and Figure 1**

Table 1
Groundwater Elevation Data - September 29, 2020
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Well ID	Total Depth (feet bls.)	Well Diameter (inches)	Screen Interval (feet bls.)		Top of Casing Elevation ₁ (mean sea level)	Depth to Groundwater 9/29/2020 (feet below TOC)	Groundwater Elevation 9/29/2020 (mean sea level)
MW-1	15.3	2	5.3	15.3	85.55	Not Measured	Not Measured
MW-3A	15.0	2	5.0	15	88.59	9.36	79.23
MW-9	18.0	2	8.0	18	83.50	6.69	76.81
MW-10	15.0	2	5.0	15	83.30	7.33	75.97
MW-11	15.0	2	5.0	15	85.61	5.96	79.65
MW-13A	22.0	2	7.0	22	83.52	5.64	77.88
MW-14A	16.0	2	6.0	16	81.11	3.17	77.94
MW-15	15.0	2	5.0	15	82.32	8.64	73.68
MW-16	16.0	2	6.0	16	83.65	7.92	75.73
MW-17A	15.9	2	5.9	15.9	82.37	9.23	73.14
MW-18A	15.2	2	13.2	15.2	80.27	6.52	73.75
MW-18B	6.7	2	4.7	6.7	80.17	5.95	74.22
MW-19	17.6	2	7.4	17.4	79.56	5.67	73.89
MW-20	13.9	2	3.9	13.9	80.59	6.56	74.03
MW-21	15.8	2	5.8	15.8	84.04	4.76	79.28
MW-22	17.1	2	7.1	17.1	81.74	4.60	77.14
MW-23	11.8	2	6.8	11.8	81.37	6.87	74.50
MW-24	14.0	2	4.0	14.0	81.23	5.03	76.20
MW-25	14.6	1	4.5	14.5	80.49	3.72	76.77
MW-26	14.3	1	9.2	14.2	81.21	4.86	76.35
MW-27	17.1	1	7.0	17.0	82.20	4.88	77.32
MW-28	17.1	1	7.0	17.0	83.03	4.42	78.61
MW-29	20.1	1	10.0	20.0	82.90	4.99	77.91
MW-30	19.4	1	9.3	19.3	81.58	3.62	77.96
MW-31	15	2	5.0	10.0	78.64	4.99	73.65
MW-32	15	2	5.0	10.0	81.83	4.88	76.95
MW-33	17	2	7.0	10.0	84.33	5.27	79.06
MW-34	17	2	7.0	10.0	83.57	3.83	79.74
BSW-2	20.0	2	10.0	20.0	no data	Not Measured	Not Measured
BSW-3	16.9	2	15.0	16.8	no data	Not Measured	Not Measured
BSW-4	14.0	2	12.0	14.0	no data	Not Measured	Not Measured
BSW-5	14.0	2	12.0	14.0	no data	Not Measured	Not Measured
BSW-6	15.0	2	13.0	15.0	no data	Not Measured	Not Measured
BSW-7	14.0	2	12.0	14.0	no data	Not Measured	Not Measured
BSW-8	15.0	2	13.0	15.0	no data	Not Measured	Not Measured
BSW-9	14.0	2	12.0	14.0	no data	Not Measured	Not Measured
BSW-10	18.0	2	16.0	18.0	no data	Not Measured	Not Measured
BSW-11	17.0	2	15.0	17.0	no data	Not Measured	Not Measured
BSW-12	16.0	2	14.0	16.0	no data	Not Measured	Not Measured
BSW-13	14.0	2	12.0	14.0	no data	Not Measured	Not Measured
BSW-14	15.0	2	13.0	15.0	no data	Not Measured	Not Measured
BSW-15	15.0	2	13.0	15.0	no data	Not Measured	Not Measured

Top of Casing Elevations₁ = Based data provided by Nesbitt Surveying Company, Inc. on 10/27/2016

feet bls. = feet below land surface

feet below TOC = feet below top of well casing

Riser* = relative to top of casing

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well(s)	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151	General Chemistry			Field Parameters							
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol		PCP	Alkalinity	Chloride	TOC	DTGW	GWE	Temp	pH	Cond.	D.O.	ORP	Turbidity
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)	Result (µg/L)	(mg/L)	(mg/L)	(mg/L)	(feet)	(feet)	(Celsius)	(s.u...)	(µs/cm ⁹)	(mg/L)	(millivolts)	(NTU)
MW-3A	Up-Gradient of Current Pilot Test	192	3/13/2018	<50	3.5	not detected	**	not requested	9.2	4.1	2.3	11.37	77.22	16.2	5.0	122	0.9	228	20.8
			2/18/2019	<24.8	3.5	<9.9	2.9	not requested	not requested	not requested	not requested	11.35	77.24	18.3	5.4	130	0.5	243	48.3
			7/22/2019	not requested	not requested	not requested	not requested	0.15 J	not requested	not requested	not requested	11.69	76.90	25.6	4.9	146	0.4	264	7.21
			3/3/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	9.52	79.07	16.8	5.6	114	3.4	218	29.5
DUPLICATE 2 Sample			3/3/2020	not requested	not requested	not requested	not requested	<0.52	not requested	not requested	not requested								
MW-9	Up-Gradient		10/30/2019	<24.5	3.5	not requested	not requested	1.8	not requested	not requested	not requested	8.21	75.29	25.5	6.6	510	0.2	122	14.9
MW-11	Up-Gradient		10/30/2019	<24.0	3.4	not requested	not requested	<0.54	not requested	not requested	not requested	9.95	75.66	23.8	5.2	100	0.9	277	19.0
			3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	5.49	80.12	data lost	data lost	data lost	data lost	data lost	data lost
MW-16	Cross-Gradient	122	3/13/2018	<51	3.6	not detected	**	not requested	66.3	15.7	2.9	8.26	75.39	16.1	5.6	216	0.4	201	12.6
			2/19/2019	<25.0	3.5	<10.0	2.9	not requested	not requested	not requested	8.22	75.43	14.9	6.6	353	1.1	292	55.2	
			7/22/2019	not requested	not requested	not requested	not requested	0.80	not requested	not requested	not requested	7.45	76.20						
			3/2/2020	not requested	not requested	not requested	not requested	0.54	not requested	not requested	not requested	7.45	76.20	16.9	6.4	351	1.5	190	10.3
MW-18B	Down-gradient	170	3/13/2018	<51	3.6	not detected	**	not requested	382	11.9	1.4	7.07	73.10	15.3	6.7	616	0.8	34	0.3
			2/19/2019	<25.0	3.5	<10.0	2.9	<0.50	not requested	not requested	not requested	6.73	73.44	13.2	7.1	704	1.4	2	8.7
			3/2/2020	not requested	not requested	not requested	not requested	<0.53	not requested	not requested	not requested	5.36	74.81	17.0	6.9	743	0.9	-5	7.0
MW-19	Cross-Gradient	202	3/13/2018	<51	3.6	not detected	**	not requested	314	25.2	7.5	5.89	73.67	16.5	6.2	586	0.2	6	7.6
			2/19/2019	<25.0	3.5	<10.0	2.9	<0.49	not requested	not requested	not requested	5.46	74.10	16.2	6.5	750	0.3	-61	19.4
			3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	4.85	74.71	18.5	6.4	731	0.3	-38	4.3
MW-20	Down-gradient of BSW-4	112	3/13/2018	<49	3.5	not detected	**	not requested	201	10.6	<1.0	7.17	73.42	16.7	7.0	335	0.2	-64	0.3
			9/19/2018	<27.2	3.8	<10.9	3.2	not requested	223	10.2	<1.0	6.63	73.42	24.1	7.0	432	0.2	-78	3.6
			2/20/2019	<25.0	3.5	<10.0	2.9	not requested	not requested	not requested	not requested	6.87	73.72	14.5	7.3	377	0.2	-98	7.4
			7/24/2019	<25.0	3.5	<10.0	2.9	<0.54	not requested	not requested	not requested	7.85	72.74	24.1	6.6	474	0.1	-83	2.7
			3/2/2020	not requested	not requested	not requested	not requested	<0.52	not requested	not requested	not requested	6.05	74.54	17.5	7.3	404	0.2	-20	8.0
MW-10	Down Gradient of BSW-4	31	9/14/2016	<50	4.6	not requested	not requested	not requested	302	12.0	1.9	6.77	76.53	25.2	6.7	546	0.0	-8	8.8
			12/8/2016	<50	4.6	not requested	not requested	not requested	235	18.2	1.9	8.22	75.08	19.9	6.4	664	1.6	15	8.2
			2/21/2017	16.0 J	4.6	<10	2.3	not requested	207	19.8	4.0	8.47	74.83	17.4	6.2	57	2.1	107	7.7
			5/24/2017	<25.0	2.4	<10	2.3	not requested	193	19.8	3.8	8.70	74.60	21.8	6.4	446	0.2	-149	6.3
			8/30/2017	<50	3.5	not requested	not requested	not requested	141	20.4	3.1	8.84	74.46	24.0	6.5	460	1.2	77	2.9
			3/14/2018	<52.1	3.7	not detected	**	not requested	114	18.3	3.4	8.35	74.95	15.8	5.5	390	0.4	130	6.8
			6/26/2018	30.4	3.5	<9.8	2.9	not requested	115	17.3	4.4	9.34	73.96	23.1	5.9	390	0.3	162	17.1
			9/19/2018	<25.5	3.6	<10.2	3.0	not requested	142	14.9	9.3	7.45	74.95	24.0	6.1	375	0.4	76	6.5
			2/19/2019	<25.0	3.5	<10.0	2.9	not requested	not requested	not requested	not requested	8.07	75.23	14.8	6.3	313	0.2	113	4.0
			7/23/2019	<25.0	3.5	<10.0	2.9	59	96	11.6	3.8	9.25	74.05	24.2	5.7	235	0.2	98	4.3
			10/29/2019	<24.0	3.4	not requested	not requested	35	not requested	not requested	not requested	9.94	73.36	23.1	5.9	206	0.4	105	7.0
			3/2/2020	not requested	not requested	not requested	not requested	22	not requested	not requested	not requested	6.84	76.46	17.3	6.2	317	0.2	60	4.1
9/29/2020	not requested	not requested	not requested	not requested	60	not requested	not requested	not requested	7.33	75.97	25.3	5.7	255	0.3	75	2.6			
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

J =concentration shown is estimated

Bold value indicates a detection above the method reporting detection limit (MDL)

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151	General Chemistry			Field Parameters							
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol		PCP	Alkalinity	Chloride	TOC	DTGW	GWE	Temp	pH	Cond.	D.O.	ORP	Turbidity
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)	Result (µg/L)	(mg/L)	(mg/L)	(mg/L)	(feet)	(feet)	(Celsius)	(s.u...)	(µs/cm ⁹)	(mg/L)	(millivolts)	(NTU)
MW-14	Down Gradient of BSW-3	15	9/14/2016	214	4.6	not requested	not requested	not requested	35.7	8.4	4.7	5.51	75.6	26.5	5.1	13	0.0	77	4.9
"			12/13/2016	<250	23.2	not requested	not requested	not requested	<5.0	12.6	9.6	5.97	75.14	17.6	5.0	142	6.7	225	489
"			2/21/2017	<250	23.2	<100	22.6	not requested	3.2 J	16.3	12.7	7.05	74.06	41.4	5.8	81	2.4	272	228
MW-14A			6/7/2017	122	4.6	<10.0	22.6	not requested	6.0	7.4	1.9	5.19	75.92	21.4	5.5	74	6.2	40	3.3
"			8/30/2017	<50	3.5	not requested	not requested	not requested	9.2	8.4	1.4	5.88	75.23	24.9	6.0	83	6.7	103	2.0
"			3/14/2018	<50	3.5	not detected	**	not requested	<5.0	8.5	1.5	4.55	76.56	15.6	5.5	65	8.6	381	7.6
"			6/26/2018	<24.5	3.5	<9.8	2.9	not requested	<5.0	9.2	1.4	5.52	75.59	23.4	5.0	79	5.9	194	16.0
"			9/21/2018	<26.6	3.7	<10.6	3.1	not requested	5.3	8.8	2.5	4.21	76.56	23.2	5.3	90	6.6	233	12.1
"			2/20/2019	<25.0	3.5	<10.0	2.9	<0.51	26.2	8.9	2.5	4.59	76.52	13.4	6.2	111	8.3	337	8.9
"			7/23/2019	<25.0	3.5	<10.0	2.9	<0.53	14.2	9.5	2.5	5.13	75.98	24.4	5.7	104	6.4	309	5.0
"	3/2/2020	not requested	not requested	not requested	not requested	<0.52	not requested	not requested	not requested	3.44	77.67	data lost	data lost	data lost	data lost	data lost	data lost	data lost	
MW-15	Down Gradient of BSW-5	70	9/14/2016	<50	4.6	not requested	not requested	not requested	346	25.2	9.1	8.34	73.98	26.0	6.1	663	0.3	-64	14.9
"			12/8/2016	<50	4.6	not requested	not requested	not requested	322	24.1	10.4	8.64	73.68	18.5	6.2	843	4.5	-65	6.1
"			2/21/2017	<25	2.3	<10	2.3	not requested	312	23.8	7.3	9.34	72.98	16.5	6.6	627	0.0	-16	5.5
"			5/23/2017	<31.2	2.9	<12.5	1.2	not requested	306	21.4	6.4	9.14	73.18	20.6	6.3	612	0.2	-46	10.2
"			8/30/2017	<50	3.5	not requested	not requested	not requested	318	20.6	8.6	9.31	73.01	25.5	6.5	658	0.7	-32	4.4
"			3/13/2018	<52.1	3.7	not detected	**	not requested	352	18.1	7.4	8.37	73.59	16.7	6.1	570	0.2	-24	8.6
"			9/19/2018	<24.8	3.5	<9.9	2.9	not requested	331	15.7	12.1	8.91	73.59	25.6	6.2	680	0.2	-52	9.6
"			2/20/2019	<25.0	3.5	<10.0	2.9	<0.48	not requested	not requested	not requested	8.89	73.43	13.6	6.4	713	0.2	-40	10.4
"			7/22/2019	46.6	3.5	<10.0	2.9	<0.51	not requested	not requested	not requested	9.41	72.91	25.3	6.0	717	0.1	-47	5.0
"			10/29/2019	<24.5	3.5	not requested	not requested	<0.53	not requested	not requested	not requested	10.38	71.94	23.3	6.2	741	2.4	-39	8.3
"	10/29/2019	<24.8	3.5	not requested	not requested	<0.49	not requested	not requested	not requested	duplicate	duplicate	duplicate	duplicate	duplicate	duplicate	duplicate	duplicate	duplicate	
"	3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	7.87	74.45	data lost	data lost	data lost	data lost	data lost	data lost	data lost	
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

J = concentration shown is estimated

Bold value indicates a detection above the method reporting detection limit (MDL)

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

 Biosparge Pilot Test #2 began 2009 at BSW-3 only, near MW-14A

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151	General Chemistry			Field Parameters								
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol		PCP	Alkalinity	Chloride	TOC	DTGW	GWE	Temp	pH	Cond.	D.O.	ORP	Turbidity	
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)	Result (µg/L)	(mg/L)	(mg/L)	(mg/L)	(feet)	(feet)	(Celsius)	(s.u...)	(µs/cm ³)	(mg/L)	(millivolts)	(NTU)	
MW-21	Up Gradient of BSW-3	76	9/15/2016	16.5 J	4.6	not requested	not requested	not requested	26.7	8.9	2.1	7.94	76.1	28.8	5.5	161	0.0	189	19.0	
			12/14/2016	<50	4.6	not requested	not requested	not requested	18.3	9.1	1.0	6.10	77.94	19.5	5.4	148	2.1	146	0.2	
			2/21/2017	6.5 J	2.3	not requested	not requested	not requested	15.9	9.1	1.5	7.66	76.38	17.3	5.8	102	0.1	214	4.0	
			5/24/2017	<31.2	2.9	<12.5	1.2	not requested	8.4	9.0	1.8	7.67	76.37	21.2	5.0	79	0.3	109	7.2	
			8/30/2017	<50	3.5	not requested	not requested	not requested	8.9	9.1	1.5	8.11	75.93	25.7	5.3	85	0.8	117	4.3	
			3/14/2018	<52.1	3.7	not detected	**	not requested	7.1	7.9	1.8	7.13	76.91	16.1	4.7	92	1.3	212	8.0	
			2/21/2019	<24.8	3.5	<9.9	2.9	not requested	58.5	7.3	4.1	7.20	76.84	16.5	6.1	148	0.6	255	26.3	
			7/24/2019	<25.0	3.5	<10.0	2.9	0.15 J	not requested	not requested	not requested	7.70	76.34	23.9	6.0	162	0.2	177	34.6	
			3/2/2020	not requested	not requested	not requested	not requested	<0.50	not requested	not requested	not requested	5.71	78.33	data lost	data lost	data lost	data lost	data lost	data lost	
9/30/2020	not requested	not requested	not requested	not requested	<0.49	not requested	not requested	not requested	4.76	79.28	24.7	6.8	292.2	2.9	125.2	9.9				
MW-22	Cross Gradient of BSW-8	32	9/15/2016	<50	4.6	not requested	not requested	not requested	178	5.7	<1.0	5.79	75.95	29.0	6.5	308	0.0	-56	13.0	
			12/8/2016	294	4.6	not requested	not requested	not requested	153	8.5	<1.0	5.56	76.18	18.4	6.5	369	1.8	33	1.5	
			2/21/2017	472	11.6	5.3 J	2.3	not requested	93.9	9.8	1.2	5.87	75.87	18.5	6.0	144	0.0	198	2.5	
			5/24/2017	358	125	<10	1.2	not requested	31.3	10.6	1.7	6.21	75.53	20.8	5.4	120	0.2	-165	2.6	
			8/30/2017	339	7.0	not requested	not requested	not requested	27.3	11.4	1.6	6.39	75.35	24.3	5.6	121	1.0	132	1.7	
			3/14/2018	271	3.4	not detected	**	not requested	31.4	10	2.1	5.73	76.01	14.0	5.1	116	0.2	256	0.0	
			6/26/2018	150	17.3	<9.8	2.9	not requested	29.8	9.6	1.2	6.84	74.90	24.3	4.8	131	0.2	161	0.6	
			9/20/2018	186	18.0	<10.2	3.0	not requested	27.8	8.8	3.5	4.76	76.09	24.6	5.2	123	0.2	201	1.6	
			2/18/2019	128	3.5	<9.8	2.9	83	47.8	7.3	1.7	5.67	76.07	16.5	5.5	131	0.3	190	0.1	
			7/24/2019	83.8	3.5	<10.0	2.9	130	24.4	8.8	2.3	6.85	74.89	25.4	5.2	113	0.2	218	1.0	
			3/2/2020	not requested	not requested	not requested	not requested	65	not requested	not requested	not requested	4.42	77.32	17.4	5.6	132	1.3	187	2.4	
			DUPLICATE 1 sample	3/2/2020	not requested	not requested	not requested	not requested	73	not requested	not requested	not requested								
			9/29/2020	not requested	not requested	not requested	not requested	77	not requested	not requested	not requested	4.6	77.14	25.9	5.3	119.7	0.9	163.7	0.0	
MW-23	Down Gradient of BSW-6	70	9/15/2016	<50	4.6	not requested	not requested	not requested	297	7.1	11.8	7.57	73.80	27.0	6.2	558	0.0	-36	11.9	
			12/13/2016	<50	4.6	not requested	not requested	not requested	403	11.0	14.4	7.20	74.17	17.4	6.4	934	2.5	-74	1.0	
			2/21/2017	<25	2.3	<10	2.3	not requested	368	14.4	12.2	7.62	73.75	15.8	6.9	686	0.0	-43	7.1	
			5/23/2017	<31.2	2.9	<12.5	1.2	not requested	400	14.6	13	7.79	73.58	20.7	6.4	807	0.2	-55	1.1	
			8/30/2017	<50	3.5	not requested	not requested	not requested	404	15.8	12.1	8.03	73.34	25.6	6.7	799	0.6	-59	3.2	
			3/14/2018	<52.1	3.7	not detected	**	not requested	640	17.4	15	7.30	74.07	14.8	6.4	969	0.1	-64	4.1	
			9/21/2018	<25.0	3.5	<10.0	2.9	not requested	454	18.6	15.5	7.79	74.07	23.9	6.6	873	0.2	-93	2.3	
			2/18/2019	<24.5	3.5	<9.8	3.5	<0.50	680	21.9	3.9	7.39	73.98	16.6	6.6	1,148	0.3	-87	24.7	
			7/25/2019	<25.0	3.5	<10.0	2.9	<0.54	not requested	not requested	not requested	8.09	73.28	25.3	6.4	1,216	0.1	-88	3.8	
3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	6.09	75.28	data lost	data lost	data lost	data lost	data lost	data lost				
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

J =concentration shown is estimated

Bold value indicates a detection above the method reporting detection limit (MDL)

Expanded Biosparge Pilot Test #2 startup on May 29, 2018

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

QA/QC samples: "Duplicate" collected on 9/15/2016 at MW-21, "Dup-1" collected on 12/13/2016 at MW-23, and "Duplicate" collected on 2/21/2017 at MW-14

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151	General Chemistry			Field Parameters								
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol			PCP	Alkalinity	Chloride	TOC	DTGW	GWE	Temp	pH	Cond.	D.O.	ORP	Turbidity
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)	Result (µg/L)												
MW-13A	Up Gradient of BSW-6	82	11/3/2017	<25	3.5	not requested	not requested	not requested	not requested	not requested	not requested	8.35	75.17	28.5	7.2	779	0.7	-150	3.5	
			3/13/2018	<50	3.5	not detected	**	not requested	267	40.6	1.8	6.90	76.62	15.3	7.0	780	0.5	-57	121.0	
			9/20/2018	<25.0	3.5	<10.0	2.9	not requested	323	92.1	9.6	6.19	76.62	25.2	6.8	719	0.1	-105	36.6	
			2/21/2019	<24.5	3.5	<9.8	2.9	not requested	286	48.1	1.2	6.75	76.77	19.8	7.0	774	0.1	-103	23.9	
			7/25/2019	<25.0	3.5	<10.0	2.9	<0.54	not requested	not requested	not requested	7.75	75.77	25.1	6.8	618	0.1	-99	3.4	
			3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested	5.61	77.91	17.5	7.0	745	0.2	-93	15.0	
			DUPLICATE 3 samples	3/2/2020	not requested	not requested	not requested	not requested	<0.51	not requested	not requested	not requested								
MW-24	Cross Gradient of BSW-7	28	5/24/2017	<31.2	31.2	<12.5	1.2	not requested	1390	16.6	38.4	5.89	75.34	22.8	6.8	2,335	0.2	-176	21.5	
			8/30/2017	<50	3.5	not requested	not requested	not requested	1300	16.4	38.0	6.53	74.70	24.5	7.0	2,113	0.5	-93	7.8	
			3/14/2018	<50	3.5	not detected	**	not requested	1480	15.3	36.1	5.56	75.67	15.4	6.7	2,088	0.1	-134	2.6	
			6/27/2018	<24.5	3.5	<9.8	2.9	not requested	1550	16.1	43.3	6.44	74.79	23.5	6.7	2,567	0.2	-133	11.4	
			9/21/2018	<24.5	3.5	<9.8	2.9	not requested	1020	16.4	40.9	6.48	75.67	25.4	6.9	1,753	0.1	-144	12.8	
			2/18/2019	<24.5	3.5	<9.8	2.9	<0.54	1310	16.2	37.2	5.58	75.65	15.8	7.0	2,037	0.4	-155	38.7	
			7/25/2019	<25.0	3.5	<10.0	2.9	<0.55	1380	22.0	39.0	6.04	75.19	25.3	6.8	208	0.1	-145	8.1	
			3/2/2020	not requested	not requested	not requested	not requested	<0.51	1380	22.0	39.0	4.25	76.98	data lost	data lost	data lost	data lost	data lost	data lost	data lost
			9/29/2020	not requested	not requested	not requested	not requested	<0.50	not requested	not requested	not requested	5.03	76.20	24.4	6.9	2003.0	1.6	-153.9	3.9	
MW-25	Up Gradient of BSW-6	25	11/2/2017	151	3.5	not requested	not requested	not requested	not requested	not requested	not requested	6.30	74.19	29.3	6.4	57	0.5	-19	112.0	
			3/14/2018	114	3.7	not detected	**	not requested	121	10	4.2	5.02	75.47	14.9	5.3	287	0.3	43	21.0	
			6/26/2018	72.5	3.5	<9.8	2.9	not requested	117	9.2	4.1	5.89	74.60	24.6	5.5	309	0.3	-2	7.6	
			9/20/2018	55.8	3.5	<9.8	2.9	not requested	106	8	4.2	5.02	75.47	26.8	5.8	280	0.2	6	8.2	
			2/20/2019	47.4	3.5	<10.0	2.9	not requested	84.7	9.2	3.6	5.01	75.48	13.5	6.0	208	0.2	31	12.0	
			7/23/2019	40.2	3.5	<10.0	2.9	42	89.2	9.0	5.0	5.52	74.97	27.0	5.7	251	0.1	2	9.2	
			3/2/2020	not requested	not requested	not requested	not requested	81	89.2	9.0	5.0	3.89	76.60	18.1	6.1	230	0.2	36	12.0	
			9/30/2020	not requested	not requested	not requested	not requested	130 J	not requested	not requested	not requested	3.62	76.87	23.6	5.9	192	0.2	39.9	8.4	
MW-26	Cross Gradient of BSW-6	18	11/2/2017	<25	3.5	not requested	not requested	not requested	not requested	not requested	not requested	7.08	74.13	28.4	6.4	285	0.6	17	6.9	
			3/14/2018	<55.6	3.9	not detected	**	not requested	170	11.2	2.3	5.75	75.46	16.3	5.8	345	0.2	-27	241	
			6/27/2018	<24.5	3.5	<9.8	2.9	not requested	174	10.6	1.5	6.54	74.67	22.0	5.8	369	0.1	4	14	
			9/20/2018	<25.0	3.5	<10.0	2.9	not requested	151	10.2	1.6	5.84	75.46	23.9	6	325	0.2	-4	13.4	
			2/21/2019	<24.5	3.5	<9.8	2.9	not requested	166	11.2	1.5	5.7	75.51	15.5	6.4	319	0.3	35	19	
			7/23/2019	<25.0	3.5	<10.0	2.9	<0.55	127	11.8	2.4	6.18	75.03	24.1	5.9	278	0.1	1	8.7	
			3/2/2020	not requested	not requested	not requested	not requested	<0.52	127	11.8	2.4	4.55	76.66	18.9	6.3	308	0.4	-16	12.9	
			9/30/2020	not requested	not requested	not requested	not requested	0.25 J	not requested	not requested	not requested	4.86	76.35	23.1	6.32	304.5	1.2	-12.7	9.2	
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

J = concentration shown is estimated

Bold value indicates a detection above the method reporting detection limit (MDL)

Expanded Biosparge Pilot Test #2 startup on May 29, 2018

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

** not detected as a Tentatively Identified Compound (TIC) by the analytical laboratory

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151 General Chemistry				Field Parameters							
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol		PCP Result (µg/L)	Alkalinity (mg/L)	Chloride (mg/L)	TOC (mg/L)	DTGW (feet)	GWE (feet)	Temp (Celsius)	pH (s.u...)	Cond. (µs/cm ⁹)	D.O. (mg/L)	ORP (millivolts)	Turbidity (NTU)
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)												
MW-27	Up Gradient of BSW-5	25	11/2/2017	323	3.5	not requested	not requested	not requested	not requested	not requested	not requested	7.60	74.57	26.4	6.0	181	1.1	-24	2.2
			3/14/2018	<56.8	4.0	not detected	**	not requested	35	8.7	1.8	6.29	75.91	17.5	5.1	140	0.4	81	10.6
			6/26/2018	<24.5	3.5	<9.8	2.9	not requested	32.9	7.6	1.5	7.07	75.13	22.1	5.1	140	0.4	20	6.7
			9/19/2018	<25.5	3.6	<10.2	3.0	not requested	22.4	6.9	1.7	5.49	75.91	24.6	5.2	116	0.6	-9	8.8
			2/20/2019	<25.0	3.5	<10.0	2.9	2.0	24.9	7.6	1.9	6.16	76.04	14.2	5.5	107	0.5	144	8.9
			7/24/2019	<25.0	3.5	<10.0	2.9	2.5	12.0	8.3	2.1	6.65	75.55	24.2	4.8	103	0.3	150	5.1
			3/2/2020	not requested	not requested	not requested	not requested	55	12.0	8.3	2.1	5.12	77.08	data lost	data lost	data lost	data lost	data lost	data lost
			9/30/2020	not requested	not requested	not requested	not requested	120	not requested	not requested	not requested	4.88	77.32	23.8	5.2	104.9	0.3	142.9	3.7
MW-28	Up Gradient of BSW-3	30	11/3/2017	351	3.5	not requested	not requested	not requested	not requested	not requested	7.95	75.03	23.9	5.7	153	1.1	-50	0.3	
			3/14/2018	262	3.5	not detected	**	not requested	13.8	8.1	1.5	6.31	76.72	14.3	5.0	95	0.4	246	0.3
			6/27/2018	128	6.9	<9.8	2.9	not requested	12.6	7.9	1.5	7.39	75.64	22.5	4.2	110	0.3	131	3.4
			9/20/2018	252	18.7	<10.6	3.1	not requested	13.7	7.6	1.7	5.29	76.72	25.5	4.9	116	0.3	220	5.5
			2/21/2019	151	17.3	<9.8	2.9	not requested	15.5	8.4	2.1	6.46	76.57	15.7	5.2	109	0.4	203	5.0
			7/24/2019	371	17.6	<10.0	2.9	310	6.8	8.9	2.3	6.91	76.12	24.6	4.7	100	0.2	303	1.1
			3/2/2020	not requested	not requested	not requested	not requested	220	6.8	8.9	2.3	5.16	77.87	18.2	5.3	114	0.4	72	6.2
			9/30/2020	not requested	not requested	not requested	not requested	260	not requested	not requested	not requested	4.42	78.61	24.3	4.9	97.2	0.4	214.7	0.2
MW-29	Up Gradient of BSW-8	90	11/3/2017	51.7	3.5	not requested	not requested	not requested	not requested	not requested	7.76	75.15	27.1	7.0	487	0.5	-141	4.6	
			3/14/2018	<51	3.6	not detected	**	not requested	220	6.1	1.4	6.23	76.67	17.3	6.5	383	0.1	55	6.3
			9/20/2018	41.4	3.5	<10.0	2.9	not requested	228	5.6	1.4	5.29	76.67	24.0	6.5	435	0.2	134	13.8
			2/21/2019	<24.5	3.5	<9.8	2.9	not requested	160	5.8	1.4	6.11	76.79	19.5	6.5	309	0.2	142	15.6
			7/22/2019	<25.0	3.5	<10.0	2.9	29	not requested	not requested	not requested	7.24	75.66	24.5	6.2	350	0.2	140	8.2
			3/2/2020	not requested	not requested	not requested	not requested	37	not requested	not requested	not requested	4.89	78.01	data lost	data lost	data lost	data lost	data lost	data lost
			9/30/2020	not requested	not requested	not requested	not requested	32	not requested	not requested	not requested	4.99	77.91	24.4	6.2	285.3	1.6	113.8	9.8
			MW-30	Cross Gradient of BSW-8	38	11/3/2017	<25	3.5	not requested	not requested	not requested	not requested	not requested	6.25	75.13	29.2	7.1	740	0.5
3/13/2018	<52.1	3.7				not detected	**	not requested	340	19.7	3.6	5.06	76.52	16.4	6.5	723	0.3	-47	47.8
6/27/2018	<24.5	3.5				<9.8	2.9	not requested	346	19.8	3.3	5.98	75.60	21.9	6.5	749	0.2	-45	24.5
9/20/2018	<25.0	3.5				<10.0	2.9	not requested	325	16.9	3.8	4.51	76.52	25.7	6.7	691	0.2	-83	24.6
2/19/2019	<25.0	3.5				<10.0	2.9	2.4	295	18.8	2.8	4.98	76.60	14.4	7.0	603	0.2	-43	39.5
7/25/2019	<25.0	3.5				<10.0	2.9	3.3	284	17.3	3.4	5.69	75.89	24.7	6.7	568	0.1	-82	2.6
3/2/2020	not requested	not requested				not requested	not requested	1.8	284	17.3	3.4	3.86	77.72	16.7	6.9	602	0.2	-63	6.0
9/29/2020	not requested	not requested				not requested	not requested	0.98	not requested	not requested	not requested	3.62	77.96	25.7	6.8	606	0.3	-80	2.7
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

J = concentration shown is estimated

Bold value indicates a detection above the method reporting detection limit (MDL)

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

** not detected as a Tentatively Identified Compound (TIC) by the analytical laboratory

Expanded Biosparge Pilot Test #2 startup on May 29, 2018

Table 2
Groundwater Data Summary
Marsh Lumber Company
Pamplico, South Carolina
S&ME Project No. 1584-98-146C



Sample ID	Position Relative to Bio-Sparge Well	Distance To Bio-sparge Well (Feet)	Date Sample Collected	Method 8270 (BNA)				Method 8151	General Chemistry			Field Parameters							
				Pentachlorophenol		2,3,4,6 Tetrachlorophenol		PCP	Alkalinity (mg/L)	Chloride (mg/L)	TOC (mg/L)	DTGW (feet)	GWE (feet)	Temp (Celsius)	pH (s.u...)	Cond. (µs/cm ³)	D.O. (mg/L)	ORP (millivolts)	Turbidity (NTU)
				Result (µg/L)	MDL (µg/L)	Result (µg/L)	MDL (µg/L)	Result (µg/L)											
MW-31	not applicable	not applicable	9/30/2020	not requested	not requested	not requested	not requested	<0.53	not requested	not requested	not requested	4.99	TBD	23.5	6.4	1154	0.7	-11	9.1
MW-32	not applicable	not applicable	9/30/2020	not requested	not requested	not requested	not requested	25	not requested	not requested	not requested	4.88	TBD	22.9	6.1	542	1.5	20	8.8
MW-33	not applicable	not applicable	9/30/2020	not requested	not requested	not requested	not requested	5	not requested	not requested	not requested	5.27	TBD	23.3	5.3	116	0.9	209	8.0
MW-34	not applicable	not applicable	9/30/2020	not requested	not requested	not requested	not requested	49	not requested	not requested	not requested	3.83	TBD	23.6	5.7	199	0.4	110	1.0
RSL - Tapwater				0.041		240		0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maximum Contaminant Level (MCL)				1		no standard		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

J = concentration shown is estimated

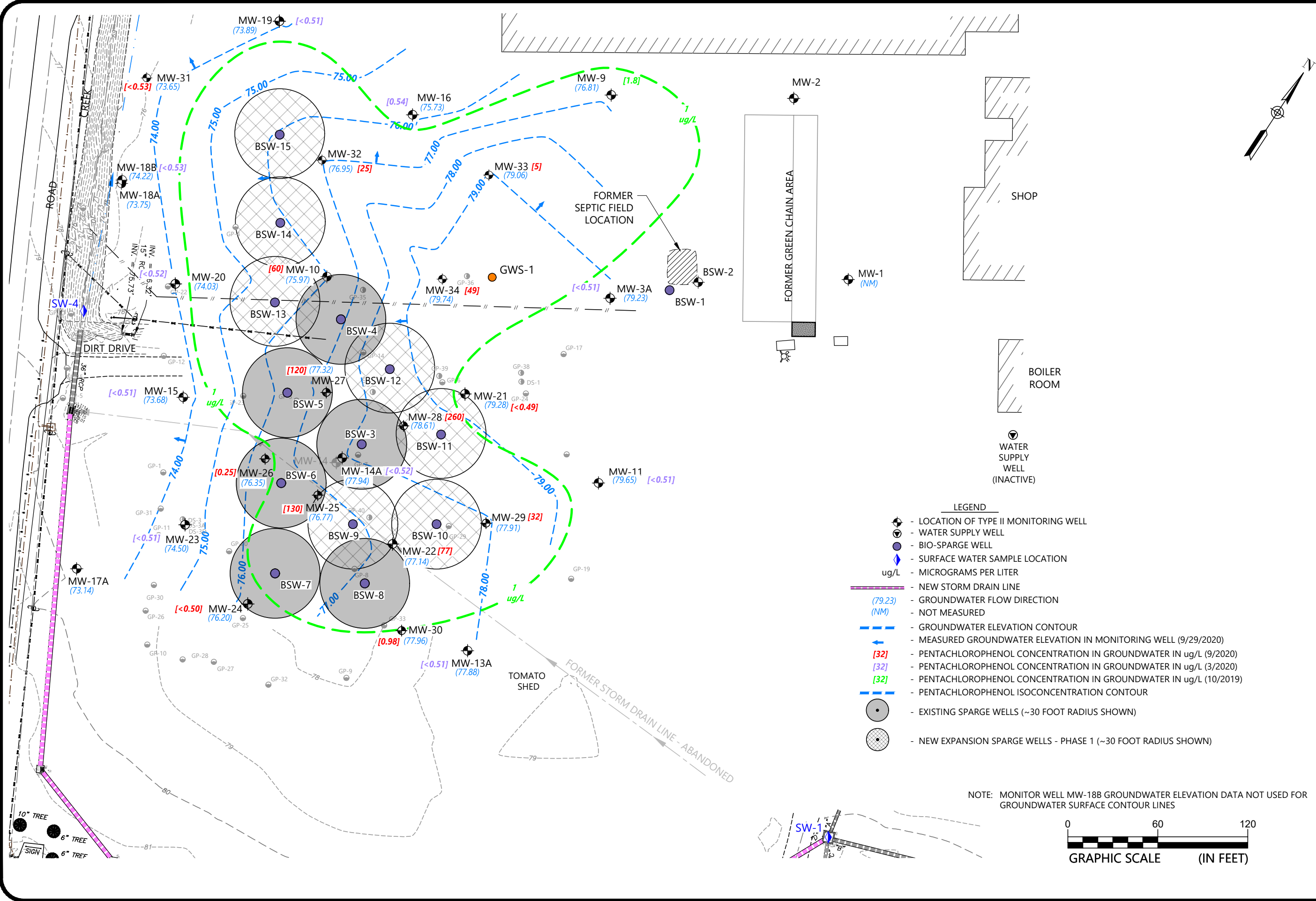
Bold value indicates a detection above the method reporting detection limit (MDL)

Yellow shaded cell indicates detected concentration is greater than the corresponding MCL

** not detected as a Tentatively Identified Compound (TIC) by the analytical laboratory

Expanded Biosparge Pilot Test #2 startup on May 29, 2018

Drawing path: Z:\Shared\SM\Ops\ENV\Projects\1998\1584-98-146C Marsh Pamplico\CAD\2020\2020-Nov\Pamplico Figure 1.dwg

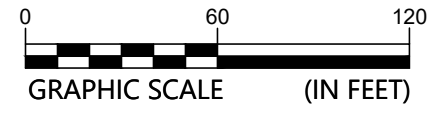


BASELINE MONITORING EVENT RESULTS - SEPTEMBER 2020

MARSH LUMBER
PAMPLICO, SOUTH CAROLINA

SCALE:	AS SHOWN
DATE:	NOV. 2020
PROJECT NUMBER	1584-98-146C
FIGURE NO.	1

NOTE: MONITOR WELL MW-18B GROUNDWATER ELEVATION DATA NOT USED FOR GROUNDWATER SURFACE CONTOUR LINES



October 16, 2020

Mr. Ed Henriques
S&ME, Inc.
8646 West Market Street
Suite 105
Greensboro, NC 27409

RE: Project: Marsh Lumber 1584-98-146C
Pace Project No.: 92498397

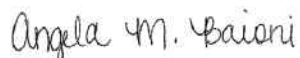
Dear Mr. Henriques:

Enclosed are the analytical results for sample(s) received by the laboratory on October 01, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Angela Baioni
angela.baioni@pacelabs.com
(704)875-9092
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Marsh Lumber 1584-98-146C

Pace Project No.: 92498397

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92498397001	MW-10	Water	09/29/20 15:20	10/01/20 14:45
92498397002	MW-21	Water	09/30/20 16:55	10/01/20 14:45
92498397003	MW-22	Water	09/29/20 15:15	10/01/20 14:45
92498397004	MW-24	Water	09/29/20 12:40	10/01/20 14:45
92498397005	MW-25	Water	09/30/20 10:15	10/01/20 14:45
92498397006	MW-26	Water	09/30/20 11:25	10/01/20 14:45
92498397007	MW-27	Water	09/30/20 12:35	10/01/20 14:45
92498397008	MW-28	Water	09/30/20 13:45	10/01/20 14:45
92498397009	MW-29	Water	09/30/20 15:20	10/01/20 14:45
92498397010	MW-30	Water	09/29/20 14:05	10/01/20 14:45
92498397011	MW-31	Water	09/30/20 16:45	10/01/20 14:45
92498397012	MW-32	Water	09/30/20 14:45	10/01/20 14:45
92498397013	MW-33	Water	09/30/20 12:00	10/01/20 14:45
92498397014	MW-34	Water	09/30/20 09:30	10/01/20 14:45

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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Report of Analysis

Pace Analytical Services, Inc.
9800 Kinsey Avenue
Suite 100
Huntersville, NC 28078
Attention: Angela M. Baioni

Project Name: Marsh Lumber 1584-98-146C

Project Number: 92498397

Lot Number: **VJ01073**

Date Completed: 10/16/2020

Karen Coonan

10/16/2020 2:50 PM

Approved and released by:
Project Manager II: **Karen L. Coonan**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Pace Analytical Services, Inc. Lot Number: VJ01073

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Herbicide 8151A

The following samples required a dilution for Pentachlorophenol; the surrogate was diluted out and did not pass criteria range:

VJ01073-001, -001MS and -001MSD (MW-10)
VJ01073-008 (MW-28)

The associated method blank and laboratory control sample (LCS) passed acceptance criteria.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Pace Analytical Services, Inc.
Lot Number: VJ01073
Project Name: Marsh Lumber 1584-98-146C
Project Number: 92498397

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-10	Aqueous	09/29/2020 1520	10/01/2020
002	MW-21	Aqueous	09/30/2020 1655	10/01/2020
003	MW-22	Aqueous	09/29/2020 1515	10/01/2020
004	MW-24	Aqueous	09/29/2020 1240	10/01/2020
005	MW-25	Aqueous	09/30/2020 1015	10/01/2020
006	MW-26	Aqueous	09/30/2020 1125	10/01/2020
007	MW-27	Aqueous	09/30/2020 1235	10/01/2020
008	MW-28	Aqueous	09/30/2020 1345	10/01/2020
009	MW-29	Aqueous	09/30/2020 1520	10/01/2020
010	MW-30	Aqueous	09/29/2020 1405	10/01/2020
011	MW-31	Aqueous	09/30/2020 1645	10/01/2020
012	MW-32	Aqueous	09/30/2020 1445	10/01/2020
013	MW-33	Aqueous	09/30/2020 1200	10/01/2020
014	MW-34	Aqueous	09/30/2020 0930	10/01/2020

(14 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary
Pace Analytical Services, Inc.
Lot Number: VJ01073
Project Name: Marsh Lumber 1584-98-146C
Project Number: 92498397

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-10	Aqueous	Pentachlorophenol	8151A	60		ug/L	5
003	MW-22	Aqueous	Pentachlorophenol	8151A	77		ug/L	7
005	MW-25	Aqueous	Pentachlorophenol	8151A	130		ug/L	9
006	MW-26	Aqueous	Pentachlorophenol	8151A	0.25	J	ug/L	10
007	MW-27	Aqueous	Pentachlorophenol	8151A	120		ug/L	11
008	MW-28	Aqueous	Pentachlorophenol	8151A	260		ug/L	12
009	MW-29	Aqueous	Pentachlorophenol	8151A	32		ug/L	13
010	MW-30	Aqueous	Pentachlorophenol	8151A	0.98		ug/L	14
012	MW-32	Aqueous	Pentachlorophenol	8151A	25		ug/L	16
013	MW-33	Aqueous	Pentachlorophenol	8151A	5.0		ug/L	17
014	MW-34	Aqueous	Pentachlorophenol	8151A	49		ug/L	18

(11 detections)

Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 09/29/2020 1520	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	20	10/07/2020 1158	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	60		11	2.6	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA	N	114	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-002
Description: MW-21	Matrix: Aqueous
Date Sampled: 09/30/2020 1655	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	1	10/07/2020 1308	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	ND		0.49	0.12	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		94	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-003
Description: MW-22	Matrix: Aqueous
Date Sampled: 09/29/2020 1515	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	50	10/07/2020 1331	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	77		24	6.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		58	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-004
Description: MW-24	Matrix: Aqueous
Date Sampled: 09/29/2020 1240	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	1	10/07/2020 1354	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	ND		0.50	0.13	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		87	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-005
Description: MW-25	Matrix: Aqueous
Date Sampled: 09/30/2020 1015	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	50	10/07/2020 1418	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	130		25	6.3	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		88	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-006
Description: MW-26	Matrix: Aqueous
Date Sampled: 09/30/2020 1125	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1	8151A	8151A	1	10/07/2020 1733	JJG	10/02/2020 1739	68687	Pentachlorophenol	87-86-5	8151A	0.25	J	0.53	0.13	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits													
DCAA		85	50-112													

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-007
Description: MW-27	Matrix: Aqueous
Date Sampled: 09/30/2020 1235	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	50	10/07/2020 1756	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	120		25	6.3	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		70	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-008
Description: MW-28	Matrix: Aqueous
Date Sampled: 09/30/2020 1345	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	100	10/07/2020 1820	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	260		51	13	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA	N	114	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-009
Description: MW-29	Matrix: Aqueous
Date Sampled: 09/30/2020 1520	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	10	10/07/2020 1843	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	32		5.3	1.3	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		112	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-010
Description: MW-30	Matrix: Aqueous
Date Sampled: 09/29/2020 1405	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	1	10/07/2020 1906	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	0.98		0.53	0.13	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		94	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-011
Description: MW-31	Matrix: Aqueous
Date Sampled: 09/30/2020 1645	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	1	10/07/2020 1930	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	ND		0.53	0.13	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		95	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-012
Description: MW-32	Matrix: Aqueous
Date Sampled: 09/30/2020 1445	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	10	10/07/2020 1953	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	25		5.0	1.3	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		111	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-013
Description: MW-33	Matrix: Aqueous
Date Sampled: 09/30/2020 1200	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	5	10/07/2020 2016	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	5.0		2.8	0.69	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		100	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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Herbicides by GC

Client: Pace Analytical Services, Inc.	Laboratory ID: VJ01073-014
Description: MW-34	Matrix: Aqueous
Date Sampled: 09/30/2020 0930	Project Name: Marsh Lumber 1584-98-146C
Date Received: 10/01/2020	Project Number: 92498397

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8151A	8151A	20	10/07/2020 2039	JJG	10/02/2020 1739	68687

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Pentachlorophenol	87-86-5	8151A	49		11	2.6	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
DCAA		107	50-112

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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QC Summary

Herbicides by GC - MB

Sample ID: VQ68687-001

Matrix: Aqueous

Batch: 68687

Prep Method: 8151A

Analytical Method: 8151A

Prep Date: 10/02/2020 1739

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Pentachlorophenol	ND		1	0.50	0.13	ug/L	10/07/2020 1112
Surrogate	Q	% Rec	Acceptance Limit				
DCAA		81	50-112				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Herbicides by GC - LCS

Sample ID: VQ68687-002

Matrix: Aqueous

Batch: 68687

Prep Method: 8151A

Analytical Method: 8151A

Prep Date: 10/02/2020 1739

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Pentachlorophenol	10	7.1		1	71	70-130	10/07/2020 1135
Surrogate	Q	% Rec	Acceptance Limit				
DCAA		87	50-112				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Herbicides by GC - MS

Sample ID: VJ01073-001MS

Matrix: Aqueous

Batch: 68687

Prep Method: 8151A

Analytical Method: 8151A

Prep Date: 10/02/2020 1739

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Pentachlorophenol	60	22	89		20	130	70-130	10/07/2020 1221
Surrogate	Q	% Rec	Acceptance Limit					
DCAA	N	123	50-112					

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Herbicides by GC - MSD

Sample ID: VJ01073-001MD

Matrix: Aqueous

Batch: 68687

Prep Method: 8151A

Analytical Method: 8151A

Prep Date: 10/02/2020 1739

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Pentachlorophenol	60	22	85		20	112	4.7	70-130	30	10/07/2020 1245
Surrogate	Q	% Rec	Acceptance Limit							
DCAA	N	115	50-112							

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice <input checked="" type="checkbox"/> or <input type="checkbox"/> N	Samples intact <input checked="" type="checkbox"/> Y or <input type="checkbox"/> N
1						
2						
3			<i>Blanche DeLoach</i>	10/17/20		

Cooler Temperature on Receipt 3.0/5.1/5.0 C Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.
 This chain of custody is considered complete as is since this information is available in the owner laboratory.

386



VJ01073

KLC2



Samples Receipt Checklist (SRC) (ME0018C-15)
 Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
 Page 1 of 1

Sample Receipt Checklist (SRC)

Client: pace

Cooler Inspected by/date: AHD / 10/1/2020

Lot #: VJ01073

Means of receipt: <input checked="" type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>20-1820</u> Chlorine Strip ID: <u>20-2231</u> Tested by: <u>AHD</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>NA</u>	
<u>3.6 / 3.6 °C 5.1 / 5.1 °C 3.8 / 3.8 °C NA / NA °C</u>	
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H ₂ SO ₄ , HNO ₃ , HCl, NaOH using SR # <u>NA</u>	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Samples(s) <u>NA</u> were received with TRC > 0.5 mg/L (If #19 is <u>no</u>) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: <u>NA</u>	
SR barcode labels applied by: <u>AHD</u> Date: <u>10/1/2020</u>	

Comments:

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 29, 2020
Project Location:		Purge Time:	35 Minutes
Project Number:	1584-98-146C	Sample Date:	September 29, 2020
Source Well:	MW-10	Sample Time:	15:20
Locked?:	Yes	Air Temp:	80° F
Sampled By:	Gary Simcox		
Weather:	Overcast		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	7.33	ft-TOC	
Total Well Depth:	17.80	ft-TOC	
Height of Water Column:	10.47	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.7	Gal
3 * Well Volume	5.13	Gal
5 * Well Volume	8.54	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	14:40	End Time:	15:15
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	16.0	ft-TOC			
Water Column Above Pump Intake:	8.67	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	9.50	ft-TOC	Comments:		
Final Volume Purged:	0.9	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
14:40	0.0	---	---	---	---	---	---	---	---	Start Purging
14:45	0.1	100		25.5	5.2	300	1.0	135	21.3	
14:50	0.3	100		25.6	5.2	231	0.4	125	13.7	
14:55	0.4	100		25.5	5.4	238	0.4	104	7.72	
15:00	0.5	100		25.3	5.6	246	0.3	88	10.7	
15:05	0.7	100		25.3	5.5	249	0.3	87	8.12	
15:10	0.8	100		25.2	5.6	251	0.3	81	3.83	
15:15	0.9	100		25.3	5.7	255	0.3	75	2.63	
Final:	0.9	100		25.3	5.7	255	0.3	75	2.6	End of Purging


Sample Method:

Sample Start Time:

Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Gary Simcox		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-21	Sample Time:	16:55
Locked?:	Yes	Air Temp:	75° F
Sampled By:	Colby Paine		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.76	ft-TOC	
Total Well Depth:	19.10	ft-TOC	
Height of Water Column:	14.34	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.3	Gal
3 * Well Volume	7.02	Gal
5 * Well Volume	11.70	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	16:15	End Time:	16:55
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	18.0	ft-TOC			
Water Column Above Pump Intake:	13.24	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	8.07	ft-TOC	Comments:		
Final Volume Purged:	1.1	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
16:15	0.0	---	---	---	---	---	---	---	---	Start Purging
16:20	0.1	100		24.8	6.8	280	3.8	128	16.7	
16:25	0.3	100		24.9	6.8	283	3.4	125	14.5	
16:30	0.4	100		24.9	6.8	286	3.2	125	13.7	
16:35	0.5	100		24.8	6.8	288	3.1	126	14.3	
16:40	0.7	100		24.7	6.8	290	2.9	125	12.2	
16:45	0.8	100		24.7	6.8	290	2.9	125	12.1	
16:50	0.9	100		24.7	6.8	291	2.9	125	10.7	
16:55	1.1	100		24.7	6.8	292	2.9	125	9.92	
Final:	16:55	1.1	100	24.7	6.8	292	2.9	125	9.9	End of Purging

Sample Method: Peristaltic Pump

Sample Start Time: 16:55

Sample End Time: 17:15

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Colby Paine		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 29, 2020
Project Location:		Purge Time:	Minutes
Project Number:	1584-98-146C	Sample Date:	September 29, 2020
Source Well:	MW-22	Sample Time:	15:15
Locked?:	Yes	Air Temp:	80° F
Sampled By:	Colby Paine		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.60	ft-TOC	
Total Well Depth:	20.40	ft-TOC	
Height of Water Column:	15.80	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.6	Gal
3 * Well Volume	7.74	Gal
5 * Well Volume	12.89	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	14:45	End Time:	15:15
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	18.0	ft-TOC			
Water Column Above Pump Intake:	13.40	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	7.95	ft-TOC	Comments:		
Final Volume Purged:	0.8	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
14:45	0.0	---	---	---	---	---	---	---	---	Start Purging
14:50	0.1	100		26.5	5.8	133	2.3	129	1.15	
14:55	0.3	100		26.4	5.5	130	1.1	142	0.31	
15:00	0.4	100		26.2	5.4	121	0.9	149	0.65	
15:05	0.5	100		26.0	5.3	119	0.8	155	1.40	
15:10	0.7	100		25.9	5.3	119	0.8	160	0.03	
15:15	0.8	100		25.9	5.3	120	0.9	164	0.00	
Final:	15:15	0.8		25.9	5.3	120	0.9	164	0.0	End of Purging

Sample Method: Peristaltic Pump

Sample Start Time: 15:15

Sample End Time: 15:35

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Colby Paine		10/5/2020

Notes: Duplicate 1 collected from this location.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-25	Sample Time:	10:15
Locked?:	Yes	Air Temp:	65° F
Sampled By:	Colby Paine		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	3.62	ft-TOC	
Total Well Depth:	17.10	ft-TOC	
Height of Water Column:	13.48	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	1	inch
Water Volume	0.5	Gal
3 * Well Volume	1.65	Gal
5 * Well Volume	2.75	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	9:00	End Time:	10:15
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	16.0	ft-TOC			
Water Column Above Pump Intake:	12.38	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	6.72	ft-TOC	Comments:		
Final Volume Purged:	2.0	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
09:00	0.0	---	---	---	---	---	---	---	---	Start Purging
09:05	0.1	100		23.1	5.9	195	1.7	77	197	
09:10	0.3	100		23.1	6.0	213	1.3	48	114	
09:15	0.4	100		23.4	6.0	219	1.0	33	67.1	
09:20	0.5	100		23.2	6.0	215	0.7	33	52.9	
09:25	0.7	100		23.3	6.0	213	0.5	34	45.0	
09:30	0.8	100		23.4	6.0	211	0.4	34	37.8	
09:35	0.9	100		23.1	6.0	208	0.3	36	34.0	
09:45	1.2	100		23.3	6.0	204	0.3	38	28.9	
09:55	1.5	100		23.4	5.9	200	0.3	38	15.4	
10:00	1.6	100		23.5	5.9	198	0.2	39	11.9	
10:05	1.7	100		23.6	5.9	195	0.2	39	9.18	
10:10	1.8	100		23.6	5.9	194	0.2	40	9.01	
10:15	2.0	100		23.6	5.9	192	0.2	40	8.43	
Final:	2.0	100		23.6	5.9	192	0.2	40	8.4	End of Purging

Sample Method:

Sample Start Time:

Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Colby Paine		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-26	Sample Time:	11:25
Locked?:	Yes	Air Temp:	65° F
Sampled By:	Colby Paine		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.86	ft-TOC	
Total Well Depth:	17.10	ft-TOC	
Height of Water Column:	12.24	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	1	inch
Water Volume	0.5	Gal
3 * Well Volume	1.50	Gal
5 * Well Volume	2.50	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	10:50	End Time:	11:25
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	16.0	ft-TOC			
Water Column Above Pump Intake:	11.14	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	7.65	ft-TOC	Comments:		
Final Volume Purged:	0.9	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
10:50	0.0	---	---	---	---	---	---	---	---	Start Purging
10:55	0.1	100		23.2	6.4	355	1.3	-22	32.7	
11:00	0.3	100		23.1	6.5	355	3.9	-30	27.3	
11:05	0.4	100		23.1	6.4	344	1.0	-28	20.0	
11:10	0.5	100		23.1	6.4	328	1.1	-23	13.2	
11:15	0.7	100		23.1	6.4	317	1.1	-18	9.89	
11:20	0.8	100		23.1	6.3	311	1.1	-15	9.56	
11:25	0.9	100		23.1	6.3	305	1.2	-13	9.23	
Final:	11:25	0.9	100	23.1	6.3	305	1.2	-13	9.2	End of Purging

Sample Method:

Sample Start Time:

Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Colby Paine		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-29	Sample Time:	15:20
Locked?:	Yes	Air Temp:	75° F
Sampled By:	Colby Paine		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.99	ft-TOC	
Total Well Depth:	23.30	ft-TOC	
Height of Water Column:	18.31	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	1	inch
Water Volume	0.7	Gal
3 * Well Volume	2.24	Gal
5 * Well Volume	3.73	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	14:15	End Time:	15:20
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	20.0	ft-TOC			
Water Column Above Pump Intake:	15.01	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	8.74	ft-TOC	Comments:		
Final Volume Purged:	1.7	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
14:15	0.0	---	---	---	---	---	---	---	---	Start Purging
14:20	0.1	100		25.0	5.4	145	3.6	218	7.50	
14:25	0.3	100		24.7	5.5	154	2.9	189	9.32	
14:30	0.4	100		24.6	5.7	196	2.2	148	50.2	
14:35	0.5	100		24.6	5.8	204	2.2	142	40.1	
14:40	0.7	100		24.6	5.9	224	2.3	120	38.2	
14:45	0.8	100		24.5	6.0	243	2.0	111	34.5	
14:50	0.9	100		24.5	6.0	244	2.0	113	29.3	
15:00	1.2	100		24.4	6.1	254	1.7	114	20.9	
15:05	1.3	100		24.4	6.1	264	1.9	113	19.2	
15:10	1.5	100		24.3	6.1	274	1.8	113	17.3	
15:20	1.7	100		24.4	6.2	285	1.6	114	9.76	
Final:	1.7	100		24.4	6.2	285	1.6	114	9.8	End of Purging

Sample Method: Sample Start Time: Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
SVOCs 8270	2	1L A	Unpreserved				
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Colby Paine		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	70 Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-31	Sample Time:	16:45
Locked?:	Yes	Air Temp:	70° F
Sampled By:	Gary Simcox		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.99	ft-TOC	
Total Well Depth:	16.90	ft-TOC	
Height of Water Column:	11.91	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.9	Gal
3 * Well Volume	5.83	Gal
5 * Well Volume	9.72	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	15:35	End Time:	16:45
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	15.5	ft-TOC			
Water Column Above Pump Intake:	10.51	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	7.62	ft-TOC	Comments:		
Final Volume Purged:	1.8	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
15:35	0.0	---	---	---	---	---	---	---	---	Start Purging
15:45	0.3	100		23.5	6.4	1,176	0.6	-29	85.9	
15:55	0.5	100		23.7	6.4	1,170	0.5	-33	62.1	
16:05	0.8	100		23.6	6.4	1,155	0.5	-24	50.0	
16:15	1.1	100		23.6	6.4	1,151	0.5	-16	23.2	
16:25	1.3	100		23.6	6.4	1,151	0.6	-14	15.1	
16:35	1.6	100		23.7	6.4	1,153	0.7	-13	9.33	
16:45	1.8	100		23.5	6.4	1,154	0.7	-11	9.05	
Final:	16:45	1.8		23.5	6.4	1,154	0.7	-11	9.1	End of Purging


Sample Method:

Sample Start Time:

Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Gary Simcox		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	105 Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-32	Sample Time:	14:45
Locked?:	Yes	Air Temp:	70° F
Sampled By:	Gary Simcox		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	4.88	ft-TOC	
Total Well Depth:	16.70	ft-TOC	
Height of Water Column:	11.82	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.9	Gal
3 * Well Volume	5.79	Gal
5 * Well Volume	9.64	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	13:00	End Time:	14:45
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	15.5	ft-TOC			
Water Column Above Pump Intake:	10.62	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	7.54	ft-TOC	Comments:		
Final Volume Purged:	2.8	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
13:00	0.0	---	---	---	---	---	---	---	---	Start Purging
13:05	0.1	100		22.5	5.7	429	1.6	95	29.5	
13:10	0.3	100		22.5	5.9	439	1.6	85	37.1	
13:15	0.4	100		22.6	5.9	439	1.8	84	40.9	
13:25	0.7	100		22.7	5.9	438	2.1	85	40.4	
13:35	0.9	100		22.6	5.9	435	1.9	88	29.4	
13:45	1.2	100		22.8	6.0	433	1.9	87	25.8	
13:55	1.5	100		22.7	5.9	448	1.8	69	18.6	
14:05	1.7	100		22.8	6.0	465	1.7	51	15.5	
14:15	2.0	100		22.8	6.0	478	1.8	46	14.6	
14:25	2.2	100		22.8	6.1	501	1.7	36	11.7	
14:35	2.5	100		22.8	6.1	515	1.6	27	11.0	
14:45	2.8	100		22.9	6.1	542	1.5	20	8.81	
Final:	2.8	100		22.9	6.1	542	1.5	20	8.8	End of Purging

Sample Method: Peristaltic Pump

Sample Start Time: 14:45

Sample End Time: 15:05

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Gary Simcox		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

LOW FLOW GROUNDWATER SAMPLING FORM



Project Name:	Marsh Pamplico	Purge Date:	September 30, 2020
Project Location:		Purge Time:	85 Minutes
Project Number:	1584-98-146C	Sample Date:	September 30, 2020
Source Well:	MW-33	Sample Time:	12:00
Locked?:	Yes	Air Temp:	70° F
Sampled By:	Gary Simcox		
Weather:	Sunny		

Water Level & Well Data

Measuring Point:	Top of Casing		
Depth to Water:	5.27	ft-TOC	
Total Well Depth:	18.80	ft-TOC	
Height of Water Column:	13.53	feet	
Screen Length:		feet	Stickup: ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.2	Gal
3 * Well Volume	6.62	Gal
5 * Well Volume	11.04	Gal

Well Purging Information

Purge Method:	Peristaltic Pump	Start Time:	10:35	End Time:	12:00
(If Used) Bladder Pump Control Settings:	On (sec):	Off (sec):		Pressure:	psi
Pump Intake Depth from Top of Casing:	17.0	ft-TOC			
Water Column Above Pump Intake:	11.73	feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:	8.20	ft-TOC	Comments:		
Final Volume Purged:	2.2	Gallons	Used YSI Pro Plus,		
Final Volume Purge Rate:	100	mL/min			
Well Purged Dry?:	No	(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (µS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
10:35	0.0	---	---	---	---	---	---	---	---	Start Purging
10:40	0.1	100		22.5	5.5	131	1.6	164	107	
10:50	0.4	100		22.8	5.4	131	1.5	184	89.6	
11:00	0.7	100		22.7	5.4	130	1.3	192	69.2	
11:10	0.9	100		22.7	5.4	129	1.3	196	59.0	
11:20	1.2	100		22.8	5.3	126	1.3	200	43.5	
11:30	1.5	100		23.0	5.4	123	1.1	202	27.2	
11:40	1.7	100		23.2	5.4	119	0.9	205	15.1	
11:50	2.0	100		23.0	5.2	117	0.9	211	9.15	
12:00	2.2	100		23.3	5.3	116	0.9	209	8.00	
Final:	2.2	100		23.3	5.3	116	0.9	209	8.0	End of Purging

Sample Method: Peristaltic Pump

Sample Start Time: 12:00

Sample End Time: 12:20

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative
PCS 8151	2	1L A	Unpreserved				

Name	Signature	Date
(1) Gary Simcox		10/5/2020

Notes: To convert ORP to Eh, add 205 mV to ORP.

