RE: Bountyland Quick Stop #6 AFVR

Padgett, Joel P.

Thu 9/11/2014 1 15 PM

Sent Items

To mfaris@armenv.com <mfaris@armenv.com>;



Hi Michael-
I have revised the due date to 10/1/14 as you requested. Thanks for the update.

From: Michael Faris <mfaris@armenv.com>
Sent: Thursday, September 11, 2014 10:51 AM
To: Padgett, Joel P.
Subject: Bountyland Quick Stop #6 AFVR

Joel,
The preliminary gauging data for this site is as follows:

Well#	product	water
RW-1	25.55	27.25
RW-2	26.02	27.90
RW-3	25.15	30.26
RW-4	25.21	27.73
RW-6	N/A	27.60
RW-8	25.51	31.79

We would like to complete both of the events during the week of Sept. 22 please.
May we have a brief extension on the report please. I should be able to get the report to you by Oct. 1.

ARM has increased our AFVR capability and will hopefully be able to complete the AFVRs in a more timely fashion from here forward.

Thanks,
Michael

Michael L. Faris, P.G.
ARM Environmental Services, Inc.
1210 First Street South
Columbia, SC 29209

[www.armenv.com]*www.armenv.com*
ph: 803 783-3314
cell: 803 269-3913

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES

armenv.com

UST
OCT 10 2014
PROGRAM

TRANSMITTAL COVER SHEET

UST
27tech
DOCKETING

TO: **Joel Padgett**

FROM: **Michael Faris**

RE: **Bountyland Quickstop #6, OconeeCounty, SC**
UST Permit #06711; CA #48288
ARM Project #25-403.5-14

DATE: **October 9, 2014**

ENCLOSED: **One Copy of the (2) 96-hr Aggressive Fluid Vapor Recovery Report**

TRANSMITTAL VIA: **_✓_ Standard US Mail** **___ Priority US Mail**
___ Overnight Courier **___ Hand Delivery**

COMMENTS:

ARM has completed the work as requested by DHEC at the above referenced site. One copy of the report is enclosed for your records.

Please let us know if you have any questions, or if you need additional information.

Sincerely,
ARM Environmental Services, Inc.

Michael Faris, P.G.
Senior Geologist

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*

October 7, 2014

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Re: (2) 96-Hour Aggressive Fluid Vapor Recovery Events
Bountyland Quick Stop #6
5034 SC-11 South
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #48288
ARM Project #25-403.5-14

Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed two (2) 96-hour Aggressive Fluid Vapor Recovery (AFVR) events at the above-referenced site located in Westminster, South Carolina. The pertinent information regarding the AFVRs and gauging events are presented on the following pages and in the appendices of this document.

The first 96-hour AFVR event was conducted on monitoring wells RW-1, RW-2, and RW-6. The second 96-hour AFVR event was conducted on monitoring wells RW-3, RW-4, and RW-8. Based on gauging of the fluid levels upon completion of the AFVR events, it appears that no free product was present above the groundwater in the referenced monitoring wells.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc.

Michele McLeod
Staff Scientist

Michael L. Faris, P.G.
Senior Geologist

cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard Suite 202, Seneca, SC 29671

AFVR 1 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on September 22, 2014. Ambient air temperature was 55° - 80° F and the general weather conditions were primarily clear. The depths to product and water were measured and recorded for monitoring wells RW-1, RW-2, and RW-6 prior to and subsequent to the event. Approximately 3.27 feet, 5.05 feet, and 0.01 foot of free product were measured in monitoring wells RW-1, RW-2, and RW-6 prior to stinger placement into the wells, respectively. A Topographic Site Location Map is included as Figure 1 and a Site Plan, depicting the location of the monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 12:00 on September 22, 2014 and ended at 12:00 on September 26, 2014. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the monitoring wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 7,405 gallons of petroleum contact water and 7 gallons of free product were removed from the referenced wells during the event.

AFVR 2 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on September 29, 2014. Ambient air temperature was 55° - 85° F and the general weather conditions were primarily clear and sunny; however, light rain occurred on September 29. The depths to product and water were measured and recorded for monitoring wells RW-3, RW-4, and RW-8 prior to and subsequent to the event. Approximately 4.35 feet and 3.79 feet of free product were measured in monitoring wells RW-4 and RW-8 prior to stinger placement into the wells, respectively. No free product was measured in monitoring well RW-3 prior to stinger placement into the well. A Topographic Site Location Map is included as Figure 1 and a Site Plan, depicting the location of the monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 11:00 on September 29, 2014 and ended at 11:00 on October 3, 2014. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the monitoring wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 10,795 gallons of petroleum contact water and 7 gallons of free product were removed from the referenced wells during the event.

Pollutant Mass Removal

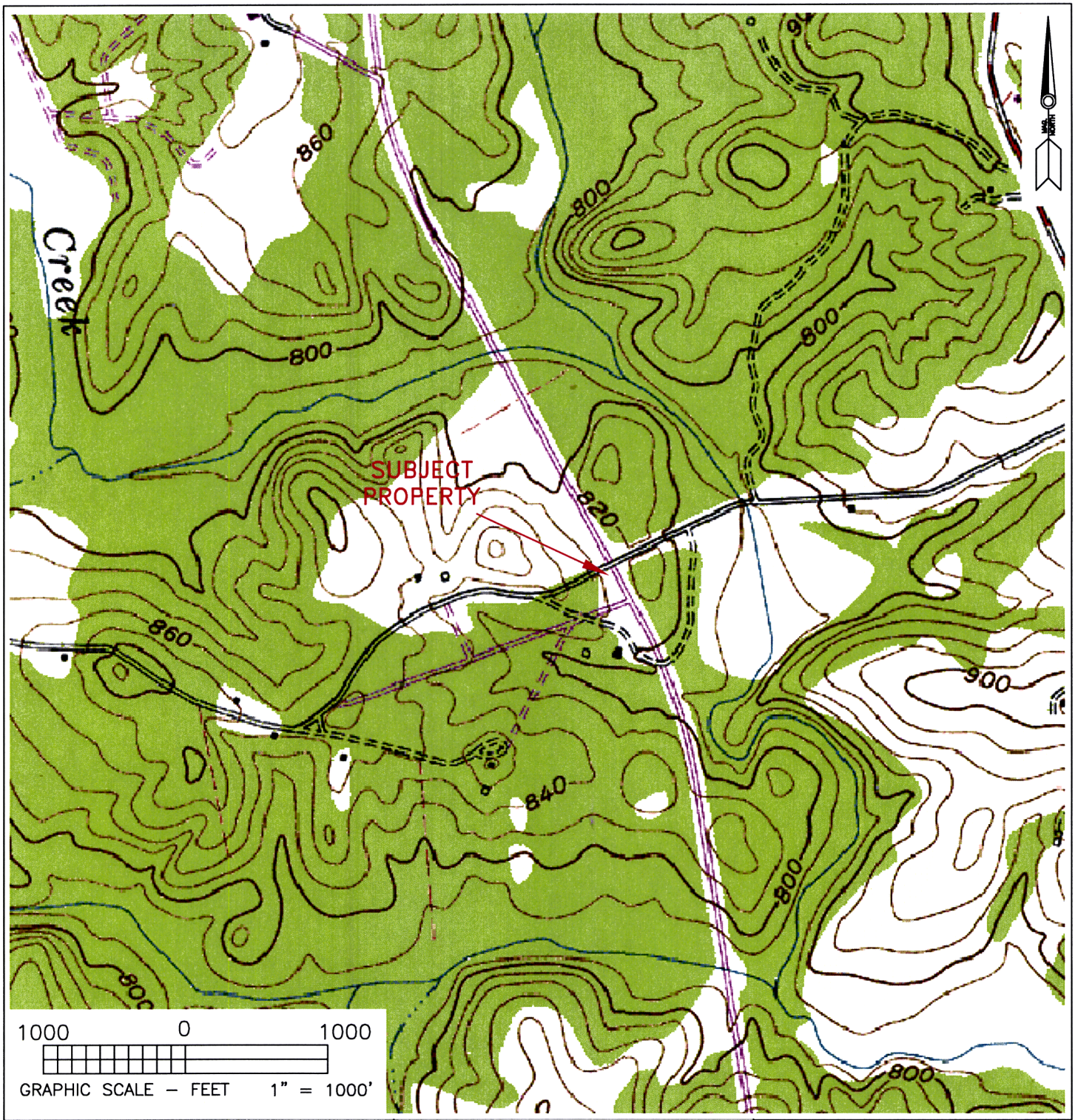
Weights of 409.92 and 294.17 pounds of petroleum as vapor (total gaseous non-methane organic emissions) were removed during the 96-hour events based on the data collected during the AFVRs. A TVA-1000B Flame Ionization Detector (FID) was utilized to measure the volatile vapors expelled from the vacuum truck. During both events, the measurements recorded were greater than the 50,000 parts per million (ppm) range of the FID; therefore, the value of 50,000 ppm was utilized, though the actual values may have been higher. The equations, variables, and calculations used to determine the pollutant mass removals are included in Appendix B.

Disposal

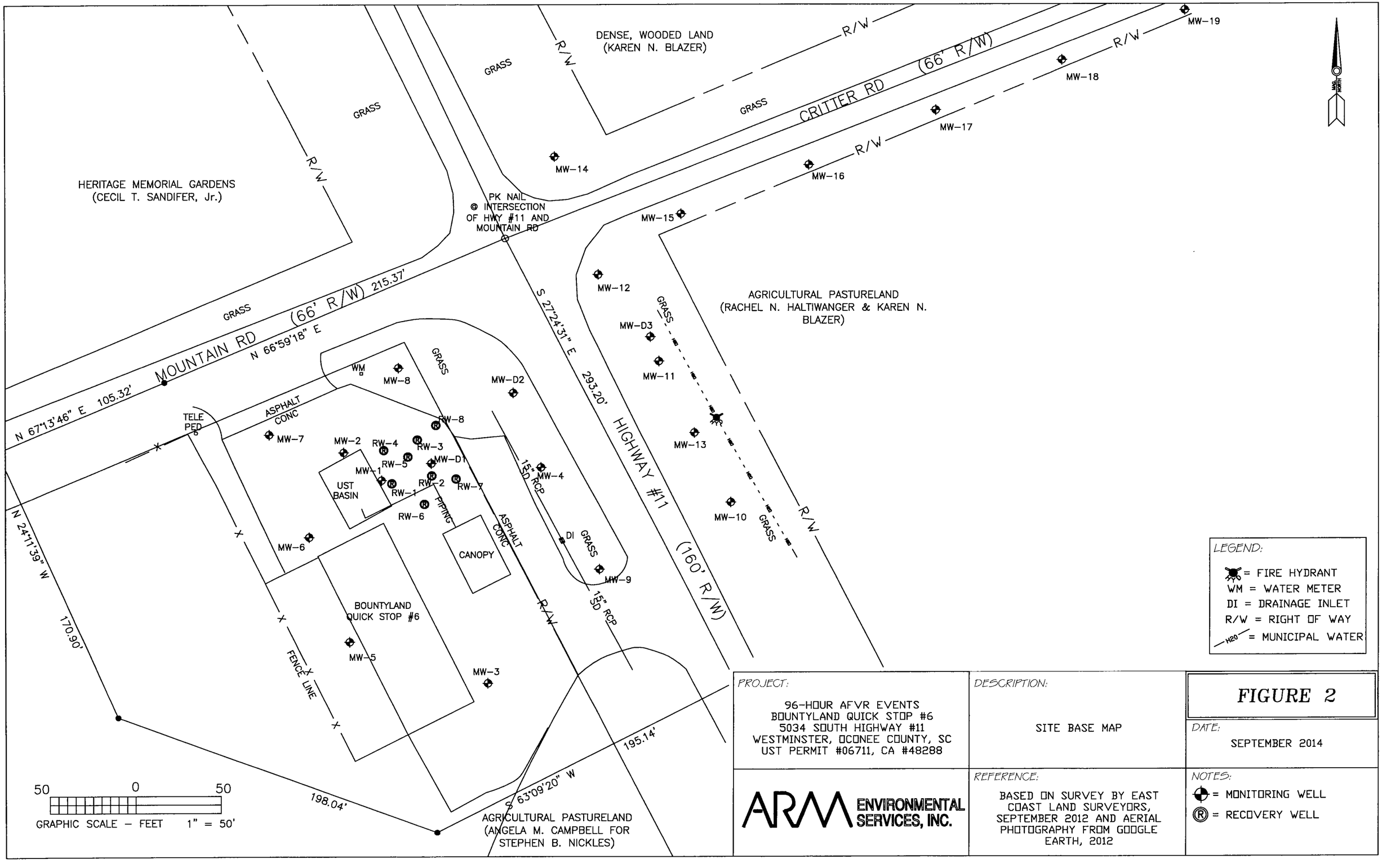
Disposal manifests for the 18,200 gallons of petroleum contact water and 14 gallons of free product generated during the events are included in Appendix C.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Base Map



PROJECT: 96-HOUR AFVR EVENTS BOUNTYLAND QUICK STOP #6 5034 SOUTH HIGHWAY #11 WESTMINSTER, OCONEE COUNTY, SC UST PERMIT #06711, CA #48288	DESCRIPTION: SITE LOCATION MAP	**FIGURE 1** DATE: SEPTEMBER 2014
ARM ENVIRONMENTAL SERVICES, INC.	REFERENCE: U.S.G.S. TOPOGRAPHIC MAP (7.5 MINUTE SERIES) WESTMINSTER - 1963/1980 SOUTH CAROLINA QUADRANGLE	LEGEND:



LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER

PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #48288

DESCRIPTION:

SITE BASE MAP

FIGURE 2

DATE:

SEPTEMBER 2014

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:

= MONITORING WELL
Ⓡ = RECOVERY WELL

APPENDICES

A. Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets
B. AFVR Mass Removal Calculations
C. Disposal Manifest(s)

APPENDIX A

Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets

ARM ENVIRONMENTAL SERVICES, INC.

25-403.5-14

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC-11 South, Westminster, SC

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy, Andrew, Mike B

Date: Sept 22-26, 2014 Ambient Air Temperature and General Weather Condition: seasonal, 55°-80°, clear

Start Time 1: 12:00 - Sept 22 Stop Time 1: 12:00 - Sept 26; Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 7405 gallons

Total volume of product removed during the 96-hour AFVR Event: 7. gallons

Product / Water Recovery Rate: 1.29 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-1	26.65	29.92	NM	32.55	3335 gallons	
RW-2	26.75	31.8	NM	33.40	3335 gallons	
RW-6	27.95	27.96	NM	31.90	742 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

		MW-RW-1	MW-RW-2	MW-RW-6	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Monday 9-22	12:00	11	18	13-14				
	12:30	11	18	13-14				
	13:00	11	18	13-14				
	13:30	11	18	13-14				
	14:00	11	18	13				
	14:30	11	18	13				
	15:00	11	18	13				
	15:30	11	18	13				
	16:00	11	18	13				
	16:30	11	18	13				
	17:00	11	18	13				
	17:30	11	18	13				
	18:00	11	18	13				
	18:30	11	18	13				
	19:00	11	18	13				
	19:30	11	18	13				
	20:00	11	18	13				
	21:00	11	18	13				
	22:00	11	18	13				
	23:00	11	18	13				
	24:00	11	18	13				
Tuesday 9-23								
	08:00	11	18	14				
	09:00	11	18	14				
	10:00	11	18	14				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW-RW-1	MW-RW-2	MW-RW-6	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
9-23 Tuesday	11:00	11	18	14				
	12:00	11	18	14				
	14:00	11	18	14				
	16:00	11	18	14				
	18:00	11	18	14				
	20:00	11	18	14				
	22:00	11	18	14				
	24:00	11	18	14				
9-24 Wednesday	08:00	11	18	14				
	10:00	11	18	14				
	12:00	11	18	14				
	14:00	11	18	14				
	16:00	11	18	14				
	18:00	11	18	14				
	20:00	11	18	14				
	22:00	11	18	14				
	24:00	11	18	14				
9-25 Thursday	08:00	11	18	14				
	10:00	11	18	14				
	12:00	11	18	14				
	14:00	11	18	14				
	16:00	11	18	14				
	18:00	11	18	14				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

	MW- RW-1	*MW-* RW-2	*MW-* RW-6	*MW-*	*MW-*	*MW-*	*MW-*
Time	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)
20:00	11	18	14				
22:00	11	18	14				
24:00	11	18	14				
08:00	11	18	14				
10:00	11	18	14				
12:00	11	18	14				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-2		Stinger Placement: MW- RW-6		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
12:00	30.0		32.0		28.0			
12:30	30.5		32.0		28.5			
13:00	31.0		32.0		29.0			
13:30	31.5		32.0		29.5			
14:00	32.0		32.0		30.0			
14:30	32.0		32.0		30.5			
15:00	32.0		32.0		31.0			
15:30	32.0		32.0		31.5			
16:00	32.0		32.0		32.0			
16:30	32.0		32.0		32.0			
17:00	32.0		32.0		32.0			
17:30	32.0		32.0		32.0			
18:00	32.0		32.0		32.0			
18:30	32.0		32.0		32.0			
19:00	32.0		32.0		32.0			
19:30	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
21:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
23:00	32.0		32.0		32.0			
24:00	32.0		32.0		32.0			

9-22 Monday

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW-RW-1		Stinger Placement: MW-RW-2		Stinger Placement: MW-RW-6		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 9-23	08:00	32.0		32.0		32.0			
	09:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	11:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Wednesday 9-24	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Thursday 9-25	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

	Stinger Placement: MW- RW-1		*Stinger Placement: MW-* RW-2		*Stinger Placement: MW-* RW-6		*Stinger Placement: MW-*	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
14:00	32.0		32.0		32.0			
16:00	32.0		32.0		32.0			
18:00	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
24:00	32.0		32.0		32.0			
08:00	32.0		32.0		32.0			
10:00	32.0		32.0		32.0			
12:00	32.0		32.0		32.0			

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW- 6		MW-8		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
	12:00	32.4		25.65		27.73			
	12:30		.0073		0		0		
	13:00		.0088		0		0		
	13:30		.0088		0		0		
	14:00		.0088		0		0		
	14:30		.0088		0		0		
	15:00		.0095		0		0		
	15:30		.0095		0		0		
9-28	16:00		.0095		0		0		
	16:30		.0102		0		0		
Monday	17:00		0102		0		0		
	17:30		.0139		.0007		0		
	18:00		0139		.0007		0		
	18:30		.0154		.0007		0		
	19:00		.0169		.0007		0		
	19:30		.0183		.0007		0		
	20:00		.0220		.0007		0		
	21:00		.0220		.0007		0		
	22:00		.0257		.0007		0		
	23:00		.0257		.0007		0		
	24:00		.0257		.0007		0		

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW- 6		MW- 8		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 9-23	08:00		.0110		.0014		0		
	09:00		.0110		.0014		0		
	10:00		.0110		.0014		0		
	11:00		.0110		.0014		0		
	12:00		.0110		.0007		0		
	14:00		.0073		.0007		0		
	16:00		.0073		.0007		0		
	18:00		.0073		.0007		.0007		
	20:00		0110		.0007		.0007		
	22:00		.0110		.0007		.0007		
	24:00		.0110		.0007		.0007		
Wednesday 9-24	08:00		.0110		.0014		.0014		
	10:00		.0110		.0014		.0014		
	12:00		.0110		.0014		.0014		
	14:00		.0110		.0007		.0014		
	16:00		.0110		.0007		.0014		
	18:00		.0110		.0007		.0014		
	20:00		.0110		.0007		.0014		
	22:00		.0110		.0007		.0014		
	24:00		.0110		.0007		.0014		

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW- 6		MW- 8		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 9-25	08:00		.0110		.0007		.0007		
	10:00		.0110		.0007		.0007		
	12:00		.0073		.0014		.0007		
	14:00		.0073		.0014		.0014		
	16:00		.0073		.0014		.0014		
	18:00		.0073		.0014		.0022		
	20:00		.0073		.0014		.0022		
	22:00		.0073		.0014		.0022		
	24:00		.0073		.0014		.0022		
Friday 9-26									
	08:00		.0110		.0007		.0014		
	10:00		.0110		.0007		.0022		
	12:00	32.54	.0110	25.98	.0007	28.05	.0022		

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
12:00	flame out	303	2248	54.3	100	
12:30		739	2515	54.7	91.7	
13:00		1149	2631	55.0	92.2	
13:30	flame out	1541	2663	55.2	93.8	
14:00		1936	2481	54.9	94.6	
14:30		2451	2561	54.1	97.5	
15:00		2836	2667	54.3	97.8	
15:30		3149	2735	54.0	96.6	
16:00	flame out	3435	2806	54.6	96.9	
16:30		3816	2888	55.1	97.0	
17:00		4128	2715	54.8	97.2	
17:30		4407	2623	54.1	97.5	
18:00		4630	2744	53.8	95.3	
18:30	flame out	5014	2718	52.1	96.5	
19:00		5440	2805	48.6	93.1	
19:30		5739	2829	47.8	91.0	
20:00		5936	2921	47.0	90.8	
21:00	flame out	6412	2724	45.0	89.8	
22:00		6880	2816	43.7	89.3	
23:00		7271	2634	43.2	89.6	
24:00	flame out	7639	2658	42.8	89.0	
			[illegible]			
08:00	flame out	266	2593	38.3	88.3	
09:00		483	2621	40.4	89.1	
10:00		671	2739	43.0	89.4	
11:00	flame out	949	2826	43.6	91.9	
12:00		1215	2641	42.8	92.3	
14:00	flame out	1638	2715	47.4	91.1	
16:00		2003	2683	50.3	93.0	

9-26 Monday

9-27 Tuesday

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 9-23	18:00	flameout	2536	2552	49.0	90.0	
	20:00		2949	2481	48.3	88.7	
	22:00		3350	2635	48.5	89.3	
	24:00	flameout	3749	2569	47.9	89.4	
Wednesday 9-24	08:00	flameout	8149	2371	41.4	94.5	
	10:00		8503	2408	43.1	93.6	
	12:00	flameout	8911	2449	45.2	94.4	
	14:00		9251	2368	48.1	95.1	
	16:00	flameout	9630	2421	51.5	96.6	
	18:00		9924	2549	46.7	93.3	
	20:00	flameout	10,204	2440	45.9	92.9	
	22:00		10,631	2519	45.5	91.6	
	24:00	flameout	11,106	2376	46.1	94.4	
Thursday 9-25	08:00	flameout	289	2428	43.2	94.8	
	10:00		421	2366	44.5	91.3	
	12:00	flameout	630	2249	46.2	88.8	
	14:00		883	2328	47.9	87.3	
	16:00	flameout	1149	2389	48.3	87.7	
	18:00		1530	2451	49.1	87.1	
	20:00	flameout	1819	2618	49.4	88.8	
	22:00		2220	2435	48.8	89.2	
	24:00	flameout	2536	2376	48.5	90.3	
Friday 9-26	08:00	flameout	5851	2451	45.9	92.7	
	10:00		6381	2630	45.0	94.1	
	12:00	flameout	6871	2436	45.2	93.0	

25-403.5-14

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC-11 South, Westminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy Andrew, Mike B

Date: Sept. 29- Oct 3 2014 Ambient Air Temperature and General Weather Condition: cloudy, light rain 29th, then clear, sunny, 55°-85°

Start Time 1: 11:00 Sept 29 Stop Time 1: 11:00 Oct. 3, 2014 Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 10,795

Total volume of product removed during the 96-hour AFVR Event: 7 gallons

Product / Water Recovery Rate: 1.87 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-3	NM	27.2	NM	33.05	3752 gallons	
RW-4	26.60	30.95	NM	32.8	2200 gallons	
RW-8	26.75	30.54	NM	33.38	4850 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 9-29-

Time	MW-RW-3 Vacuum at Targeted Well (in. Hg)	MW-RW-4 Vacuum at Targeted Well (in. Hg)	MW-RW-8 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
11:00	20-21	18-19	15-16				
11:30	20-21	18-19	15-16				
12:00	20-21	18-19	15-16				
12:30	20-21	18-19	15-16				
13:00	20-21	18-19	15-16				
13:30	20-21	18-19	15-16				
14:00	20	18-19	15-16				
14:30	20	18-19	15-16				
15:00	20	19	15-16				
15:30	20	19	16				
16:00	20	19	16				
16:30	20	19	16				
17:00	20	19	16				
17:30	20	19	16				
18:00	20	19	16				
18:30	20	19	16				
19:00	20	19	16				
20:00	20	19	16				
21:00	20	19	16				
22:00	20	19	16				
23:00	20	19	16				
24:00	20	19	16				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW-RW-3	MW-RW-4	MW-RW-8	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
9-30 Tuesday	08:00	20	19	16				
	09:00	20	19	16				
	10:00	20	19	16				
	11:00	20	19	16				
	13:00	20	19	16				
	15:00	20	19	16				
	17:00	20	19	16				
	19:00	20	19	16				
	21:00	20	19	16				
	23:00	20	19	16				
	24:00	20	19	16				
10-1 Wednesday	08:00	20	19	16				
	10:00	20	19	16				
	12:00	20	19	16				
	14:00	20	19	16				
	16:00	20	19	16				
	18:00	20	19	16				
	20:00	20	19	16				
	22:00	20	19	16				
	24:00	20	19	16				
10-2 Thursday	08:00	20	19	16				
	10:00	20	19	16				
	12:00	20	19	16				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

		MW-RW-3	MW-RW-4	MW-RW-8	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 10-2	14:00	20	19	16				
	16:00	20	19	16				
	18:00	20	19	16				
	20:00	20	19	16				
	22:00	20	19	16				
	24:00	20	19	16				
Friday 10-3	08:00	20	19	16				
	10:00	20	19	16				
	11:00	20	19	16				

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-8		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
11:00	28.5		28.0		28.5			
11:30	29.0		28.5		29.0			
12:00	29.5		29.0		29.5			
12:30	30.0		29.5		30.0			
13:00	30.5		30.0		30.5			
13:30	31.0		30.5		31.0			
14:00	31.5		31.0		31.5			
14:30	32.0		31.5		32.0			
15:00	32.0		32.0		32.0			
15:30	32.0		32.0		32.0			
16:00	32.0		32.0		32.0			
16:30	32.0		32.0		32.0			
17:00	32.0		32.0		32.0			
17:30	32.0		32.0		32.0			
18:00	32.0		32.0		32.0			
18:30	32.0		32.0		32.0			
19:00	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
21:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
23:00	32.0		32.0		32.0			
24:00	32.0	8	32.0		32.0			
08:00	32.0		32.0		32.0			
09:00	32.0		32.0		32.0			

9-29 Monday

9-30 Tuesday

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes

		Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-8		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
9-30 Tuesday	10:00	32.0		32.0		32.0			
	11:00	32.0		32.0		32.0			
	13:00	32.0		32.0		32.0			
	15:00	32.0		32.0		32.0			
	17:00	32.0		32.0		32.0			
	19:00	32.0		32.0		32.0			
	21:00	32.0		32.0		32.0			
	23:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
10-1 Wednesday	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
10-2 Thursday	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-8		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 10-2	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Friday 10-3	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	11:00	32.0		32.0		32.0			

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 4		MW- 6		MW- 8		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
11:00	32.55		26.37		28.11			
11:30		.0022		0		0		
12:00		.0036		0		0		
12:30		.0036		0		0		
13:00		.0029		0		0		
13:30		.0029		0		0		
14:00		.0029		0		0		
14:30		.0029		0		0		
15:00		.0022		0		0		
15:30		.0022		0		0		
16:00		.0022		0		0		
16:30		.0029		0		0		
17:00		.0029		0		0		
17:30		.0029		.0007		0		
18:00		.0029		0007		0		
18:30		.0029		.0007		0		
19:00		.0022		.0007		0		
20:00		.0022		.0014		0		
21:00		.0022		.0014		0		
22:00		.0022		.0014		0		
23:00		.0022		.0014		0		
24:00		.0022		.0014		0		

Monday 4-04

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW- 6		MW- 8		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
9-30 Tuesday	08:00		.0029		.0007		0		
	09:00		.0029		.0007		0		
	10:00		.0029		.0007		0		
	11:00		0029		.0007		0		
	13:00		0029		.0007		0		
	15:00		.0029		.0007		.0007		
	17:00		.0029		.0007		.0007		
	19:00		.0029		.0007		.0007		
	21:00		.0022		.0007		.0007		
	23:00		.0022		.0007		.0007		
	24:00		.0022		.0007		.0007		
10-1 Wednesday	08:00		.0014		.0007		.0014		
	10:00		.0014		.0007		.0014		
	12:00		.0014		.0007		.0014		
	14:00		.0014		.0007		.0014		
	16:00		.0022		.0007		.0007		
	18:00		.0022		.0007		.0007		
	20:00		.0022		.0007		.0007		
	22:00		.0022		.0007		.0007		
	24:00		.0022		.0007		.0007		
10-2 Thursday	08:00		.0007		.0007		.0014		
	10:00		.0007		.0007		.0014		
	12:00		.0007		.0007		.0014		

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW- 6		MW- 8		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 10-2	14:00		0007		.0007		.0014		
	16:00		.0022		.0007		.0014		
	18:00		.0022		.0007		.0014		
	20:00		.0022		.0007		.0014		
	22:00		.0022		.0007		.0014		
	24:00		.0022		.0007		.0014		
Friday 10-3	08:00		.0029		.0007		.0014		
	10:00		.0029		.0007		.0014		
	11:00	32.67	.0029	26.65	.0007	28.78	.0014		

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
11:00	flame out	163	1451	31.6	89.3	
11:30		349	1666	46.6	91.5	
12:00		758	1803	47.2	92.2	
12:30	flame out	1016	1819	47.4	93.0	
13:00		1315	1781	47.1	93.8	
13:30		1749	1764	47.5	94.3	
14:00	flame out	2207	1836	47.4	94.6	
14:30		2453	1951	47.6	94.1	
15:00		2749	1884	47.1	93.7	
15:30	flame out	3146	1890	46.3	92.4	
16:00		3458	1921	46.5	92.6	
16:30		3839	1873	46.4	92.6	
17:00	flame out	4230	1828	45.7	91.3	
17:30		4615	1787	45.1	90.5	
18:00		4976	1851	44.6	90.1	
18:30	flame out	5205	1825	44.7	90.4	
19:00		5638	1802	45.0	89.9	
20:00	flame out	6132	1773	44.7	89.5	
21:00		6451	1796	44.3	89.1	
22:00	flame out	6738	1825	44.0	89.2	
23:00		6993	1889	44.7	90.1	
24:00	flame out	7406	1950	45.0	90.8	
08:00	flame out	249	1816	44.6	92.4	
09:00		541	1873	44.9	92.9	
10:00	flame out	888	1747	45.6	90.6	
11:00		915	1823	47.1	91.5	
13:00	flame out	1453	1861	47.4	90.3	
15:00		1731	1763	47.8	91.6	

9-29 Monday

9-30 Tuesday

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 9-30	17:00	flame out	2431	1777	48.1	91.7	
	19:00		2863	1913	48.4	92.3	
	21:00	flame out	3571	1941	48.9	93.8	
	23:00		3943	1838	48.7	92.1	
	24:00	flame out	4443	1876	49.1	92.5	
Wednesday 10-1	08:00	flame out	7860	1760	46.3	93.6	
	10:00		8135	1824	46.7	94.1	
	12:00	flame out	8461	1806	47.8	92.7	
	14:00		8850	1756	48.1	90.3	
	16:00	flame out	9216	1831	48.5	90.1	
	18:00		9549	1749	49.3	90.4	
	20:00	flame out	9930	1841	49.4	88.6	
	22:00		10,403	1683	48.7	87.3	
	24:00	flame out	10,694	1777	48.6	87.7	
Thursday 10-2	08:00	flame out	124	1913	47.1	92.4	
	10:00		406	1887	48.3	91.5	
	12:00	flame out	749	1821	49.6	88.8	
	14:00		1130	1856	49.9	87.3	
	16:00	flame out	1541	1817	50.1	89.7	
	18:00		1936	1864	49.6	88.8	
	20:00	flame out	2124	1931	49.4	88.1	
	22:00		2508	1804	49.7	88.4	
	24:00	flame out	2966	1735	49.4	89.1	
Friday 10-3	08:00	flame out	3450	1815	47.7	91.8	
	10:00		4491	1849	48.9	89.9	
	11:00	flame out	5066	1953	49.3	86.4	

APPENDIX B

AFVR Mass Removal Calculations

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c.m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
9/22/2014	12:00	54.3	100.0	0.111	0.151	37.47	0.022	589.4	37.27
	12:30	54.7	91.7	0.103	0.141	41.92	0.022	590.1	42.13
	13:00	55.0	92.2	0.105	0.144	43.85	0.022	590.7	43.88
	13:30	55.2	93.8	0.108	0.148	44.38	0.022	591.0	44.19
	14:00	54.9	94.6	0.108	0.147	41.35	0.022	590.5	41.25
	14:30	54.1	97.5	0.107	0.146	42.68	0.022	589.1	42.75
	15:00	54.3	97.8	0.108	0.148	44.45	0.022	589.4	44.39
	15:30	54.0	96.6	0.105	0.144	45.58	0.022	588.9	45.78
	16:00	54.6	96.9	0.109	0.148	46.77	0.022	590.0	46.62
	16:30	55.1	97.0	0.112	0.152	48.13	0.022	590.9	47.69
	17:00	54.8	97.2	0.110	0.150	45.25	0.022	590.3	44.98
	17:30	54.1	97.5	0.107	0.146	43.72	0.022	589.1	43.78
	18:00	53.8	95.3	0.102	0.140	45.73	0.022	588.5	46.13
	18:30	52.1	96.5	0.094	0.131	45.30	0.022	585.5	46.45
	19:00	48.6	93.1	0.074	0.106	46.75	0.022	579.2	49.85
	19:30	47.8	91.0	0.069	0.099	47.15	0.022	577.7	50.77
	20:00	47.0	90.8	0.066	0.095	48.68	0.022	576.3	52.79
	21:00	45.0	89.8	0.058	0.085	45.40	0.022	572.7	50.10
	22:00	43.7	89.3	0.053	0.079	46.93	0.022	570.3	52.35
	23:00	43.2	89.6	0.052	0.077	43.90	0.022	569.4	49.14
9/23/2014	0:00	42.8	89.0	0.051	0.075	44.30	0.022	568.7	49.76
	8:00	38.3	88.3	0.039	0.059	43.22	0.022	560.6	50.12
	9:00	40.4	89.1	0.044	0.066	43.68	0.022	564.4	49.92
	10:00	43.0	89.4	0.051	0.076	45.65	0.022	569.1	51.18
	11:00	43.6	91.9	0.055	0.081	47.10	0.022	570.2	52.44
	12:00	42.8	92.3	0.053	0.078	44.02	0.022	568.7	49.29
	14:00	47.4	91.1	0.067	0.097	45.25	0.022	577.0	48.88
	16:00	50.3	93.0	0.081	0.115	44.72	0.022	582.2	46.93
	18:00	49.0	90.0	0.073	0.104	42.53	0.022	579.9	45.37
	20:00	48.3	88.7	0.069	0.099	41.35	0.022	578.6	44.45
	22:00	48.5	89.3	0.070	0.101	43.92	0.022	579.0	47.09
9/24/2014	0:00	47.9	89.4	0.068	0.098	42.82	0.022	577.9	46.15

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
	8:00	41.4	94.5	0.050	0.074	39.52	0.022	566.2	44.64
	10:00	43.1	93.6	0.054	0.080	40.13	0.022	569.3	44.79
	12:00	45.2	94.4	0.062	0.090	40.82	0.022	573.0	44.76
	14:00	48.1	95.1	0.074	0.105	39.47	0.022	578.3	42.17
	16:00	51.5	96.6	0.091	0.127	40.35	0.022	584.4	41.63
	18:00	46.7	93.3	0.066	0.096	42.48	0.022	575.7	46.05
	20:00	45.9	92.9	0.063	0.092	40.67	0.022	574.3	44.41
	22:00	45.5	91.6	0.061	0.089	41.98	0.022	573.6	46.06
9/25/2014	0:00	46.1	94.4	0.065	0.094	39.60	0.022	574.7	43.10
	8:00	43.2	94.8	0.055	0.082	40.47	0.022	569.4	45.07
	10:00	44.5	91.3	0.057	0.084	39.43	0.022	571.8	43.62
	12:00	46.2	88.8	0.061	0.089	37.48	0.022	574.8	41.01
	14:00	47.9	87.3	0.066	0.096	38.80	0.022	577.9	41.93
	16:00	48.3	87.7	0.068	0.098	39.82	0.022	578.6	42.86
	18:00	49.1	87.1	0.071	0.102	40.85	0.022	580.1	43.70
	20:00	49.4	88.8	0.073	0.105	43.63	0.022	580.6	46.45
	22:00	48.8	89.2	0.071	0.102	40.58	0.022	579.5	43.41
9/26/2014	0:00	48.5	90.3	0.071	0.102	39.60	0.022	579.0	42.41
	8:00	45.9	92.7	0.063	0.092	40.85	0.022	574.3	44.61
	10:00	45.0	94.1	0.061	0.089	43.83	0.022	572.7	48.16
	12:00	45.2	93.0	0.061	0.089	40.60	0.022	573.0	44.58

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
9/22/2014	12:00	0	37.27	50000	50000	24948	- - -	- - -	0.00
	12:30	30	42.13	50000	50000	24948	0.00156	3.94	1.97
	13:00	30	43.88	50000	50000	24948	0.00156	4.10	2.05
	13:30	30	44.19	50000	50000	24948	0.00156	4.13	2.06
	14:00	30	41.25	50000	50000	24948	0.00156	3.85	1.93
	14:30	30	42.75	50000	50000	24948	0.00156	3.99	2.00
	15:00	30	44.39	50000	50000	24948	0.00156	4.15	2.07
	15:30	30	45.78	50000	50000	24948	0.00156	4.28	2.14
	16:00	30	46.62	50000	50000	24948	0.00156	4.36	2.18
	16:30	30	47.69	50000	50000	24948	0.00156	4.46	2.23
	17:00	30	44.98	50000	50000	24948	0.00156	4.20	2.10
	17:30	30	43.78	50000	50000	24948	0.00156	4.09	2.05
	18:00	30	46.13	50000	50000	24948	0.00156	4.31	2.16
	18:30	30	46.45	50000	50000	24948	0.00156	4.34	2.17
	19:00	30	49.85	50000	50000	24948	0.00156	4.66	2.33
	19:30	30	50.77	50000	50000	24948	0.00156	4.74	2.37
	20:00	30	52.79	50000	50000	24948	0.00156	4.93	2.47
	21:00	60	50.10	50000	50000	24948	0.00156	4.68	4.68
	22:00	60	52.35	50000	50000	24948	0.00156	4.89	4.89
	23:00	60	49.14	50000	50000	24948	0.00156	4.59	4.59
9/23/2014	0:00	60	49.76	50000	50000	24948	0.00156	4.65	4.65
	8:00	480	50.12	50000	50000	24948	0.00156	4.68	37.47
	9:00	60	49.92	50000	50000	24948	0.00156	4.66	4.66
	10:00	60	51.18	50000	50000	24948	0.00156	4.78	4.78
	11:00	60	52.44	50000	50000	24948	0.00156	4.90	4.90
	12:00	60	49.29	50000	50000	24948	0.00156	4.61	4.61
	14:00	120	48.88	50000	50000	24948	0.00156	4.57	9.14
	16:00	120	46.93	50000	50000	24948	0.00156	4.39	8.77
	18:00	120	45.37	50000	50000	24948	0.00156	4.24	8.48
	20:00	120	44.45	50000	50000	24948	0.00156	4.15	8.31
	22:00	120	47.09	50000	50000	24948	0.00156	4.40	8.80
9/24/2014	0:00	120	46.15	50000	50000	24948	0.00156	4.31	8.63

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
	8:00	480	44.64	50000	50000	24948	0.00156	4.17	33.37
	10:00	120	44.79	50000	50000	24948	0.00156	4.19	8.37
	12:00	120	44.76	50000	50000	24948	0.00156	4.18	8.37
	14:00	120	42.17	50000	50000	24948	0.00156	3.94	7.88
	16:00	120	41.63	50000	50000	24948	0.00156	3.89	7.78
	18:00	120	46.05	50000	50000	24948	0.00156	4.30	8.61
	20:00	120	44.41	50000	50000	24948	0.00156	4.15	8.30
	22:00	120	46.06	50000	50000	24948	0.00156	4.30	8.61
9/25/2014	0:00	120	43.10	50000	50000	24948	0.00156	4.03	8.05
	8:00	480	45.07	50000	50000	24948	0.00156	4.21	33.70
	10:00	120	43.62	50000	50000	24948	0.00156	4.08	8.15
	12:00	120	41.01	50000	50000	24948	0.00156	3.83	7.67
	14:00	120	41.93	50000	50000	24948	0.00156	3.92	7.84
	16:00	120	42.86	50000	50000	24948	0.00156	4.01	8.01
	18:00	120	43.70	50000	50000	24948	0.00156	4.08	8.17
	20:00	120	46.45	50000	50000	24948	0.00156	4.34	8.68
	22:00	120	43.41	50000	50000	24948	0.00156	4.06	8.11
9/26/2014	0:00	120	42.41	50000	50000	24948	0.00156	3.96	7.93
	8:00	480	44.61	50000	50000	24948	0.00156	4.17	33.35
	10:00	120	48.16	50000	50000	24948	0.00156	4.50	9.00
	12:00	120	44.58	50000	50000	24948	0.00156	4.17	8.33

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-1, RW-2, & RW-6 **409.92**

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c\,m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
9/29/2014	11:00	31.6	89.3	0.027	0.041	24.18	0.022	548.6	29.20
	11:30	46.6	91.5	0.065	0.094	27.77	0.022	575.6	30.19
	12:00	47.2	92.2	0.068	0.098	30.05	0.022	576.6	32.48
	12:30	47.4	93.0	0.069	0.099	30.32	0.022	577.0	32.68
	13:00	47.1	93.8	0.068	0.099	29.68	0.022	576.5	32.05
	13:30	47.5	94.3	0.070	0.101	29.40	0.022	577.2	31.61
	14:00	47.4	94.6	0.070	0.101	30.60	0.022	577.0	32.92
	14:30	47.6	94.1	0.071	0.102	32.52	0.022	577.4	34.94
	15:00	47.1	93.7	0.068	0.099	31.40	0.022	576.5	33.91
	15:30	46.3	92.4	0.064	0.093	31.50	0.022	575.0	34.30
	16:00	46.5	92.6	0.065	0.095	32.02	0.022	575.4	34.80
	16:30	46.4	92.6	0.065	0.094	31.22	0.022	575.2	33.95
	17:00	45.7	91.3	0.061	0.089	30.47	0.022	573.9	33.38
	17:30	45.1	90.5	0.059	0.086	29.78	0.022	572.9	32.82
	18:00	44.6	90.1	0.057	0.083	30.85	0.022	572.0	34.14
	18:30	44.7	90.4	0.057	0.084	30.42	0.022	572.1	33.63
	19:00	45.0	89.9	0.058	0.085	30.03	0.022	572.7	33.14
	20:00	44.7	89.5	0.057	0.083	29.55	0.022	572.1	32.70
	21:00	44.3	89.1	0.055	0.081	29.93	0.022	571.4	33.24
	22:00	44.0	89.2	0.054	0.080	30.42	0.022	570.9	33.85
	23:00	44.7	90.1	0.057	0.084	31.48	0.022	572.1	34.82
9/30/2014	0:00	45.0	90.8	0.059	0.086	32.50	0.022	572.7	35.83
	8:00	44.6	92.4	0.058	0.086	30.27	0.022	572.0	33.42
	9:00	44.9	92.9	0.060	0.087	31.22	0.022	572.5	34.37
	10:00	45.6	90.6	0.060	0.088	29.12	0.022	573.8	31.95
	11:00	47.1	91.5	0.067	0.096	30.38	0.022	576.5	32.89
	13:00	47.4	90.3	0.067	0.097	31.02	0.022	577.0	33.54
	15:00	47.8	91.6	0.069	0.100	29.38	0.022	577.7	31.61
	17:00	48.1	91.7	0.071	0.102	29.62	0.022	578.3	31.78
	19:00	48.4	92.3	0.072	0.104	31.88	0.022	578.8	34.09
	21:00	48.9	93.8	0.076	0.108	32.35	0.022	579.7	34.37
	23:00	48.7	92.1	0.073	0.105	30.63	0.022	579.3	32.68

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
10/1/2014	0:00	49.1	92.5	0.075	0.108	31.27	0.022	580.1	33.21
	8:00	46.3	93.6	0.065	0.095	29.33	0.022	575.0	31.90
	10:00	46.7	94.1	0.067	0.097	30.40	0.022	575.7	32.93
	12:00	47.8	92.7	0.070	0.101	30.10	0.022	577.7	32.34
	14:00	48.1	90.3	0.069	0.100	29.27	0.022	578.3	31.46
	16:00	48.5	90.1	0.071	0.102	30.52	0.022	579.0	32.69
	18:00	49.3	90.4	0.074	0.106	29.15	0.022	580.4	30.99
	20:00	49.4	88.6	0.073	0.105	30.68	0.022	580.6	32.67
	22:00	48.7	87.3	0.069	0.100	28.05	0.022	579.3	30.10
10/2/2014	0:00	48.6	87.7	0.069	0.100	29.62	0.022	579.2	31.80
	8:00	47.1	92.4	0.067	0.097	31.88	0.022	576.5	34.48
	10:00	48.3	91.5	0.071	0.102	31.45	0.022	578.6	33.69
	12:00	49.6	88.8	0.074	0.106	30.35	0.022	581.0	32.25
	14:00	49.9	87.3	0.074	0.106	30.93	0.022	581.5	32.85
	16:00	50.1	89.7	0.077	0.110	30.28	0.022	581.9	31.99
	18:00	49.6	88.8	0.074	0.106	31.07	0.022	581.0	33.01
	20:00	49.4	88.1	0.073	0.104	32.18	0.022	580.6	34.29
	22:00	49.7	88.4	0.074	0.106	30.07	0.022	581.1	31.94
10/3/2014	0:00	49.4	89.1	0.074	0.105	28.92	0.022	580.6	30.77
	8:00	47.7	91.8	0.069	0.100	30.25	0.022	577.5	32.57
	10:00	48.9	89.9	0.072	0.104	30.82	0.022	579.7	32.90
	11:00	49.3	86.4	0.071	0.102	32.55	0.022	580.4	34.79

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
9/29/2014	11:00	0	29.20	50000	50000	24948	- - -	- - -	0.00
	11:30	30	30.19	50000	50000	24948	0.00156	2.82	1.41
	12:00	30	32.48	50000	50000	24948	0.00156	3.04	1.52
	12:30	30	32.68	50000	50000	24948	0.00156	3.05	1.53
	13:00	30	32.05	50000	50000	24948	0.00156	2.99	1.50
	13:30	30	31.61	50000	50000	24948	0.00156	2.95	1.48
	14:00	30	32.92	50000	50000	24948	0.00156	3.08	1.54
	14:30	30	34.94	50000	50000	24948	0.00156	3.27	1.63
	15:00	30	33.91	50000	50000	24948	0.00156	3.17	1.58
	15:30	30	34.30	50000	50000	24948	0.00156	3.21	1.60
	16:00	30	34.80	50000	50000	24948	0.00156	3.25	1.63
	16:30	30	33.95	50000	50000	24948	0.00156	3.17	1.59
	17:00	30	33.38	50000	50000	24948	0.00156	3.12	1.56
	17:30	30	32.82	50000	50000	24948	0.00156	3.07	1.53
	18:00	30	34.14	50000	50000	24948	0.00156	3.19	1.60
	18:30	30	33.63	50000	50000	24948	0.00156	3.14	1.57
	19:00	30	33.14	50000	50000	24948	0.00156	3.10	1.55
	20:00	60	32.70	50000	50000	24948	0.00156	3.06	3.06
	21:00	60	33.24	50000	50000	24948	0.00156	3.11	3.11
	22:00	60	33.85	50000	50000	24948	0.00156	3.16	3.16
	23:00	60	34.82	50000	50000	24948	0.00156	3.25	3.25
9/30/2014	0:00	60	35.83	50000	50000	24948	0.00156	3.35	3.35
	8:00	480	33.42	50000	50000	24948	0.00156	3.12	24.98
	9:00	60	34.37	50000	50000	24948	0.00156	3.21	3.21
	10:00	60	31.95	50000	50000	24948	0.00156	2.99	2.99
	11:00	60	32.89	50000	50000	24948	0.00156	3.07	3.07
	13:00	120	33.54	50000	50000	24948	0.00156	3.13	6.27
	15:00	120	31.61	50000	50000	24948	0.00156	2.95	5.91
	17:00	120	31.78	50000	50000	24948	0.00156	2.97	5.94
	19:00	120	34.09	50000	50000	24948	0.00156	3.19	6.37
	21:00	120	34.37	50000	50000	24948	0.00156	3.21	6.42
	23:00	120	32.68	50000	50000	24948	0.00156	3.05	6.11

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
10/1/2014	0:00	60	33.21	50000	50000	24948	0.00156	3.10	3.10
	8:00	480	31.90	50000	50000	24948	0.00156	2.98	23.85
	10:00	120	32.93	50000	50000	24948	0.00156	3.08	6.15
	12:00	120	32.34	50000	50000	24948	0.00156	3.02	6.04
	14:00	120	31.46	50000	50000	24948	0.00156	2.94	5.88
	16:00	120	32.69	50000	50000	24948	0.00156	3.06	6.11
	18:00	120	30.99	50000	50000	24948	0.00156	2.90	5.79
	20:00	120	32.67	50000	50000	24948	0.00156	3.05	6.11
	22:00	120	30.10	50000	50000	24948	0.00156	2.81	5.63
10/2/2014	0:00	120	31.80	50000	50000	24948	0.00156	2.97	5.94
	8:00	480	34.48	50001	50001	24949	0.00156	3.22	25.78
	10:00	120	34.48	50000	50000	24948	0.00156	3.22	6.44
	12:00	120	33.69	50000	50000	24948	0.00156	3.15	6.30
	14:00	120	32.25	50000	50000	24948	0.00156	3.01	6.03
	16:00	120	32.85	50000	50000	24948	0.00156	3.07	6.14
	18:00	120	31.99	50000	50000	24948	0.00156	2.99	5.98
	20:00	120	33.01	50000	50000	24948	0.00156	3.08	6.17
	22:00	120	34.29	50000	50000	24948	0.00156	3.20	6.41
10/3/2014	0:00	120	31.94	50000	50000	24948	0.00156	2.98	5.97
	8:00	480	30.77	50000	50000	24948	0.00156	2.88	23.00
	10:00	120	32.57	50000	50000	24948	0.00156	3.04	6.09
	11:00	60	34.79	50000	50000	24948	0.00156	3.25	3.25

Total Gaseous Nonmethane Organic emissions removed in pounds from RW3, RW-4, & RW-8 **294.17**

APPENDIX C

Disposal Manifest(s)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1141

2. Page 1 of

3. Generator's Name and Mailing Address: Boneyard Quick Stop
5034 S. Hwy 9
Mrs. Inger, S.C

25-403.5-12

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: W.S. Recovery
305 South Main
Moncks Corner, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	5225 ~~5000~~	Ga
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 51385
CHARLESTON, SC 29415

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: B.W. Stringer Agent for Boneyard Signature: B.W. Stringer Date: Month 9 Day 25 Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials: Truck Size 6

Printed/Typed Name: Clyde Snell Signature: Clyde Snell Date: Month 9 Day 25 Year 19

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name Signature Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Brian Tripp II Signature: Brian Tripp II Date: Month 9 Day 25 Year 19

NON-HAZARDOUS WASTE

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Rev. 3/95

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1142

2. Page 1 of

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a.				
b.	1	T	2407	
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date: Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name | Signature | Date: Month Day Year

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 113

2. Page 1 of

3. Generator's Name and Mailing Address

Bailey Lard Quick Stop
5634 SC Hwy 11 South
Newberry, S.C

4. Generator's Phone ( )

25-403.5-15

5. Transporter 1 Company Name

ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address

U.S. Recovery
305 South Main
Pelzer, S.C.

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER			1430	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above

Profile 8502

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 5525
GREENVILLE, SC 29606

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Bill Bailey for Bailey Lard	Bill Bailey	9	26	17

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Jeff Wheeler		9	26	17

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Stan Pace		9	26	17

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY

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NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1104 -

2. Page 1 of

3. Generator's Name and Mailing Address: Bounty land Quick Stop #6, 5034 SC-11 South, Westminster, S.C

25-403.5-K

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main Street, Moncks Corner, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	T	4247	G.I.
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 66665
CHARLESTON, SC 29445

NON-HAZARDOUS WASTE

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Bill Pitterman Agent for Bountyland

Signature: Billy Pitterman

Date: Month 10 Day 1 Year 14

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials: QUICK STOP #6

Printed/Typed Name: Billy Pitterman

Signature: Billy Pitterman

Date: Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: QUICK STOP

Signature

Date: Month 10 Day Year

FACILITY

19. Discrepancy Indication Space

6

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Brian Tripp II

Signature: Brian Tripp II

Date: Month 10 Day 1 Year 14

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. [illegible]

Manifest Document No. 11-15

2. Page 1 of

3. Generator's Name and Mailing Address Bounty Law Quick Stop #6
5034 SC Hwy 11 South
Westminster, S.C

25-403.5-14

4. Generator's Phone ( )

5. Transporter 1 Company Name
ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone [illegible]

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main Street
Moulton, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	T	4441	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above
Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
ARM ENVIRONMENTAL SERVICES, INC.
PO BOX [illegible]
[illegible]

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittman Agent for Bountylaw Quick Stop #6
Signature: Billy Pittman
Date: Month 10 Day 2 Year 14

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: CLYDE SNELL
Signature: Clyde Snell
Date: Month 10 Day 2 Year 14

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.
Printed/Typed Name: Steven Inman
Signature:
Date: Month 10 Day 2 Year 14

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. [redacted]

Manifest Document No. 1146

2. Page 1 of

3. Generator's Name and Mailing Address
Bountyland Quick Stop #6
5034 SC 11 South
Westminister, S.C

4. Generator's Phone ( )

25-403.5-14

5. Transporter 1 Company Name
ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone [redacted]

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main Street
Moultin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	412	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
[redacted], SC 29501

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Billy Pittenger Agent for Bountyland Quick Stop #6	Billy Pittenger	10	2	14

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Billy Pittenger	Billy Pittenger	10	2	14

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Steven [illegible]	[illegible]	10	2	14

NON-HAZARDOUS WASTE

D H E C
PROMOTE PROTECT PROSPER
Catherine B. Templeton, Director
Promoting and protecting the health of the public and the environment

MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672

OCT 16 2014

UST DOCKETING 28 tech

Re: Aggressive fluid and vapor recovery (AFVR) directive
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711; CA #49064
Release reported December 1, 2011
Oconee County

Dear Mr. Waller:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) recognizes your commitment to continue work at this site using ARM Environmental Services, Inc. The next appropriate remedial activity is to continue AFVR to remove free-phase product. Please have your contractor conduct one 96-hour event on recovery wells RW-1, RW-2, and RW-6, and one 96-hour event on RW-3, RW-4, and RW-5 to remove free-phase product. The events must be conducted in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 2.0. **Your contractor should be aware that AFVR procedures have been updated in Revision 2.0**. A copy of QAPP Revision 2.0 is available at http://www.scdhec.gov/environment/docs/QAPP_Rev-2_April2013.pdf.

Please notify the UST Management Division prior to commencing AFVR at the site. The stinger must be advanced to a target depth of 32 feet within the first 8 hours of the event. Thereafter, the stinger should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone (approximately 25 to 30 foot interval). Off–gas treatment will be necessary.

Cost Agreement (CA) #49064 has been approved in the amount shown on the enclosed cost agreement form for the AFVR events. Please note that all applicable South Carolina certification requirements apply to report preparation. Further, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Your contractor may directly bill the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Agency is obtained. If for any reason additional tasks will be

completed, these additional tasks and the associated cost must be pre-approved by the Agency for the cost to be paid. The Agency reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, the Agency reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Management Division grants pre-approval for transportation of petroleum-contaminated, investigative-derived waste (IDW) from the referenced site to a permitted treatment/disposal facility. The transport and disposal must be conducted in accordance with QAPP Revision 2.0.

On all correspondence concerning this facility, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,



Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.afvr2

enc: Approved cost agreement form

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 49064

Facility: 06711 BOUNTYLAND QUICK STOP 6

PADGETJP

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0.1200	41,535.25	4,984.23
23 EFR						
		A4	96 HOUR EVENT	2.0000	12,567.50	25,135.00
		C3	OFF GAS TREATMENT 48 HOUR	2.0000	327.00	654.00
		C4	OFF GAS TREATMENT 96 HOUR	2.0000	780.00	1,560.00
		D	SITE RECONNAISSANCE	1.0000	203.25	203.25
		F1	EFFLUENT DISPOSAL	30,000.0000	0.44	13,200.00
		G	AFVR EQUIPMENT MOB	2.0000	391.50	783.00
				Total Amount		46,519.48

Re: Bountyland Quick Stop #6; UST Permit #06711



Padgett, Joel P.

Wed 1/21/2015 8:33 AM

Sent Items

To mfaris@armenv.com <mfaris@armenv.com>,

Done

From: Michael Faris <mfaris@armenv.com>
Sent: Tuesday, January 20, 2015 3:31 PM
To: Padgett, Joel P.
Subject: RE: Bountyland Quick Stop #6; UST Permit #06711

May we have until Feb. 20 please?

From: Padgett, Joel P. [mailto:padgetjp@dhec.sc.gov]
Sent: Tuesday, January 20, 2015 3:15 PM
To: Michael Faris
Subject: Re: Bountyland Quick Stop #6; UST Permit #06711

Sounds good to me. How long do you need?

From: Michael Faris <mfaris@armenv.com>
Sent: Tuesday, January 20, 2015 2:59 PM
To: Padgett, Joel P.
Subject: Bountyland Quick Stop #6; UST Permit #06711

Joel,
I hope you had a nice holiday and that the new year is off to a good start.

We would like to conduct the 96-hr. AFVRs at this site beginning on February 2 if that is okay.
The preliminary gauging data is as follows:

MW#	product level	water level
RW-1	28.15	30.64
RW-2	29.11	29.51
RW-3	28.42	30.33
RW-4	28.42	28.44
RW-5	27.95	30.41
RW-6	N/A	29.14

May we please also have an extension for the completion of these AFVRs?
Perhaps 2015 will be the year to invest in another vacuum truck so that we can keep up when one is in the shop being repaired (there seems to always be one truck in the shop).

Thanks,
Michael

Michael L. Faris, P.G.
ARM Environmental Services, Inc.
1210 First Street South
Columbia, SC 29209
[www.armenv.com]www.armenv.com
ph: 803 783-3314
cell: 803 269-3913

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For more information please visit http://www.mimecast.com

This email has been scanned for email related threats and delivered safely by Mimecast.
For more information please visit http://www.mimecast.com

ARM ENVIRONMENTAL SERVICES, INC.
ASSESSMENT & REMEDIAL SERVICES armenv.com

UST
FEB 2 7 2015
PROGRAM

February 18, 2015

UST
30 tech
DOCKETING

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Re: (2) 96-Hour Aggressive Fluid Vapor Recovery Events
Bountyland Quick Stop #6
5034 SC-11 South
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #49064
ARM Project #25-403.6-14

Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed two (2) 96-hour Aggressive Fluid Vapor Recovery (AFVR) events at the above-referenced site located in Westminster, South Carolina. The pertinent information regarding the AFVRs and gauging events are presented on the following pages and in the appendices of this document.

The first 96-hour AFVR event was conducted on monitoring wells RW-1, RW-2, and RW-6. The second 96-hour AFVR event was conducted on monitoring wells RW-3, RW-4, and RW-5. Based on gauging of the fluid levels upon completion of the AFVR events, it appears that no free product was present above the groundwater in the referenced monitoring wells.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc.

Michele McLeod
Staff Scientist

Michael L. Faris, P.G.
Senior Geologist

cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard Suite 202, Seneca, SC 29671

AFVR 1 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on February 9, 2015. Ambient air temperature was 20° - 60° F and the general weather conditions were primarily clear and sunny; however, light rain occurred on February 9. The depths to product and water were measured and recorded for monitoring wells RW-1, RW-2, and RW-6 prior to and subsequent to the event. Approximately 2.89 and 1.08 feet of free product were measured in monitoring wells RW-1, RW-2 prior to stinger placement into the wells, respectively. No free product was measured in monitoring well RW-6 prior to stinger placement into the well. A Topographic Site Location Map is included as Figure 1 and a Site Plan, depicting the location of the monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 10:00 on February 9, 2015 and ended at 10:00 on February 13, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the monitoring wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 8,257 gallons of petroleum contact water and 3 gallons of free product were removed from the referenced wells during the event.

AFVR 2 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on February 9, 2015. Ambient air temperature was 20° - 60° F and the general weather conditions were primarily clear and sunny; however, light rain occurred on February 9. The depths to product and water were measured and recorded for monitoring wells RW-3, RW-4, and RW-5 prior to and subsequent to the event. Approximately 3.06, 0.02, and 3.19 feet of free product were measured in monitoring wells RW-3, RW-4, and RW-5 prior to stinger placement into the wells, respectively. A Topographic Site Location Map is included as Figure 1 and a Site Plan, depicting the location of the monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 10:00 on February 9, 2015 and ended at 10:00 on February 13, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the monitoring wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 10,000 gallons of petroleum contact water and 3 gallons of free product were removed from the referenced wells during the event.

Pollutant Mass Removal

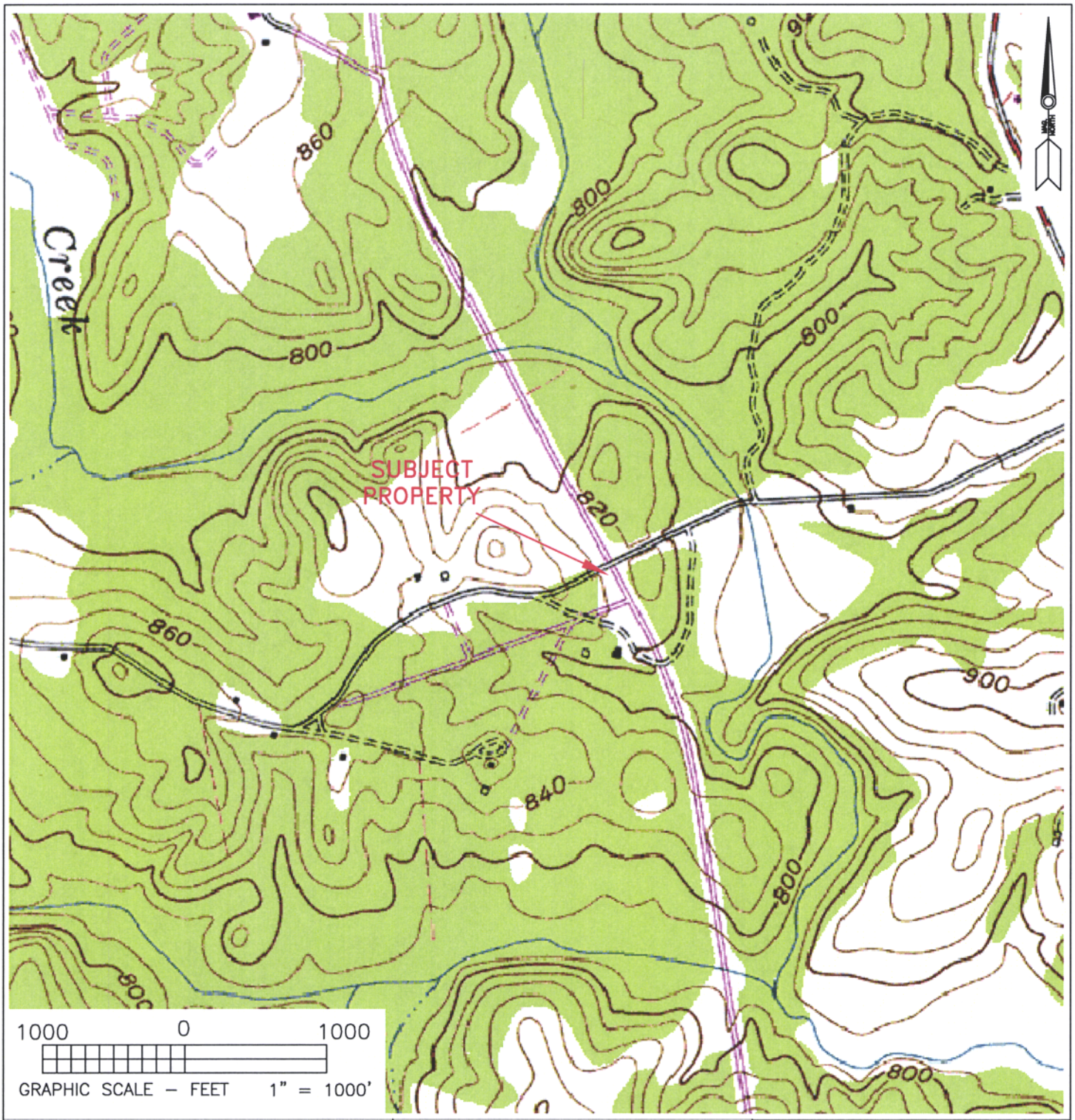
Weights of 274.78 and 248.28 pounds of petroleum as vapor (total gaseous non-methane organic emissions) were removed during the 96-hour events based on the data collected during the AFVRs. A TVA-1000B Flame Ionization Detector (FID) was utilized to measure the volatile vapors expelled from the vacuum truck. During both events, the measurements recorded were greater than the 50,000 parts per million (ppm) range of the FID; therefore, the value of 50,000 ppm was utilized, though the actual values may have been higher. The equations, variables, and calculations used to determine the pollutant mass removals are included in Appendix B.

Disposal

Disposal manifests for the 18,257 gallons of petroleum contact water and 6 gallons of free product generated during the events are included in Appendix C.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Base Map



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #49064

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

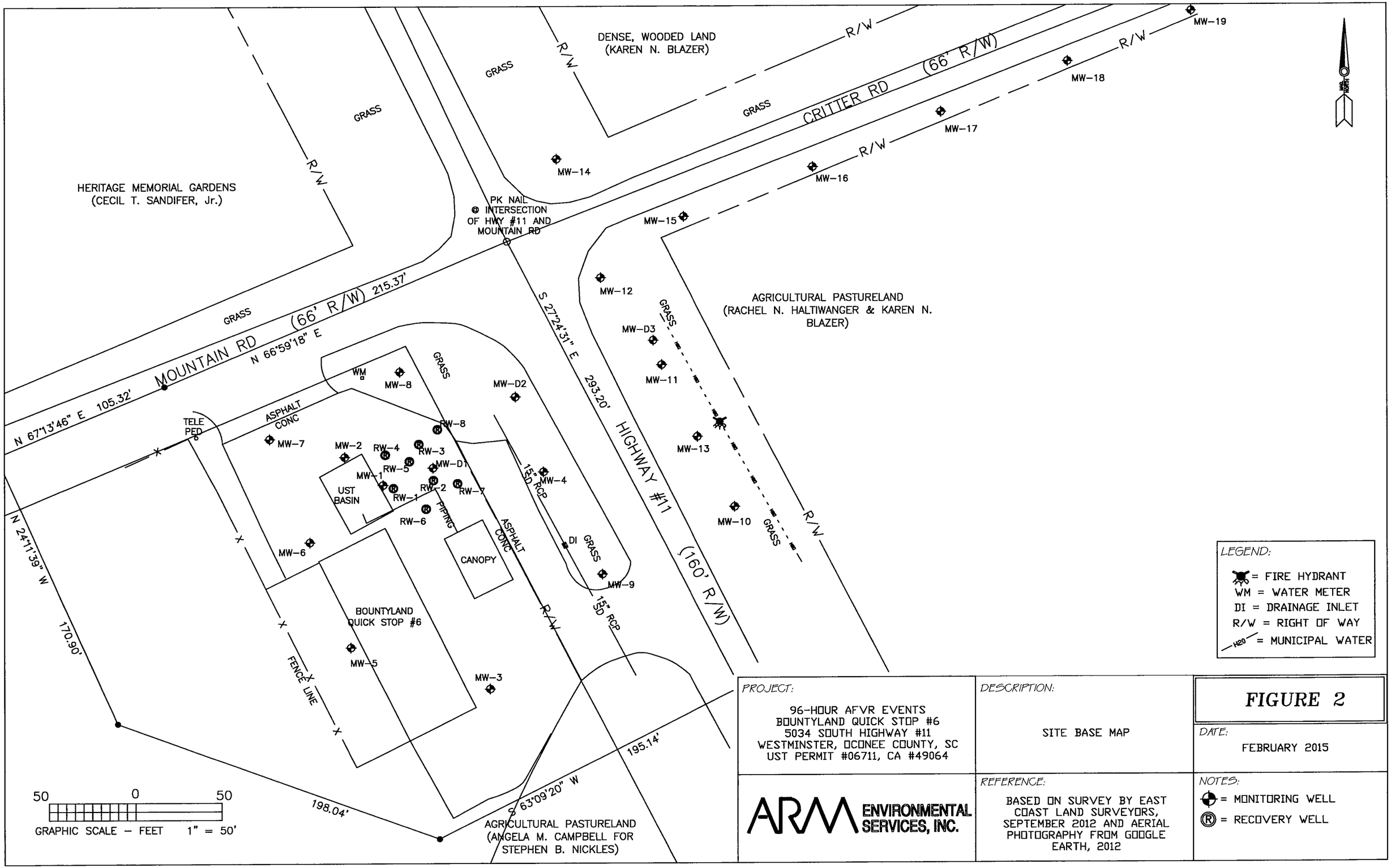
FEBRUARY 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER - 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #49064

DESCRIPTION:

SITE BASE MAP

FIGURE 2

DATE:

FEBRUARY 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL

APPENDICES

A. Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets
B. AFVR Mass Removal Calculations
C. Disposal Manifest(s)

APPENDIX A

Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quickstop #6 Location: 5034 S. Highway #11, Westminster S.C.

AFVR Contractor: ARM Environmental Services Personnel: Billy Pittenger, Mike Bonfilio, Andrew Woodburn, Cody Felder

Date: Feb 9th-13th 2015 Ambient Air Temperature and General Weather Condition: Rain Monday, Clear cool 20°F-60°F Monday-Friday

Start Time 1: 10:00 am Feb 9th Stop Time 1: 10:00 am Feb 13th Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 8257 gallons

Total volume of product removed during the 96-hour AFVR Event: 3 gallons

Product / Water Recovery Rate: 1.33 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-1	27.95	30.84	N/M	33.85	2560 gallons	
RW-2	28.17	29.25	N/M	33.59	1900 gallons	
RW-6	N/M	29.17	N/M	33.10	3800 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 2/9/15

Time	MW- RW-1 Vacuum at Targeted Well (in. Hg)	MW- RW-2 Vacuum at Targeted Well (in. Hg)	MW- RW-6 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
10:00	17	20	22				
10:30	17	20	19				
11:00	17	20	19				
11:30	17	20	19				
12:00	19	20	19				
12:30	19	20	19				
13:00	19	20	19				
13:30	19	20	21				
14:00	19	21	20				
14:30	19	21	20				
15:00	19	21	20				
15:30	20	21	20				
16:00	20	21	20				
16:30	20	21	21				
17:00	20	21	22				
17:30	21	21	22				
18:00	21	22	21				
19:00	21	22	21				
20:00	21	22	21				
21:00	21	22	21				
22.00	21	22	21				
23:00	21	22	21				
24:00	21	22	21				

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

	Time	MW-RW-1 Vacuum at Targeted Well (in. Hg)	MW-RW-2 Vacuum at Targeted Well (in. Hg)	MW-RW-6 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
Tuesday Feb 10th	08:00	21	22	21				
	09:00	21	22	21				
	10:00	21	22	21				
	12:00	21	22	21				
	14:00	21	22	21				
	16:00	21	22	21				
	18:00	21	22	21				
	20:00	21	22	21				
	22:00	21	22	21				
	24:00	21	22	21				
Wednesday Feb 11th	08:00	21	22	21				
	10:00	21	22	21				
	12:00	21	22	21				
	14:00	21	22	21				
	16:00	21	22	21				
	18:00	21	22	21				
	20:00	21	22	21				
	22:00	21	22	21				
	24:00	21	22	21				

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

	Time	MW- RW-1 Vacuum at Targeted Well (in. Hg)	MW- RW-2 Vacuum at Targeted Well (in. Hg)	MW- RW-6 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
Thursday Feb 12th	08:00	21	22	21				
	10:00	21	22	21				
	12:00	21	22	21				
	14:00	21	22	21				
	16:00	21	22	21				
	18:00	21	22	21				
	20:00	21	22	21				
	22:00	21	22	21				
	24:00	21	22	21				
Friday Feb 13th	08:00	21	22	21				
	10:00	21	22	21				

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

Monday 2/9/15

	Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-2		Stinger Placement: MW- RW-6		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
10 00	31.0		29.0		29.0			
10:30	31.0		29.0		29.0			
11:00	31.0		29.5		29.5			
11:30	31.0		29.5		29.5			
12:00	31.0		29.5		29.5			
12:30	31.0		30.0		30.0			
13:00	31.0		30.0		30.0			
13:30	31.0		30.0		30.0			
14:00	31.5		30.5		30.5			
14:30	31.5		30.5		30.5			
15 00	31.5		31.0		31.0			
15.30	31.5		31.0		31.0			
16:00	31.5		31.0		31.0			
16:30	31.5		31.5		31.5			
17:00	31.5		31.5		31 5			
17:30	31.5		31.5		31.5			
18:00	32.0		32.0		32.0			
19:00	32.0		32 0		32 0			
20:00	32.0		32 0		32 0			
21:00	32.0		32.0		32 0			
22:00	32.0		32.0		32 0			
23:00	32.0		32 0		32.0			
24:00	32.0		32 0		32.0			

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-2		Stinger Placement: MW- RW-6		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 2/10/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Wednesday 2/11/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Thursday 2/12/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

	Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-2		Stinger Placement: MW- RW-6		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
16:00	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
24:00	32.0		32.0		32.0			
06:00	32.0		32.0		32.0			
10:00	32.0		32.0		32.0			

Vacuum at Pump: _____

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 41		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
10:00	28.75		32.41					
10:30		0		0				
11:00		0		0				
11:30		0		0				
12:00		.0073		0				
12:30		.0294		.0147				
13:00		.0147		.0147				
13:30		.0220		.0073				
14:00		.0147		.0073				
14:30		.0147		.0073				
15:00		.0147		.0073				
15:30		.0220		.0073				
16:00		.0220		.0073				
16:30		.0220		.0073				
17:00		.0147		.0073				
17:30		.0147		.0073				
18:00		.0147		.0147				
19:00		.0147		.0073				
20:00		.0147		.0073				
21:00		.0147		.0073				
22:00		.0147		.0073				
23:00		.0147		.0073				
24:00		.0147		.0073				

Monday 2/9/15

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
2/10/15 Tuesday	0500	NM	.0147	NM	.0041				
	0900	↓	.0147	↓	.0041				
	1000		.0147		.0041				
	12:00		.0294		.0041				
	14:00		.0294		.0294				
	16:00		.0098		.0294				
	1800		.0050		.0294				
	20 00		.0051		.0294				
	22:00		.0014		.0294				
	24.00		.0041		.0220				
2/11/15 Wednesday	0800		.0014		.0294				
	10:00		.0014		.0220				
	12:00		.0014		.0220				
	14 00		.0014		.0220				
	16 00		.0014		.0220				
	18:00		.0014		.0294				
	20 00		.0014		.0294				
	22:00		.0014		.0294				
	24.00		.0014		.0294				
2/12/15 Thursday	0800		.0014		.0294				
	10:00		.0014		.0220				
	12 00		.0014		.0220				
	14:00		.0014		.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 41		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 2/12/15								
16:00		.0147		.0220				
18:00		.0147		.0220				
20:00		.0147		.0220				
22:00		.0147		.0220				
24:00		.0147		.0220				
Friday 2/13/15								
08:00		.0147		.0220				
10:00	30.22	.0147	33.15	.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
10:00	Flameout	85	1542	39.6	86.1	
10:30	Flameout	302	1591	39.7	86.1	
11:00	Flameout	570	1600	40.0	86.0	
11:30	Flameout	819	1587	40.3	86.3	
12:00	Flameout	1073	1627	40.4	86.3	
12:30	Flameout	1328	1244	44.3	89.6	
13:00	Flameout	1764	1229	46.1	89.1	
13:30	Flameout	2209	1267	43.2	90.4	
14:00	Flameout	2686	1321	44.4	90.8	
14:30	Flameout	3150	1275	45.1	90.3	
15:00	Flameout	3743	1544	45.0	91.6	
15:30	Flameout	4,100	1595	44.9	91.7	
16:00	Flameout	4,350	1561	47.4	88.7	
16:30	Flameout	5,500	1591	47.5	88.8	
17:00	92,000	6,400	1602	47.3	88.6	
17:30	107,700	8,950	1557	47.4	88.6	
18:00	103,100	11,500	1430	44.8	87.9	
19:00	98,600	14,700	1296	41.0	87.0	
20:00	99,100	16,100	1326	40.2	86.5	
21:00	89,000	16,900	1283	40.6	86.1	
22:00	95,600	18,100	1286	40.6	86.6	
23:00	100,800	20,600	1299	40.4	85.8	
24:00	102,000	22,100	1307	40.5	85.8	
08:00	Flameout	171	1617	36.9	85.1	
09:00	Flameout	302	1575	39.6	86.5	
10:00	Flameout	516	1569	42.3	87.2	
12:00	132,300	890	1607	44.8	87.3	
14:00	124,200	1151	1608	47.0	89.9	

Monday 2/9/15

Tuesday 2/10/15

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 2/10/15	16:00	flamzout	1992	1576	51.1	92.6	
	18:00	Flameout	24158	1274	47.9	92.8	
	20:00	85,700	2871	1736	42.7	87.4	
	22:00	93,700	41400	1683	37.6	85.2	
	24:00	108,600	5002	1669	37.1	84.7	
Wednesday 2/11/15	0800	Flameout	3642	1692	32.1	83.5	
	1000	Flameout	5212	1761	34.3	85.7	
	1200	134,000	8970	1488	39.6	89.8	
	14:00	137,100	10,600	1539	43.6	91.4	
	16:00	124,800	12,100	1581	44.1	87.8	
	18:00	142,200	2537	1598	43.6	87.3	
	20:00	150,000	5694	1557	37.9	85.2	
	22:00	133,800	7134	1551	35.1	84.3	
	24:00	140,900	9328	1521	35 3	84 1	
Thursday 2/12/15	0800	178,300	5241	1881	37.7	84.6	
	1000	216,400	7565	1836	38.2	85 3	
	1200	181,400	10,900	1855	38.4	86.8	
	14:00	182,100	13,100	1583	43.1	87.1	
	16:00	176,400	15,800	1607	39.3	86.8	
	18:00	199,100	4963	1576	33.6	83.6	
	20:00	192,700	6782	1641	27.4	88.7	
	22:00	192,500	9,991	1625	27.6	87.3	
	24:00	190,800	1175	1627	27.7	87.0	
Friday 2/13/15	0800	201,000	3101	1664	29.9	85 8	
	10:00	183,100	5026	1639	31.5	87.1	

25-403.6-14

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South Westminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy, Mike, Andrew, Cody

Date: Feb 9-13-2015 Ambient Air Temperature and General Weather Condition: rain-Monday, then clear, cool 20°-60°

Start Time 1: 10:00 (Feb 9) Stop Time 1: 10:00 (Feb 13); Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 10,000 gallons

Total volume of product removed during the 96-hour AFVR Event: 3 gallons

Product / Water Recovery Rate: 1.73 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-3	28.15	31.21	NM	33.83	3500 gallons	
RW-4	28.49	28.51	NM	33.32	3500 gallons	
RW-5	27.57	30.76	NM	33.6	3003 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

	MW-RW-3	MW-RW-4	MW- RW-5	MW-	MW-	MW-	MW-
Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
10:00	19	21	21				
10:30	19	21	21				
11:00	19	21	21				
11:30	19	21	21				
12:00	19	21	21				
12:30	19	21	21				
13:00	19	21	21				
13:30	19	21	21				
14:00	19	21	21				
14:30	19	21	21				
15:00	19	21	21				
15:30	19	21	21				
16:00	19	21	21				
16:30	19	21	21				
17:00	19	21	21				
17:30	19	21	21				
18:00	19	21	21				
19:00	19	21	21				
20:00	19	21	21				
21:00	19	21	21				
22:00	19	21	21				
23:00	19	21	21				
24:00	19	21	21				

Monday 2-9

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW-RW-3	MW-RW-4	MW-RW-5	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Tuesday 2-10	08:00	20	21	21				
	09:00	20	21	21				
	10:00	20	21	21				
	12:00	20	21	21				
	14:00	20	21	21				
	16:00	20	21	21				
	18:00	20	21	21				
	20:00	20	21	21				
	22:00	20	21	21				
	24:00	20	21	21				
Wednesday 2-11	08:00	20	21	21				
	10:00	20	21	21				
	12:00	20	21	21				
	14:00	20	21	21				
	16:00	20	21	21				
	18:00	20	21	21				
	20:00	20	21	21				
	22:00	20	21	21				
	24:00	20	21	21				
Thursday 2-12	08:00	20	21	21				
	10:00	20	21	21				
	12:00	20	21	21				
	14:00	20	21	21				

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

		MW- RW-3	MW- RW-4	MW- RW-5	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 2-12	16:00	20	21	21				
	18:00	20	21	21				
	20:00	20	21	21				
	22:00	20	21	21				
	24:00	20	21	21				
Friday 2-13	08:00	20	21	21				
	10:00	20	21	21				

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-5		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
10:00	~~31.25~~ ~~35.75~~		~~28.5~~ ~~30.24~~		31.0			
10:30	31.75		29.0		31.5			
11:00	32.0		29.5		32.0			
11:30	32.0		30.0		32.0			
12:00	31.5		30.5		31.5			
12:30	31.0		31.0		31.0			
13:00	30.5		31.5		30.5			
13:30	30.0		32.0		30.0			
14:00	29.5		31.0		30.0			
14:30	29.0		30.0		29.0			
15:00	28.5		29.0		28.0			
15:30	28.0		28.0		27.0			
16:00	27.0		27.0		26.0			
16:30	26.0		26.0		25.0			
17:00	25.0		25.0		25.0			
17:30	25.0		25.0		26.0			
18:00	26.0		26.0		27.0			
19:00	27.0		27.0		28.0			
20:00	28.0		28.0		29.0			
21:00	29.0		29.0		30.0			
22:00	30.0		30.0		31.0			
23:00	31.0		31.0		32.0			
24:00	32.0		32.0		32.0			

Monday 2-9

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-5		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 2-10	08:00	32.0		32.0		32.0			
	09:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Wednesday 2-11	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Thursday 2-12	08:00	30.0		30.0		30.0			
	10:00	30.0		30.0		30.0			
	12:00	30.0		30.0		30.0			
	14:00	30.0		30.0		30.0			

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: MW- 8		Stinger Placement: MW- 4		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 2-12	16:00	31.0		31.0		31.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Friday 2-13	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 4		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
10:00	28.75		32.94					
10:30		0		0				
11:00		0		0				
11:30		0		0				
12:00		.0073		0				
12:30		.0294		.0147				
13:00		.0147		.0147				
13:30		.0220		.0147				
14:00		.0147		.0073				
14:30		.0147		.0073				
15:00		.0147		.0073				
15:30		.0220		.0073				
16:00		.0220		.0073				
16:30		.0220		.0073				
17:00		.0147		.0073				
17:30		.0147		.0073				
18:00		.0147		.0073				
19:00		.0147		.0147				
20:00		.0147		.0073				
21:00		.0147		.0073				
22:00		.0147		.0073				
23:00		.0147		.0073				
24:00		.0147		.0073				

Monday 2-9

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 2-10	08:00	NM	.0147	NM	.0441				
	09:00	↓	.0147	↓	.0441				
	10:00		.0147		.0441				
	12:00		.0294		.0441				
	14:00		.0294		.0294				
	16:00		.0058		.0294				
	18:00		.0080		.0294				
	20:00		.0051		.0294				
	22:00		.0044		.0294				
	24:00		.0044		.0220				
Wednesday 2-11	08:00		.0014		.0294				
	10:00		.0014		.0220				
	12:00		.0014		.0220				
	14:00		.0014		.0220				
	16:00		.0014		.0294				
	18:00		.0014		.0294				
	20:00		.0014		.0294				
	22:00		.0014		.0294				
	24:00		.0014		.0294				
Thursday 2-12	08:00		.0014		.0294				
	10:00		.0014		.0220				
	12:00		.0014		.0220				
	14:00		.0014		.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 2-12	16:00		.0147		.0220				
	18:00		.0147		.0220				
	20:00		.0147		.0220				
	22:00		.0147		.0220				
	24:00		.0147		.0220				
Friday 2-13	08:00		.0147		.0220				
	10:00	30.22	.0147	33.15	.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
10:00	flame out	108	798	17.6	87.3	
10:30	flame out	324	1446	42.4	90.7	
11:00	flame out	481	1485	41.8	91.3	
11:30	flame out	628	1444	41.6	91.7	
12:00	flame out	756	1416	42.8	92.1	
12:30	flame out	913	1458	44.3	92.5	
13:00	flame out	1149	1531	45.4	90.5	
13:30	flame out	1376	1563	45.3	90.2	
14:00	flame out	1691	1528	45.0	89.8	
14:30	flame out	2041	1519	45.1	89.3	
15:00	flame out	2361	1532	45.4	89.6	
15:30	flame out	2756	1573	45.3	89.7	
16:00	flame out	2910	1486	42.1	88.8	
16:30	191,600	3341	1444	39.3	88.3	
17:00	196,100	3750	1407	39.0	88.1	
17:30	183,500	4145	1358	39.6	87.5	
18:00	188,300	4530	1521	41.9	88.4	
19:00	190,000	4963	1607	42.0	88.1	
20:00	181,300	5361	1555	41.9	87.8	
21:00	173,500	5660	1473	42.0	87.9	
22:00	175,100	5810	1663	41.7	88.1	
23:00	169,300	6265	1489	41.2	88.5	
24:00	166,600	6636	1426	41.3	88.3	
08:00	113,500	89	1273	37.6	86.2	
09:00	110,400	229	1427	42.2	89.0	
10:00	108,100	531	1404	45.1	88.3	
12:00	100,200	756	1380	46.4	88.7	
14:00	104,700	913	1444	46.0	90.3	

Monday 2-9

Tuesday 2-10

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 2-10	16:00	97,300	1414	1448	46.6	93.0	
	18:00	98,800	1675	1534	44.4	88.3	
	20:00	91,600	2163	1503	44.1	89.8	
	22:00	90,000	2758	1475	44.2	88.6	
	24:00	92,100	3215	1449	43.9	87.5	
Wednesday 2-11	08:00	76,700	7163	1453	34.1	85.3	
	10:00	71,400	7471	1561	39.3	91.4	
	12:00	76,100	7738	1644	43.1	92.3	
	14:00	69,500	8163	1561	44.1	91.8	
	16:00	73,600	8550	1581	44.5	90.0	
	18:00	81,300	8916	1621	44.9	91.7	
	20:00	80,200	9315	1669	45.1	91.3	
	22:00	72,800	9562	1776	45.3	91.5	
	24:00	71,400	9889	1636	45.7	89.6	
Thursday 2-12	08:00	75,600	183	1453	32.4	86.3	
	10:00	76,300	279	1406	36.5	86.9	
	12:00	82,800	441	1478	37.1	88.8	
	14:00	85,100	738	1391	38.3	89.1	
	16:00	87,300	1163	1414	38.6	89.3	
	18:00	82,500	1649	1481	38.9	89.5	
	20:00	85,600	2005	1553	40.4	88.1	
	22:00	89,200	2441	1589	41.6	89.9	
	24:00	84,700	2910	1717	42.5	91.6	
Friday 2-13	08:00	86,300	6063	1361	34.7	91.7	
	10:00	82,900	6491	1507	35.8	90.8	

APPENDIX B

AFVR Mass Removal Calculations

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c:m}$ (62.43×10^{-9} lb-m^3/mg-ft^3)

$C_{c:m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
2/9/2015	10:00	39.6	86.1	0.041	0.061	25.70	0.022	563.0	29.60
	10:30	39.7	86.1	0.041	0.062	26.52	0.022	563.1	30.52
	11:00	40.0	86.0	0.042	0.062	26.67	0.022	563.7	30.63
	11:30	40.3	86.3	0.042	0.064	26.45	0.022	564.2	30.31
	12:00	40.4	86.3	0.043	0.064	27.12	0.022	564.4	31.06
	12:30	44.3	89.6	0.056	0.082	20.73	0.022	571.4	23.01
	13:00	46.1	89.1	0.061	0.089	20.48	0.022	574.7	22.42
	13:30	43.2	90.4	0.053	0.078	21.12	0.022	569.4	23.62
	14:00	44.4	90.8	0.057	0.083	22.02	0.022	571.6	24.39
	14:30	45.1	90.3	0.059	0.086	21.25	0.022	572.9	23.42
	15:00	45.0	91.6	0.059	0.087	25.73	0.022	572.7	28.35
	15:30	44.9	91.7	0.059	0.086	26.58	0.022	572.5	29.30
	16:00	47.4	88.7	0.065	0.095	26.02	0.022	577.0	28.19
	16:30	47.5	88.8	0.066	0.095	26.52	0.022	577.2	28.70
	17:00	47.3	88.6	0.065	0.094	26.70	0.022	576.8	28.95
	17:30	47.4	88.6	0.065	0.095	25.95	0.022	577.0	28.12
	18:00	44.8	87.9	0.056	0.082	23.83	0.022	572.3	26.40
	19:00	41.0	87.0	0.045	0.067	21.60	0.022	565.5	24.62
	20:00	40.2	86.5	0.042	0.064	22.10	0.022	564.0	25.34
	21:00	40.6	86.1	0.043	0.065	21.38	0.022	564.8	24.46
	22:00	40.6	86.6	0.043	0.065	21.43	0.022	564.8	24.51
	23:00	40.4	85.8	0.042	0.064	21.65	0.022	564.4	24.81
2/10/2015	0:00	40.5	85.8	0.043	0.064	21.78	0.022	564.6	24.94
	8:00	36.9	85.1	0.034	0.052	27.45	0.022	558.1	32.19
	9:00	39.6	86.5	0.041	0.061	26.25	0.022	563.0	30.22
	10:00	42.3	87.2	0.048	0.072	26.15	0.022	567.8	29.53
	12:00	44.8	87.3	0.056	0.082	26.78	0.022	572.3	29.68
	14:00	47.0	89.9	0.065	0.094	26.80	0.022	576.3	29.09
	16:00	51.1	92.6	0.085	0.119	26.27	0.022	583.7	27.37
	18:00	47.9	92.8	0.071	0.102	21.23	0.022	577.9	22.79
	20:00	42.7	87.4	0.049	0.073	28.93	0.022	568.5	32.57
	22:00	37.6	85.2	0.036	0.054	28.05	0.022	559.4	32.75

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
2/11/2015	0:00	37.1	84.7	0.035	0.053	27.82	0.022	558.5	32.59
	8:00	32.1	83.5	0.026	0.039	28.20	0.022	549.5	34.05
	10:00	34.3	85.7	0.030	0.046	29.35	0.022	553.4	34.96
	12:00	39.6	89.8	0.043	0.064	24.80	0.022	563.0	28.48
	14:00	43.6	91.4	0.055	0.080	25.65	0.022	570.2	28.57
	16:00	44.1	87.8	0.054	0.079	26.35	0.022	571.1	29.34
	18:00	43.6	87.3	0.052	0.077	26.63	0.022	570.2	29.79
	20:00	37.9	85.2	0.037	0.055	25.95	0.022	559.9	30.24
	22:00	35.1	84.3	0.031	0.047	25.85	0.022	554.9	30.67
2/12/2015	0:00	35.3	84.1	0.031	0.047	25.35	0.022	555.2	30.04
	8:00	37.7	84.6	0.036	0.054	31.35	0.022	559.5	36.59
	10:00	38.2	85.3	0.037	0.056	30.60	0.022	560.4	35.59
	12:00	38.4	86.8	0.038	0.058	30.92	0.022	560.8	35.87
	14:00	43.1	87.1	0.050	0.075	26.38	0.022	569.3	29.62
	16:00	39.3	86.8	0.040	0.061	26.78	0.022	562.4	30.89
	18:00	33.6	83.6	0.028	0.043	26.27	0.022	552.2	31.45
	20:00	27.4	88.7	0.021	0.032	27.35	0.022	541.0	33.80
	22:00	27.6	87.3	0.020	0.032	27.08	0.022	541.4	33.46
2/13/2015	0:00	27.7	87.0	0.020	0.032	27.12	0.022	541.5	33.48
	8:00	29.9	85.8	0.023	0.036	27.73	0.022	545.5	33.86
	10:00	31.5	87.1	0.026	0.040	27.32	0.022	548.4	33.04

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
2/9/2015	10:00	0	29.60	50000	50000	24948	- - -	- - -	0.00
	10:30	30	30.52	50000	50000	24948	0.00156	2.85	1.43
	11:00	30	30.63	50000	50000	24948	0.00156	2.86	1.43
	11:30	30	30.31	50000	50000	24948	0.00156	2.83	1.42
	12:00	30	31.06	50000	50000	24948	0.00156	2.90	1.45
	12:30	30	23.01	50000	50000	24948	0.00156	2.15	1.08
	13:00	30	22.42	50000	50000	24948	0.00156	2.10	1.05
	13:30	30	23.62	50000	50000	24948	0.00156	2.21	1.10
	14:00	30	24.39	50000	50000	24948	0.00156	2.28	1.14
	14:30	30	23.42	50000	50000	24948	0.00156	2.19	1.09
	15:00	30	28.35	50000	50000	24948	0.00156	2.65	1.32
	15:30	30	29.30	50000	50000	24948	0.00156	2.74	1.37
	16:00	30	28.19	50000	50000	24948	0.00156	2.63	1.32
	16:30	30	28.70	50000	50000	24948	0.00156	2.68	1.34
	17:00	30	28.95	50000	50000	24948	0.00156	2.71	1.35
	17:30	30	28.12	50000	50000	24948	0.00156	2.63	1.31
	18:00	30	26.40	50000	50000	24948	0.00156	2.47	1.23
	19:00	60	24.62	50000	50000	24948	0.00156	2.30	2.30
	20:00	60	25.34	50000	50000	24948	0.00156	2.37	2.37
	21:00	60	24.46	50000	50000	24948	0.00156	2.29	2.29
	22:00	60	24.51	50000	50000	24948	0.00156	2.29	2.29
	23:00	60	24.81	50000	50000	24948	0.00156	2.32	2.32
2/10/2015	0:00	60	24.94	50000	50000	24948	0.00156	2.33	2.33
	8:00	480	32.19	50000	50000	24948	0.00156	3.01	24.07
	9:00	60	30.22	50000	50000	24948	0.00156	2.82	2.82
	10:00	60	29.53	50000	50000	24948	0.00156	2.76	2.76
	12:00	120	29.68	50000	50000	24948	0.00156	2.77	5.55
	14:00	120	29.09	50000	50000	24948	0.00156	2.72	5.44
	16:00	120	27.37	50000	50000	24948	0.00156	2.56	5.12
	18:00	120	22.79	50000	50000	24948	0.00156	2.13	4.26
	20:00	120	32.57	50000	50000	24948	0.00156	3.04	6.09
	22:00	120	32.75	50000	50000	24948	0.00156	3.06	6.12

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
2/11/2015	0:00	120	32.59	50000	50000	24948	0.00156	3.05	6.09
	8:00	480	34.05	50000	50000	24948	0.00156	3.18	25.46
	10:00	120	34.96	50000	50000	24948	0.00156	3.27	6.53
	12:00	120	28.48	50000	50000	24948	0.00156	2.66	5.32
	14:00	120	28.57	50000	50000	24948	0.00156	2.67	5.34
	16:00	120	29.34	50000	50000	24948	0.00156	2.74	5.48
	18:00	120	29.79	50000	50000	24948	0.00156	2.78	5.57
	20:00	120	30.24	50000	50000	24948	0.00156	2.83	5.65
	22:00	120	30.67	50000	50000	24948	0.00156	2.87	5.73
2/12/2015	0:00	120	36.59	50000	50000	24948	0.00156	3.42	6.84
	8:00	480	35.59	50000	50000	24948	0.00156	3.33	26.61
	10:00	120	35.87	50000	50000	24948	0.00156	3.35	6.70
	12:00	120	29.62	50000	50000	24948	0.00156	2.77	5.54
	14:00	120	30.89	50000	50000	24948	0.00156	2.89	5.77
	16:00	120	31.45	50000	50000	24948	0.00156	2.94	5.88
	18:00	120	33.80	50000	50000	24948	0.00156	3.16	6.32
	20:00	120	33.46	50000	50000	24948	0.00156	3.13	6.25
	22:00	120	33.48	50000	50000	24948	0.00156	3.13	6.26
2/13/2015	0:00	120	33.04	50000	50000	24948	0.00156	3.09	6.18
	8:00	480	33.04	50000	50000	24948	0.00156	3.09	24.70
	10:00	120	0.00	50000	50000	24948	0.00156	0.00	0.00

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-1, RW-2, & RW-6 **274.78**

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c\,m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
2/9/2015	10:00	17.6	87.3	0.011	0.017	13.30	0.022	523.4	17.25
	10:30	42.4	90.7	0.050	0.075	24.10	0.022	568.0	27.11
	11:00	41.8	91.3	0.049	0.073	24.75	0.022	566.9	27.95
	11:30	41.6	91.7	0.049	0.073	24.07	0.022	566.6	27.21
	12:00	42.8	92.1	0.053	0.078	23.60	0.022	568.7	26.43
	12:30	44.3	92.5	0.057	0.084	24.30	0.022	571.4	26.89
	13:00	45.4	90.5	0.060	0.087	25.52	0.022	573.4	28.05
	13:30	45.3	90.2	0.059	0.087	26.05	0.022	573.2	28.67
	14:00	45.0	89.8	0.058	0.085	25.47	0.022	572.7	28.10
	14:30	45.1	89.3	0.058	0.085	25.32	0.022	572.9	27.93
	15:00	45.4	89.6	0.059	0.086	25.53	0.022	573.4	28.09
	15:30	45.3	89.7	0.059	0.086	26.22	0.022	573.2	28.87
	16:00	42.1	88.8	0.049	0.072	24.77	0.022	567.5	27.97
	16:30	39.3	88.3	0.041	0.062	24.07	0.022	562.4	27.73
	17:00	39.0	88.1	0.040	0.061	23.45	0.022	561.9	27.08
	17:30	39.6	87.5	0.041	0.062	22.63	0.022	563.0	26.04
	18:00	41.9	88.4	0.048	0.071	25.35	0.022	567.1	28.68
	19:00	42.0	88.1	0.048	0.071	26.78	0.022	567.3	30.29
	20:00	41.9	87.8	0.047	0.071	25.92	0.022	567.1	29.34
	21:00	42.0	87.9	0.048	0.071	24.55	0.022	567.3	27.77
	22:00	41.7	88.1	0.047	0.070	27.72	0.022	566.7	31.41
	23:00	41.2	88.5	0.046	0.069	24.82	0.022	565.8	28.21
2/10/2015	0:00	41.3	88.3	0.046	0.069	23.77	0.022	566.0	27.01
	8:00	37.6	86.2	0.036	0.055	21.22	0.022	559.4	24.76
	9:00	42.2	89.0	0.049	0.073	23.78	0.022	567.6	26.83
	10:00	45.1	88.3	0.057	0.084	23.40	0.022	572.9	25.84
	12:00	46.4	88.7	0.062	0.090	23.00	0.022	575.2	25.13
	14:00	46.0	90.3	0.062	0.090	24.07	0.022	574.5	26.33
	16:00	46.6	93.0	0.066	0.095	24.13	0.022	575.6	26.19
	18:00	44.4	88.3	0.055	0.081	25.57	0.022	571.6	28.39
	20:00	44.1	89.8	0.055	0.081	25.05	0.022	571.1	27.84
	22:00	44.2	88.6	0.055	0.080	24.58	0.022	571.2	27.33

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
2/11/2015	0:00	43.9	87.5	0.053	0.078	24.15	0.022	570.7	26.94
	8:00	34.1	85.3	0.029	0.045	24.22	0.022	553.1	28.88
	10:00	39.3	91.4	0.043	0.064	26.02	0.022	562.4	29.91
	12:00	43.1	92.3	0.054	0.079	27.40	0.022	569.3	30.62
	14:00	44.1	91.8	0.056	0.083	26.02	0.022	571.1	28.86
	16:00	44.5	90.0	0.056	0.083	26.35	0.022	571.8	29.19
	18:00	44.9	91.7	0.059	0.086	27.02	0.022	572.5	29.78
	20:00	45.1	91.3	0.059	0.087	27.82	0.022	572.9	30.63
	22:00	45.3	91.5	0.060	0.088	29.60	0.022	573.2	32.53
2/12/2015	0:00	45.7	89.6	0.060	0.088	27.27	0.022	573.9	29.93
	8:00	32.4	86.3	0.027	0.041	24.22	0.022	550.0	29.15
	10:00	36.5	86.9	0.034	0.052	23.43	0.022	557.4	27.52
	12:00	37.1	88.8	0.036	0.055	24.63	0.022	558.5	28.78
	14:00	38.3	89.1	0.039	0.059	23.18	0.022	560.6	26.87
	16:00	38.6	89.3	0.040	0.060	23.57	0.022	561.2	27.26
	18:00	38.9	89.5	0.041	0.061	24.68	0.022	561.7	28.49
	20:00	40.4	88.1	0.044	0.065	25.88	0.022	564.4	29.60
	22:00	41.6	89.9	0.048	0.071	26.48	0.022	566.6	29.99
2/13/2015	0:00	42.5	91.6	0.051	0.076	28.62	0.022	568.2	32.14
	8:00	34.7	91.7	0.033	0.050	22.68	0.022	554.1	26.86
	10:00	35.8	90.8	0.035	0.052	25.12	0.022	556.1	29.55

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
2/9/2015	10:00	0	17.25	50000	50000	24948	- - -	- - -	0.00
	10:30	30	27.11	50000	50000	24948	0.00156	2.53	1.27
	11:00	30	27.95	50000	50000	24948	0.00156	2.61	1.31
	11:30	30	27.21	50000	50000	24948	0.00156	2.54	1.27
	12:00	30	26.43	50000	50000	24948	0.00156	2.47	1.24
	12:30	30	26.89	50000	50000	24948	0.00156	2.51	1.26
	13:00	30	28.05	50000	50000	24948	0.00156	2.62	1.31
	13:30	30	28.67	50000	50000	24948	0.00156	2.68	1.34
	14:00	30	28.10	50000	50000	24948	0.00156	2.63	1.31
	14:30	30	27.93	50000	50000	24948	0.00156	2.61	1.31
	15:00	30	28.09	50000	50000	24948	0.00156	2.63	1.31
	15:30	30	28.87	50000	50000	24948	0.00156	2.70	1.35
	16:00	30	27.97	50000	50000	24948	0.00156	2.61	1.31
	16:30	30	27.73	50000	50000	24948	0.00156	2.59	1.30
	17:00	30	27.08	50000	50000	24948	0.00156	2.53	1.27
	17:30	30	26.04	50000	50000	24948	0.00156	2.43	1.22
	18:00	30	28.68	50000	50000	24948	0.00156	2.68	1.34
	19:00	60	30.29	50000	50000	24948	0.00156	2.83	2.83
	20:00	60	29.34	50000	50000	24948	0.00156	2.74	2.74
	21:00	60	27.77	50000	50000	24948	0.00156	2.59	2.59
	22:00	60	31.41	50000	50000	24948	0.00156	2.94	2.94
	23:00	60	28.21	50000	50000	24948	0.00156	2.64	2.64
2/10/2015	0:00	60	27.01	50000	50000	24948	0.00156	2.52	2.52
	8:00	480	24.76	50000	50000	24948	0.00156	2.31	18.51
	9:00	60	26.83	50000	50000	24948	0.00156	2.51	2.51
	10:00	60	25.84	50000	50000	24948	0.00156	2.42	2.42
	12:00	120	25.13	50000	50000	24948	0.00156	2.35	4.70
	14:00	120	26.33	50000	50000	24948	0.00156	2.46	4.92
	16:00	120	26.19	50000	50000	24948	0.00156	2.45	4.90
	18:00	120	28.39	50000	50000	24948	0.00156	2.65	5.31
	20:00	120	27.84	50000	50000	24948	0.00156	2.60	5.20
	22:00	120	27.33	50000	50000	24948	0.00156	2.55	5.11

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
2/11/2015	0:00	120	26.94	50000	50000	24948	0.00156	2.52	5.04
	8:00	480	28.88	50000	50000	24948	0.00156	2.70	21.59
	10:00	120	29.91	50000	50000	24948	0.00156	2.79	5.59
	12:00	120	30.62	50000	50000	24948	0.00156	2.86	5.72
	14:00	120	28.86	50000	50000	24948	0.00156	2.70	5.39
	16:00	120	29.19	50000	50000	24948	0.00156	2.73	5.46
	18:00	120	29.78	50000	50000	24948	0.00156	2.78	5.57
	20:00	120	30.63	50000	50000	24948	0.00156	2.86	5.72
	22:00	120	32.53	50000	50000	24948	0.00156	3.04	6.08
2/12/2015	0:00	120	29.15	50000	50000	24948	0.00156	2.72	5.45
	8:00	480	27.52	50000	50000	24948	0.00156	2.57	20.57
	10:00	120	28.78	50000	50000	24948	0.00156	2.69	5.38
	12:00	120	26.87	50000	50000	24948	0.00156	2.51	5.02
	14:00	120	27.26	50000	50000	24948	0.00156	2.55	5.09
	16:00	120	28.49	50000	50000	24948	0.00156	2.66	5.32
	18:00	120	29.60	50000	50000	24948	0.00156	2.77	5.53
	20:00	120	29.99	50000	50000	24948	0.00156	2.80	5.60
	22:00	120	32.14	50000	50000	24948	0.00156	3.00	6.01
2/13/2015	0:00	120	29.55	50000	50000	24948	0.00156	2.76	5.52
	8:00	480	29.55	50000	50000	24948	0.00156	2.76	22.10
	10:00	120	0.00	50000	50000	24948	0.00156	0.00	0.00

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-3, RW-4, & RW-5 **248.28**

APPENDIX C

Disposal Manifest(s)

Operators Unlimited Inc.

YOUR TOTAL ENVIRONMENTAL SERVICES COMPANY

400 Catherine Street
Laurens, SC 29360
Phone: (864) 681-0214
FAX: (864) 681-0210

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: 8594
2. Page 1 of
3. Emergency Response Phone
4. Waste Tracking Number: 020915

GENERATOR

5. Generator's Name and Mailing Address
ARM Environmental
1210 1st street S Ext
Columbia, SC 29209
Generator's Phone:

Generator's Site Address (if different than mailing address)
Bountyland Quick Stop
5034 SC-11
Westminster, SC

6. Transporter 1 Company Name: Operators Unlimited — U.S. EPA ID Number:

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
WS Recovery Services
305 S main st Mauldin, SC
Facility's Phone: — U.S. EPA ID Number:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-Haz Petroleum Contaiminated Water	1	TT	5,000		
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop — Signature: Billy Pittenger — Month: 2 — Day: 10 — Year: 15

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit:
Transporter Signature (for exports only): — Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Clyde Snell — Signature: Clyde Snell — Month: 2 — Day: 10 — Year: 15

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Steven Cutlan — Signature: Steven Cutlan — Month: 2 — Day: 10 — Year: 15

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. CAD990724916	Manifest Document No. 1244	2. Page 1 of
3. Generator's Name and Mailing Address Bountyland Quick Stop #6, 5034 SC Hwy 11 South, Westminister, S.C 4. Generator's Phone ( )		25-403.6-14	
5. Transporter 1 Company Name ARM ENVIRONMENTAL SERVICES, INC.	6. US EPA ID Number	A. State Transporter's ID B. Transporter 1 Phone 803-783-3314	
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID D. Transporter 2 Phone	
9. Designated Facility Name and Site Address VLS Recovery, 305 South Main Street, Maulain, S.C	10. US EPA ID Number	E. State Facility's ID F. Facility's Phone	

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	5,000	Gal.
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations

Printed/Typed Name	Signature	Date Month	Day	Year
Billy Pittenger Agent for Bountyland Quick Stop #6	Billy Pittenger	2	11	15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Clyde Snell	Clyde Snell	2	11	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Steven McCann		2	11	15

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1245

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6
5034 SC 11 South
Westminster, S.C

25-403.6-14

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery
305 South Main Street
Moncks Corner, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	5,000	Gal.
c.				
d.				

G. Additional Descriptions for Materials Listed Above: profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop #6

Signature: Billy Pittenger

Date: Month 2 Day 13 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Clyde Swell

Signature: Clyde Swell

Date: Month 2 Day 13 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Wilson

Signature

Date: Month 2 Day 13 Year 15

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1246

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC Hwy 11 South, Westminster, S.C

25-403.6-14

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number:

A. State Transporter's ID:

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name:

8. US EPA ID Number:

C. State Transporter's ID:

D. Transporter 2 Phone:

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main Street, Moultrie, S.C

10. US EPA ID Number:

E. State Facility's ID:

F. Facility's Phone:

11. WASTE DESCRIPTION	12. Containers No	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	2060	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pitterger Agent for Bountyland Quick Stop #6 | Signature: Billy Pitterger | Date: Month 2 Day 13 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pitterger | Signature: Billy Pitterger | Date: Month 2 Day 13 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: | Signature: | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Wilson | Signature: | Date: Month 2 Day 13 Year 15

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1247

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6
5034 SC 11 South
Westminster, S.C

25-403.6-14

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number:

A. State Transporter's ID:

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name:

8. US EPA ID Number:

C. State Transporter's ID:

D. Transporter 2 Phone:

9. Designated Facility Name and Site Address: VLS Recovery
305 South Main Street
Mauldin, S.C

10. US EPA ID Number:

E. State Facility's ID:

F. Facility's Phone:

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	1203	GAL
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pitteroger Agent for Bountyland Quick Stop #6

Signature: Billy Pitteroger

Date: Month 2 Day 13 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Bonfiglio

Signature:

Date: Month 2 Day 13 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:

Signature:

Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven McCan

Signature:

Date: Month 2 Day 13 Year 15

NON-HAZARDOUS WASTE

F-14 © 2002 LABELMASTER® (800) 621-5808 www.labelmaster.com

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Rev. 3/95

D H E C
PROMOTE PROTECT PROSPER
W. Marshall Taylor Jr., Acting Director
Promoting and protecting the health of the public and the environment

UST 31 DOCKETING

MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672

MAR 18 2015

Re: Aggressive fluid and vapor recovery (AFVR) directive
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711; CA #49985
Release reported December 1, 2011
Oconee County

Dear Mr. Waller:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) recognizes your commitment to continue work at this site using ARM Environmental Services, Inc. The next appropriate remedial activity is to continue AFVR to remove free-phase product. Please have your contractor conduct one 96-hour event on recovery wells RW-1, RW-2, and RW-6, and one 96-hour event on RW-3, RW-4, and RW-5 to remove free-phase product. The events must be conducted in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 2.0. **Your contractor should be aware that AFVR procedures have been updated in Revision 2.0.** A copy of QAPP Revision 2.0 is available at http://www.scdhec.gov/environment/docs/QAPP_Rev-2_April2013.pdf.

Please notify the UST Management Division prior to commencing AFVR at the site. The stinger must be advanced to a target depth of 32 feet within the first 8 hours of the event. Thereafter, the stinger should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone (approximately 25 to 30 foot interval). Off–gas treatment will be necessary.

Cost Agreement (CA) #49985 has been approved in the amount shown on the enclosed cost agreement form for the AFVR events. Please note that all applicable South Carolina certification requirements apply to report preparation. Further, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Your contractor may directly bill the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Agency is obtained. If for any reason additional tasks will be

completed, these additional tasks and the associated cost must be pre-approved by the Agency for the cost to be paid. The Agency reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, the Agency reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Management Division grants pre-approval for transportation of petroleum-contaminated, investigative-derived waste (IDW) from the referenced site to a permitted treatment/disposal facility. The transport and disposal must be conducted in accordance with QAPP Revision 2.0.

On all correspondence concerning this facility, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.afvr3

enc: Approved cost agreement form

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 49985

Facility: 06711 BOUNTYLAND QUICK STOP 6

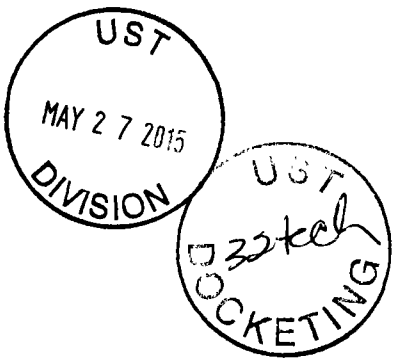
PADGETJP

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0.1200	40,881.25	4,905.75
23 EFR						
		A4	96 HOUR EVENT	2.0000	12,567.50	25,135.00
		C4	OFF GAS TREATMENT 96 HOUR	2.0000	780.00	1,560.00
		D	SITE RECONNAISSANCE	1.0000	203.25	203.25
		F1	EFFLUENT DISPOSAL	30,000.0000	0.44	13,200.00
		G	AFVR EQUIPMENT MOB	2.0000	391.50	783.00
				Total Amount		45,787.00

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*



May 21, 2015

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Re: (2) 96-Hour Aggressive Fluid Vapor Recovery Events
Bountyland Quick Stop #6
5034 SC-11 South
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #49985
ARM Project #25-403.7-15

Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed two (2) 96-hour Aggressive Fluid Vapor Recovery (AFVR) events at the above-referenced site located in Westminster, South Carolina. The pertinent information regarding the AFVRs and gauging events are presented on the following pages and in the appendices of this document.

The first 96-hour AFVR event was conducted on monitoring wells RW-1, RW-2, and RW-6. The second 96-hour AFVR event was conducted on monitoring wells RW-3, RW-4, and RW-5. Based on gauging of the fluid levels upon completion of the AFVR events, it appears that no free product was present above the groundwater in the referenced monitoring wells.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc.

Michele McLeod
Staff Scientist

Michael L. Faris, P.G.
Senior Geologist

cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard Suite 202, Seneca, SC 29671

AFVR 1 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on March 20, 2015. Ambient air temperature was 48° - 78° F and the general weather conditions were partly cloudy; however, heavy rain occurred on April 20, 2015. The depths to product and water were measured and recorded for monitoring wells RW-1, RW-2, and RW-6 prior to and subsequent to the event. Approximately 0.65 foot and 0.23 foot of free product were measured in recovery wells RW-1 and RW-2 prior to stinger placement into the wells, respectively. No free product was measured in recovery well RW-6 prior to stinger placement into the well. A Topographic Site Location Map is included as Figure 1 and a Site Base Map, depicting the location of each monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 12:00 on April 20, 2015 and ended at 12:00 on April 24, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 7,170 gallons of petroleum contact water were removed from the referenced wells during the event.

AFVR 2 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on April 20, 2015. Ambient air temperature was 48° - 78° F and the general weather conditions were partly cloudy; however, heavy rain occurred on April 20, 2015. The depths to product and water were measured and recorded for monitoring wells RW-3, RW-4, and RW-5 prior to and subsequent to the event. Approximately 1.42 and 0.20 feet of free product were measured in monitoring wells RW-3 and RW-5 prior to stinger placement into the wells, respectively. No free product was measured in recovery well RW-4 prior to stinger placement into the well.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 12:00 on April 20, 2015 and ended at 12:00 on April 24, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 9,177 gallons of petroleum contact water and a trace of free product were removed from the referenced wells during the event.

Pollutant Mass Removal

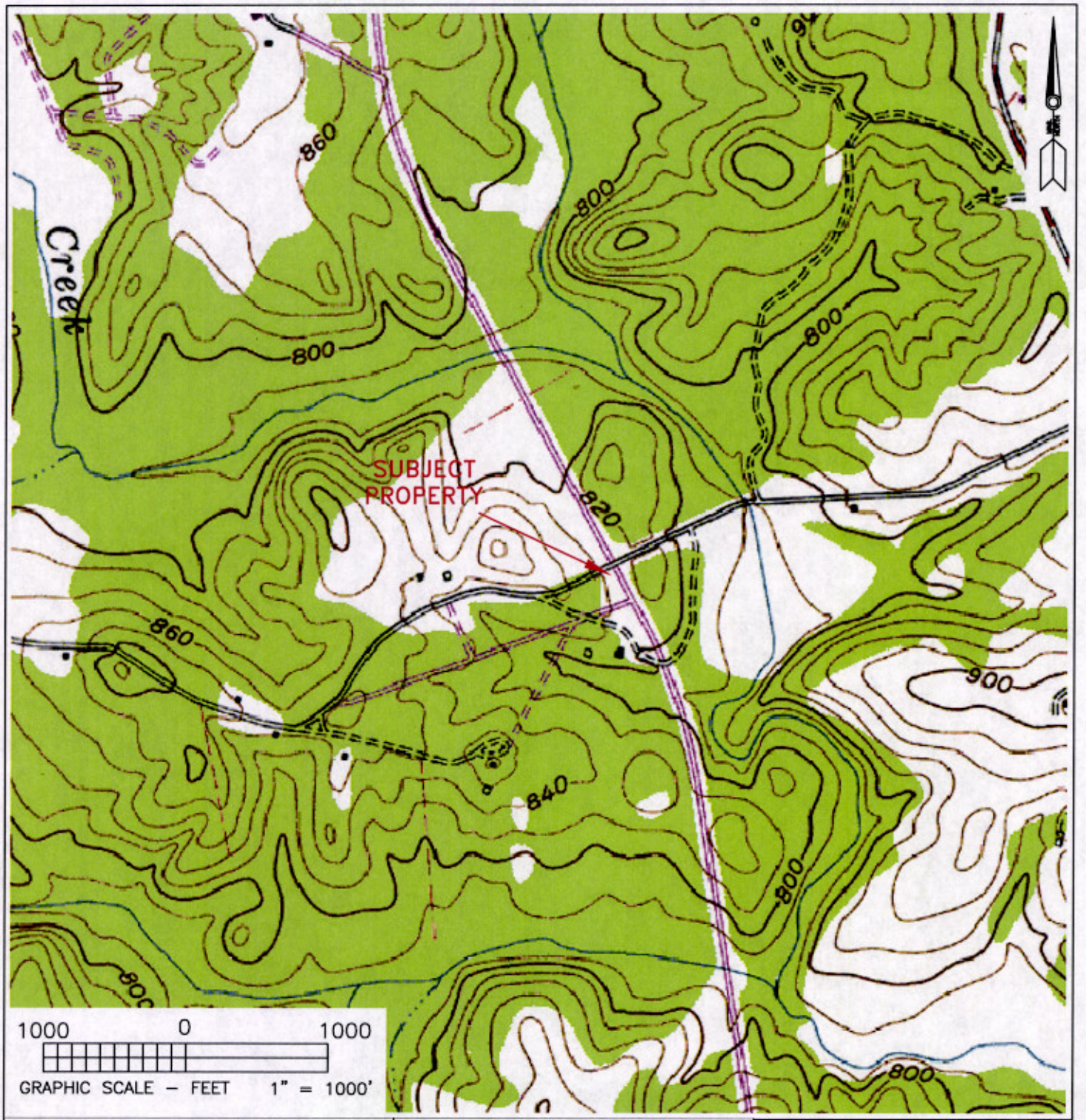
Weights of 306.81 and 236.71 pounds of petroleum as vapor (total gaseous non-methane organic emissions) were removed during the 96-hour events based on the data collected during the AFVRs. A TVA-1000B Flame Ionization Detector (FID) was utilized to measure the volatile vapors expelled from the vacuum truck. During both events, several measurements recorded were greater than the 50,000 parts per million (ppm) range of the FID; therefore, the value of 50,000 ppm was utilized, though the actual values may have been higher. The equations, variables, and calculations used to determine the pollutant mass removals are included in Appendix B.

Disposal

Disposal manifests for the 16,347 gallons of petroleum contact water and a trace of free product generated during the events are included in Appendix C.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Base Map



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #49985

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

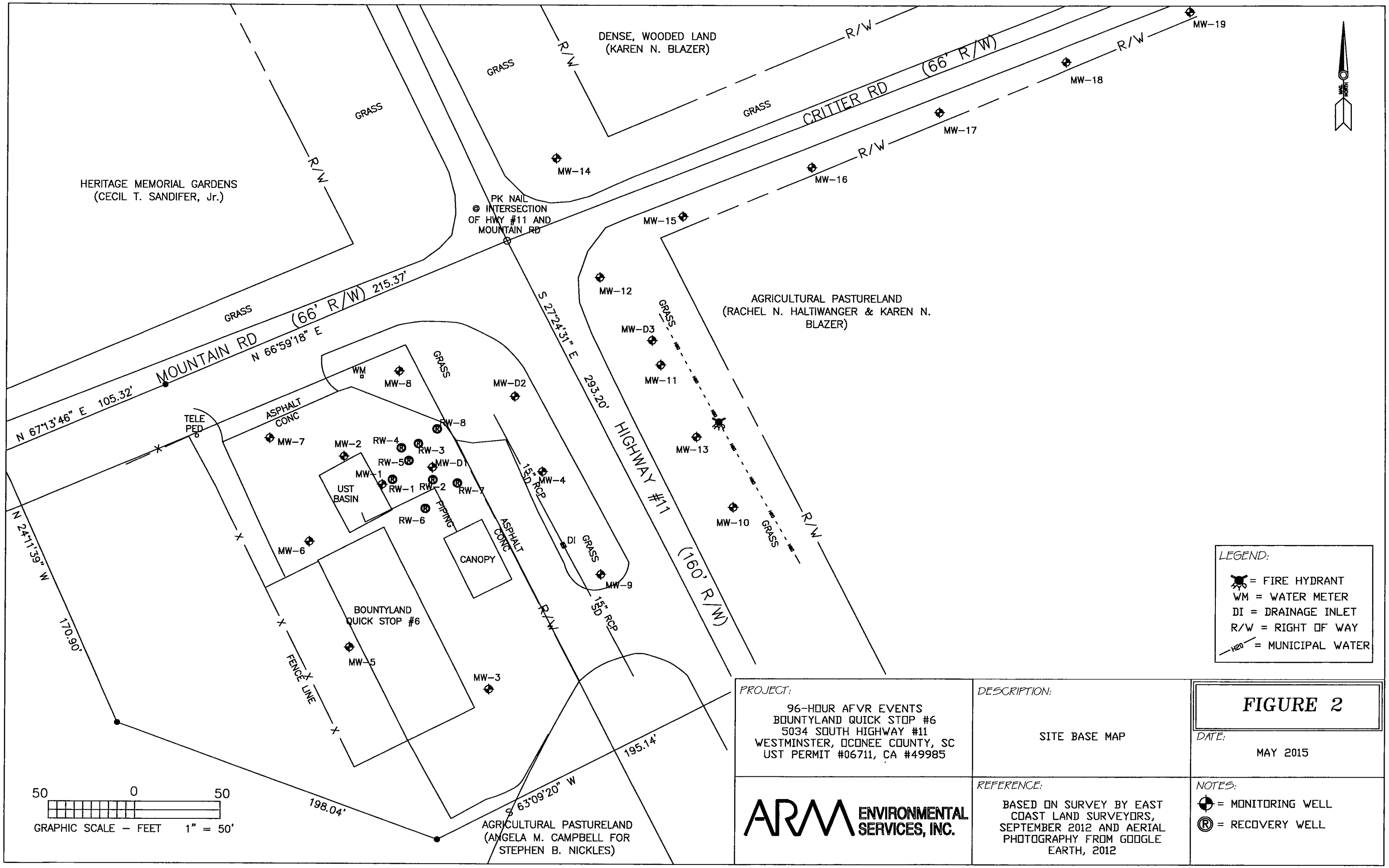
MAY 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER - 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



PROJECT:
96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #49985

DESCRIPTION:
SITE BASE MAP

FIGURE 2

DATE:
MAY 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:
BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:
= MONITORING WELL
(R) = RECOVERY WELL

APPENDICES

A. Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets
B. AFVR Mass Removal Calculations
C. Disposal Manifest(s)

APPENDIX A

Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets

ARM ENVIRONMENTAL SERVICES, INC.

AFVR 1

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South, Westminster SC

AFVR Contractor: ARM Environmental Svcs Personnel: Mike Bonfilio, Andrew Woodburn, Anthony Benson

Date: 4/20/15 - 4/24/15 Ambient Air Temperature and General Weather Condition: 48°F - 78°F, heavy rain Monday, partly cloudy Tues - Friday

Start Time 1: 12:00pm 4/20/15 Stop Time 1: 12:00pm 4/24/15 ; Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 7170

Total volume of product removed during the 96-hour AFVR Event: N/M

Product / Water Recovery Rate: 1.25 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-1	28.30	28.95	N/M	33.53	2154.30	
RW-2	28.87	29.10	N/M	34.03	1795.25	
RW-6	N/M	28.84	N/M	33.53	3220.45	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 4/20/15

Time	~~MW-~~ RW-1 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-2 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-6 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
12:00	22	16	19				
12:30	22	16	19				
13:00	22	16	19				
13:30	22	16	20				
14:00	22	16	20				
14:30	22	16	20				
15:00	22	16	20				
15:30	21	16	19				
16:00	22	16	19				
16:30	22	18	21				
17:00	21	16	21				
17:30	22	16	20				
18:00	22	16	21				
18:30	22	18	21				
19:00	22	18	21				
19:30	22	16	21				
20:00	22	16	21				
21:00	21	16	21				
22:00	21	16	21				
23:00	21	16	21				
24:00	21	16	21				

Vacuum at Pump: 24

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

	Time	~~MW-~~ RW-1 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-2 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-6 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
Tuesday 4/21/15	08:00	22	16	21				
	09:00	22	16	21				
	10:00	22	16	21				
	11:00	22	16	21				
	12:00	22	16	21				
	14:00	22	16	21				
	16:00	22	16	21				
	18:00	22	16	21				
	20:00	22	16	21				
	22:00	22	16	21				
	24:00	22	16	21				
Wednesday 4/22/15	08:00	22	16	21				
	10:00	22	16	22				
	12:00	22	18	22				
	14:00	22	18	21				
	16:00	22	18	22				
	18:00	22	18	22				
	20:00	22	18	22				
	22:00	20	18	22				
	24:00	22	18	22				

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

	~~MW-~~ RW-1	~~MW-~~ RW-2	~~MW-~~ RW-6	MW-	MW-	MW-	MW-
Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 4/23/15							
08:00	17	15	20				
10:00	17	15	20				
12:00	17	15	20				
14:00	17	15	20				
16:00	19	18	21				
18:00	19	18	20				
20:00	19	19	21				
22:00	18	19	21				
24:00	19	17	21				
Friday 4/24/15							
08:00	21	18	19				
10:00	21	18	19				
12:00	21	18	19				

Vacuum at Pump: 27

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-2		Stinger Placement: ~~MW-~~ RW-3		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
12:00	29.0		29.0		29.0			
12:30	29.5		29.5		29.5			
13:00	30.0		30.0		30.0			
13:30	30.5		30.5		30.5			
14:00	31.0		31.0		31.0			
14:30	31.5		31.5		31.5			
15:00	32.0		32.0		32.0			
15:30	32.0		32.0		32.0			
16:00	32.0		32.0		32.0			
16:30	32.0		32.0		32.0			
17:00	32.0		32.0		32.0			
17:30	32.0		32.0		32.0			
18:00	32.0		32.0		32.0			
18:30	32.0		32.0		32.0			
19:00	32.0		32.0		32.0			
19:30	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
21:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
23:00	32.0		32.0		32.0			
24:00	32.0		32.0		32.0			

Monday 4/20/15

Vacuum at Pump: 24

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-2		Stinger Placement: ~~MW-~~ RW-6		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 4/21/15	08:00	32.0		32.0		32.0			
	09:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	11:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Wednesday 4/22/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			

Vacuum at Pump: 26-27

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-2		Stinger Placement: ~~MW-~~ RW-6		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 4/23/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Friday 4/24/15	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			

Vacuum at Pump: 27

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

Monday 4/20/15

	MW- 4		MW-		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
12:00	32.48	0						
12:30		0						
13:00		.0183						
13:30		.0183						
14:00		.0220						
14:30		.0220						
15:00		.0220						
15:30		.0220						
16:00		.0220						
16:30		.0220						
17:00		.0183						
17:30		.0220						
18:00		.0220						
18:30		.0220						
19:00		.0220						
19:30		.0220						
20:00		.0220						
21:00		.0220						
22:00		.0220						
23:00		.0220						
24:00		.0220						

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 4		MW-		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 4/21/15	08:00		.0661						
	09:00		.0661						
	10:00		.02941						
	11:00		.0367						
	12:00		.0220						
	14:00		.0220						
	16:00		.0147						
	18:00		.02941						
	20:00		.0220						
	22:00		.0220						
	24:00		.02941						
Wednesday 4/22/15	08:00		.0404						
	10:00		.0220						
	12:00		.0220						
	14:00		.0147						
	16:00		.0147						
	18:00		.0147						
	20:00		.0147						
	22:00		.0147						
	24:00		.0147						

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW-		MW-		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 4/23/15	08:00		.0558						
	10:00		.0558						
	12:00		.0294						
	14:00		.0220						
	16:00		.0220						
	18:00		.0220						
	20:00		.0147						
	22:00		.0220						
	24:00		.0294						
Friday 4/24/15	08:00		.0294						
	10:00		.0220						
	12:00	32.63	.0220						

96-hr. Aggressive Fluid/Vapor Recovery Notes

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
12:00	91700	8841	2085	42.9	90.2	
12:30	100300	9137	1977	43.4	91.1	
13:00	93600	9015	1924	42.7	88.6	
13:30	78100	9127	1902	42.9	89.6	
14:00	51600	4932	1961	41.6	89.3	
14:30	56700	4999	1894	40.7	88.5	
15:00	48300	5120	1913	39.9	87.3	
15:30	67100	8314	1669	42.2	88.4	
16:00	62300	6970	1826	44.7	88.6	
16:30	49,900	5527	1906	44.9	88.4	
17:00	53,300	9102	1886	45.6	88.6	
17:30	53,900	5975	1924	45.8	88.6	
18:00	59,100	8314	1936	46.9	89.1	
18:30	55,500	9690	1897	48.1	88.9	
19:00	64,800	9148	1914	44.2	89.9	
19:30	72,200	10200	1844	44.0	91.2	
20:00	71,500	13,300	1892	43.2	88.6	
21:00	flameout	31400	1921	43.0	87.9	
22:00	flameout	31700	1942	42.8	87.3	
23:00	flameout	10,100	1521	42.1	87.5	
24:00	flameout	8562	1168	40.5	86.7	
08:00	165800	13100	1378	39.7	85.6	
09:00	176100	28700	1480	42.8	86.7	
10:00	69700	16100	2145	37.7	85.9	
11:00	54400	14200	2147	38.3	86.9	
12:00	63300	15600	2106	40.7	90.9	
14:00	72100	8100	2088	41.5	91.3	
16:00	71200	8600	2015	38.3	89.9	

Monday 4/20/15

Tuesday 4/21/15

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 4/21/15	18:00	41000	3130	1763	39.6	90.4	
	20:00	94600	4112 1	1586	35.4	87.7	
	22:00	96300	4010	1683	35.2	86.1	
	24:00	95700	4130	1721	34.7	85.3	
Wednesday 4/22/15	08:00	69100	15700	2129	32.5	84.1	
	10:00	82300	21400	2195	38.0	86.1	
	12:00	90600	6091	2077	38.9	88.6	
	14:00	72800	3499	2087	42.9	90.6	
	16:00	88200	6220	1725	41.4	88.5	
	18:00	84600	7120	1845	40.3	89.0	
	20:00	82300	6437	1832	39.3	87.7	
	22:00	76400	5314	1490	36.2	62.3	
	24:00	71800	5531	1811	35.7	73.1	
Thursday 4/23/15	08:00	43700	6530	2176	39.5	86.3	
	10:00	47600	8901	2182	39.8	86.3	
	12:00	63700	2120	2163	42.0	89.8	
	14:00	81300	2830	1845	42.8	93.6	
	16:00	78800	4691	1674	40.0	88.9	
	18:00	76200	6220	1479	39.2	90.2	
	20:00	77100	6357	1272	36.1	87.8	
	22:00	77400	8480	1334	35.5	88.6	
	24:00	72300	10700	1371	35.1	88.4	
Friday 4/24/15	08:00	63100	4111	1977	36.9	85.8	
	10:00	61700	4876	1965	37.2	85.8	
	12:00	55900	4329	2021	37.7	86.7	

25-403.7-15

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes AFVR 2

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South Westminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy, Andrew, Anthony

Date: April 20-24, 2015 Ambient Air Temperature and General Weather Condition: rain showers Monday, clearing, 45°-75

Start Time 1: 12:00 (4-20) Stop Time 1: 12:00 (4-24) ; Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 9,177 gallons

Total volume of product removed during the 96-hour AFVR Event: trace/sheen

Product / Water Recovery Rate: 1.59 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-3	28.32	29.74	NM	33.91	4,130 gallons	
RW-4	NM	28.28	NM	33.18	1847 gallons	
RW-5	28.27	28.47	NM	34.24	3,200 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 4-20

Time	MW-RW-3 Vacuum at Targeted Well (in. Hg)	MW-RW-4 Vacuum at Targeted Well (in. Hg)	MW-RW-5 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
12:00	20	19	20				
12:30	20	19	20				
13:00	20	19	20				
13:30	20	19	20				
14:00	20	19	20				
14:30	20	19	20				
15:00	20	19	20				
15:30	20	19	20				
16:00	20	19	20				
16:30	20	19	20				
17:00	20	19	20				
17:30	20	19	20				
18:00	20	19	20				
18:30	20	19	20				
19:00	20	19	20				
19:30	20	19	20				
20:00	20	19	20				
21:00	20	19	20				
22:00	20	19	20				
23:00	20	19	20				
24:00	20	19	20				

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW-RW-3	MW-RW-4	MW-RW-5	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Tuesday 4-21	08:00	21	19	20				
	09:00	21	19	20				
	10:00	21	19	20				
	11:00	21	19	20				
	12:00	21	19	20				
	14:00	21	19	20				
	16:00	22	19	20				
	18:00	22	19	20				
	20:00	22	19	20				
	22:00	22	19	20				
	24:00	22	19	20				
Wednesday 4-22	08:00	22	19	21				
	10:00	22	19	21				
	12:00	22	19	21				
	14:00	22	19	21				
	16:00	22	19	21				
	18:00	22	19	21				
	20:00	22	19	21				
	22:00	22	19	21				
	24:00	22	19	21				

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

		MW-RW-3	MW-RW-4	MW-RW-5	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 4-23	08:00	22	20	21				
	10:00	22	20	21				
	12:00	22	20	21				
	14:00	22	20	21				
	16:00	22	20	21				
	18:00	22	20	21				
	20:00	22	20	21				
	22:00	22	20	21				
	24:00	22	20	21				
Friday 4-24	08:00	22	20	21				
	10:00	22	20	21				
	12:00	22	20	21				

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

Monday 4-20

	Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-4		Stinger Placement: MW- RW-5		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
12:00	29.75		28.25		28.5			
12:30	30.25		28.75		29.0			
13:00	30.75		29.25		29.5			
13:30	31.25		29.75		30.0			
14:00	31.0		31.25		30.5			
14:30	32.0		32.0		31.0			
15:00	32.0		32.0		31.5			
15:30	32.0		32.0		32.0			
16:00	32.0		32.0		32.0			
16:30	32.0		32.0		32.0			
17:00	32.0		32.0		32.0			
17:30	32.0		32.0		32.0			
18:00	32.0		32.0		32.0			
18:30	32.0		32.0		32.0			
19:00	32.0		32.0		32.0			
19:30	32.0		32.0		32.0			
20:00	32.0		32.0		32.0			
21:00	32.0		32.0		32.0			
22:00	32.0		32.0		32.0			
23:00	32.0		32.0		32.0			
24:00	32.0		32.0		32.0			

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-3		*Stinger Placement: MW-* RW-4		*Stinger Placement: MW-* RW-5		*Stinger Placement: MW-*	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 4-21	08:00	32.0		32.0		32.0			
	09:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	11:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
Wednesday 4-22	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: MW- RW-3		*Stinger Placement: MW-* RW-4		*Stinger Placement: MW-* RW-5		*Stinger Placement: MW-*	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 4-23	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			
	14:00	32.0		32.0		32.0			
	16:00	32.0		32.0		32.0			
	18:00	32.0		32.0		32.0			
	20:00	32.0		32.0		32.0			
	22:00	32.0		32.0		32.0			
	24:00	32.0		32.0		32.0			
		"							
Friday 4-24	08:00	32.0		32.0		32.0			
	10:00	32.0		32.0		32.0			
	12:00	32.0		32.0		32.0			

Vacuum at Pump: 25-26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

Monday 4-20

Time	MW-RW-8		MW-8		MW-		MW-	
	Water Level DTP DTW	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
12:00	28.44 29.19		28.45					
12:30		.0147		0				
13:00		.0441		.0007				
13:30		.7355		.0014				
14:00		.7355		.0029				
14:30		.7355		.0044				
15:00		.7355		.0051				
15:30		.7355		.0058				
16:00		.7355		.0051				
16:30		.7355		.0051				
17:00		.7355		.0058				
17:30		.7355		.0058				
18:00		.7355		.0058				
18:30		.7355		.0058				
19:00		.7355		.0058				
19:30		.7355		.0058				
20:00		.7355		.0058				
21:00		.7355		.0058				
22:00		.7355		.0058				
23:00		.7355		.0058				
24:00		.7355		.0058				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW-RW-8		MW-8		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
4-21 Tuesday	08:00		.7355		.0014				
	09:00		.7356		.0014				
	10:00		.7355		.0014				
	11:00		.7355		.0014				
	12:00		.7355		.0014				
	14:00		.7355		.0014				
	16:00		.7355		.0014				
	18:00		.7355		.0014				
	20:00		.7355		.0014				
	22:00		.7355		.0014				
	24:00		.7355		.0014				
4-22 Wednesday	08:00		.7355		.0014				
	10:00		.7355		.0014				
	12:00		.7355		.0014				
	14:00		.7355		.0014				
	16:00		.7355		.0014				
	18:00		.7355		.0014				
	20:00		.7355		.0014				
	22:00		.7355		.0014				
	24:00		.7355		.0014				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- RW-8		MW- MW-8		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 4-23	08:00		.7355		.0014				
	10:00		.7355		.0014				
	12:00		.7355		.0014				
	14:00		.7355		.0014				
	16:00		.7355		.0014				
	18:00		.7355		.0014				
	20:00		.7355		.0014				
	22:00		.7355		.0014				
	24:00		.7355		.0014				
					~~.0014~~				
Friday 4-24	08:00		.7355		.0014				
	10:00	DTP TDW	.7355	28.45	.0014				
	12:00	34.4 36.38	.7355	~~35.4~~	.0014				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Monday 4-20 12:00	61,600	14.3	401	36.7	91.3	
12:30	45,900	476	1599	47.2	94.4	
13:00	33,200	1241	1642	46.7	94.6	
13:30	38,100	2964	1615	45.5	100	
14:00	22,600	4538	1649	44.8	95.5	
14:30	25,300	4916	1763	44.9	93.9	
15:00	21,900	5220	1614	45.2	90.8	
15:30	31,600	5456	1821	45.0	90.9	
16:00	38,700	5651	1861	46.4	92.2	
16:30	44,400	5856	1446	46.3	90.7	
17:00	56,200	5993	1432	46.1	90.4	
17:30	57,300	6014	1489	46.3	963	
18:00	56,600	6284	1502	46.5	90.7	
18:30	58,200	6376	1473	46.9	93.4	
19:00	59,100	6516	1442	47.2	92.5	
19:30	57,300	6783	1486	46.6	93.1	
20:00	56,900	6809	1453	46.1	91.4	
21:00	54,800	6936	1427	46.3	92.1	
22:00	54,500	7143	1409	44.4	91.8	
23:00	52,600	7374	1509	42.9	90.9	
24:00	55,100	7643	1555	42.7	89.7	
Tuesday 4-21 08:00	46,300	48	1422	37.3	87.6	
09:00	42,400	673	1388	41.0	93.0	
10:00	43,100	1445	1562	44.8	96.1	
11:00	45,400	2063	1514	45.6	96.7	
12:00	40,400	2349	1467	46.1	95.4	
14:00	43,600	2563	1503	47.6	92.5	
16:00	46,200	2941	1558	46.6	92.3	

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 4-21	18:00	41,700	~~1546~~ 3014	1616	46.3	91.8	
	20:00	40,200	~~1535~~ 3241	1535	42.8	90.5	
	22:00	46,100	~~1574~~ 3750	1474	40.9	88.8	
	24:00	45,400	~~1503~~ 4113	1403	40.5	87.9	
Wednesday 4-22	08:00	49,600	81	1585	35.1	86.3	
	10:00	46,200	324	1559	42.0	93.1	
	12:00	45,200	508	1357	45.1	90.7	
	14:00	51,400	813	1444	45.5	89.4	
	16:00	57,000	1241	1408	47.4	93.1	
	18:00	53,600	1758	1413	46.5	92.8	
	20:00	58,000	2463	1397	44.5	92.3	
	22:00	51,300	2941	1338	43.8	93.4	
	24:00	54,500	3468	1384	41.3	93.6	
Thursday 4-23	08:00	51,600	93	1478	39.6	89.9	
	10:00	60,400	463	1544	43.5	93.0	
	12:00	63,500	824	1549	47.3	92.7	
	14:00	59,600	1225	1438	46.4	92.3	
	16:00	57,300	2104	1513	48.2	93.4	
	18:00	59,900	2730	1609	46.8	92.8	
	20:00	61,400	3130	1484	44.2	91.5	
	22:00	63,500	3645	1401	43.1	90.4	
	24:00	64,100	3944	1537	42.8	89.3	
Friday 4-24	08:00	62,400	8114	1611	38.7	91.8	
	10:00	60,700	8441	1673	39.4	90.4	
	12:00	57,500	8973	1535	39.9	91.4	

APPENDIX B

AFVR Mass Removal Calculations

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c:m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c:m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
4/20/2015	12:00	42.9	90.2	0.052	0.076	34.75	0.022	568.9	38.96
	12:30	43.4	91.1	0.054	0.079	32.95	0.022	569.8	36.77
	13:00	42.7	88.6	0.050	0.074	32.07	0.022	568.5	36.06
	13:30	42.9	89.6	0.051	0.076	31.70	0.022	568.9	35.56
	14:00	41.6	89.3	0.047	0.071	32.68	0.022	566.6	37.03
	14:30	40.7	88.5	0.045	0.067	31.57	0.022	564.9	36.01
	15:00	39.9	87.3	0.042	0.063	31.88	0.022	563.5	36.61
	15:30	42.2	88.4	0.049	0.072	27.82	0.022	567.6	31.40
	16:00	44.7	88.6	0.056	0.082	30.43	0.022	572.1	33.71
	16:30	44.9	88.4	0.057	0.083	31.77	0.022	572.5	35.14
	17:00	45.6	88.6	0.059	0.086	31.43	0.022	573.8	34.57
	17:30	45.8	88.6	0.060	0.087	32.07	0.022	574.1	35.21
	18:00	46.9	89.1	0.064	0.093	32.27	0.022	576.1	35.09
	18:30	48.1	88.9	0.068	0.099	31.62	0.022	578.3	34.04
	19:00	44.2	89.9	0.055	0.082	31.90	0.022	571.2	35.42
	19:30	44.0	91.2	0.056	0.082	30.73	0.022	570.9	34.14
	20:00	43.2	88.6	0.052	0.076	31.53	0.022	569.4	35.33
	21:00	43.0	87.9	0.051	0.075	32.02	0.022	569.1	35.95
	22:00	42.8	87.3	0.050	0.074	32.37	0.022	568.7	36.41
	23:00	42.1	87.5	0.048	0.071	25.35	0.022	567.5	28.66
4/21/2015	0:00	40.5	86.7	0.043	0.065	19.47	0.022	564.6	22.27
	8:00	39.7	85.6	0.041	0.061	22.97	0.022	563.1	26.44
	9:00	42.8	86.7	0.049	0.073	24.67	0.022	568.7	27.77
	10:00	37.7	85.9	0.036	0.055	35.75	0.022	559.5	41.69
	11:00	38.3	86.9	0.038	0.058	35.78	0.022	560.6	41.54
	12:00	40.7	90.9	0.046	0.069	35.10	0.022	564.9	39.97
	14:00	41.5	91.3	0.048	0.072	34.80	0.022	566.4	39.39
	16:00	38.3	89.9	0.040	0.060	33.58	0.022	560.6	38.91
	18:00	39.6	90.4	0.043	0.064	29.38	0.022	563.0	33.73
	20:00	35.4	87.7	0.033	0.050	26.43	0.022	555.4	31.24
	22:00	35.2	86.1	0.032	0.048	28.05	0.022	555.0	33.22
4/22/2015	0:00	34.7	85.3	0.030	0.046	28.68	0.022	554.1	34.09

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
	8:00	32.5	84.1	0.026	0.040	35.48	0.022	550.2	42.74
	10:00	38.0	86.1	0.037	0.056	36.58	0.022	560.1	42.58
	12:00	38.9	88.6	0.040	0.061	34.62	0.022	561.7	39.98
	14:00	42.9	90.6	0.052	0.077	34.78	0.022	568.9	38.99
	16:00	41.4	88.5	0.046	0.069	28.75	0.022	566.2	32.64
	18:00	40.3	89.0	0.044	0.066	30.75	0.022	564.2	35.17
	20:00	39.3	87.7	0.041	0.061	30.53	0.022	562.4	35.19
	22:00	36.2	62.3	0.024	0.037	24.83	0.022	556.8	29.67
4/23/2015	0:00	35.7	73.1	0.027	0.042	30.18	0.022	555.9	35.92
	8:00	39.5	86.3	0.041	0.061	36.27	0.022	562.8	41.79
	10:00	39.8	86.3	0.041	0.062	36.37	0.022	563.3	41.82
	12:00	42.0	89.8	0.049	0.073	36.05	0.022	567.3	40.70
	14:00	42.8	93.6	0.053	0.079	30.75	0.022	568.7	34.40
	16:00	40.0	88.9	0.043	0.065	27.90	0.022	563.7	31.98
	18:00	39.2	90.2	0.042	0.063	24.65	0.022	562.2	28.38
	20:00	36.1	87.8	0.034	0.052	21.20	0.022	556.7	24.95
	22:00	35.5	88.6	0.033	0.050	22.23	0.022	555.6	26.25
4/24/2015	0:00	35.1	88.4	0.032	0.049	22.85	0.022	554.9	27.04
	8:00	36.9	85.8	0.035	0.053	32.95	0.022	558.1	38.63
	10:00	37.2	85.8	0.035	0.054	33.08	0.022	558.6	38.71
	12:00	37.7	86.7	0.037	0.056	33.68	0.022	559.5	39.26

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
4/20/2015	12:00	0	38.96	50000	50000	24948	- - -	- - -	0.00
	12:30	30	36.77	50000	50000	24948	0.00156	3.44	1.72
	13:00	30	36.06	50000	50000	24948	0.00156	3.37	1.68
	13:30	30	35.56	50000	50000	24948	0.00156	3.32	1.66
	14:00	30	37.03	50000	50000	24948	0.00156	3.46	1.73
	14:30	30	36.01	50000	50000	24948	0.00156	3.37	1.68
	15:00	30	36.61	48300	48300	24100	0.00150	3.31	1.65
	15:30	30	31.40	50000	50000	24948	0.00156	2.93	1.47
	16:00	30	33.71	50000	50000	24948	0.00156	3.15	1.57
	16:30	30	35.14	49900	49900	24898	0.00155	3.28	1.64
	17:00	30	34.57	50000	50000	24948	0.00156	3.23	1.62
	17:30	30	35.21	50000	50000	24948	0.00156	3.29	1.65
	18:00	30	35.09	50000	50000	24948	0.00156	3.28	1.64
	18:30	30	34.04	50000	50000	24948	0.00156	3.18	1.59
	19:00	30	35.42	50000	50000	24948	0.00156	3.31	1.66
	19:30	30	34.14	50000	50000	24948	0.00156	3.19	1.60
	20:00	30	35.33	50000	50000	24948	0.00156	3.30	1.65
	21:00	60	35.95	50000	50000	24948	0.00156	3.36	3.36
	22:00	60	36.41	50000	50000	24948	0.00156	3.40	3.40
	23:00	60	28.66	50000	50000	24948	0.00156	2.68	2.68
4/21/2015	0:00	60	22.27	50000	50000	24948	0.00156	2.08	2.08
	8:00	480	26.44	50000	50000	24948	0.00156	2.47	19.77
	9:00	60	27.77	50000	50000	24948	0.00156	2.59	2.59
	10:00	60	41.69	50000	50000	24948	0.00156	3.90	3.90
	11:00	60	41.54	50000	50000	24948	0.00156	3.88	3.88
	12:00	60	39.97	50000	50000	24948	0.00156	3.74	3.74
	14:00	120	39.39	50000	50000	24948	0.00156	3.68	7.36
	16:00	120	38.91	50000	50000	24948	0.00156	3.64	7.27
	18:00	120	33.73	41000	41000	20457	0.00128	2.58	5.17
	20:00	120	31.24	50000	50000	24948	0.00156	2.92	5.84
	22:00	120	33.22	50000	50000	24948	0.00156	3.10	6.21
4/22/2015	0:00	120	34.09	50000	50000	24948	0.00156	3.19	6.37

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
	8:00	480	42.74	50000	50000	24948	0.00156	3.99	31.95
	10:00	120	42.58	50000	50000	24948	0.00156	3.98	7.96
	12:00	120	39.98	50000	50000	24948	0.00156	3.74	7.47
	14:00	120	38.99	50000	50000	24948	0.00156	3.64	7.29
	16:00	120	32.64	50000	50000	24948	0.00156	3.05	6.10
	18:00	120	35.17	50000	50000	24948	0.00156	3.29	6.57
	20:00	120	35.19	50000	50000	24948	0.00156	3.29	6.58
	22:00	120	29.67	50000	50000	24948	0.00156	2.77	5.54
4/23/2015	0:00	120	35.92	50000	50000	24948	0.00156	3.36	6.71
	8:00	480	41.82	43700	43700	21805	0.00136	3.42	27.33
	10:00	120	40.70	47600	47600	23751	0.00148	3.62	7.24
	12:00	120	34.40	50000	50000	24948	0.00156	3.21	6.43
	14:00	120	31.98	50000	50000	24948	0.00156	2.99	5.98
	16:00	120	28.38	50000	50000	24948	0.00156	2.65	5.30
	18:00	120	24.95	50000	50000	24948	0.00156	2.33	4.66
	20:00	120	26.25	50000	50000	24948	0.00156	2.45	4.91
	22:00	120	27.04	50000	50000	24948	0.00156	2.53	5.05
4/24/2015	0:00	120	38.63	50000	50000	24948	0.00156	3.61	7.22
	8:00	480	39.26	50000	50000	24948	0.00156	3.67	29.35
	10:00	120	39.26	50000	50000	24948	0.00156	3.67	7.34
	12:00	120	0.00	50000	50000	24948	0.00156	0.00	0.00

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-1, RW-2, & RW-6 **306.81**

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c.m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
4/20/2015	12:00	36.7	91.3	0.037	0.055	6.68	0.022	557.7	7.82
	12:30	47.2	94.4	0.069	0.100	26.65	0.022	576.6	28.73
	13:00	46.7	94.6	0.068	0.098	27.37	0.022	575.7	29.62
	13:30	45.5	100.0	0.067	0.097	26.92	0.022	573.6	29.27
	14:00	44.8	95.5	0.061	0.089	27.48	0.022	572.3	30.20
	14:30	44.9	93.9	0.060	0.088	29.38	0.022	572.5	32.32
	15:00	45.2	90.8	0.059	0.087	26.90	0.022	573.0	29.61
	15:30	45.0	90.9	0.059	0.086	30.35	0.022	572.7	33.46
	16:00	46.4	92.2	0.065	0.094	31.02	0.022	575.2	33.75
	16:30	46.3	90.7	0.063	0.092	24.10	0.022	575.0	26.29
	17:00	46.1	90.4	0.062	0.090	23.87	0.022	574.7	26.09
	17:30	46.3	91.3	0.063	0.092	24.82	0.022	575.0	27.06
	18:00	46.5	90.7	0.064	0.093	25.03	0.022	575.4	27.26
	18:30	46.9	93.4	0.067	0.097	24.55	0.022	576.1	26.56
	19:00	47.2	92.5	0.068	0.098	24.03	0.022	576.6	25.97
	19:30	46.6	93.1	0.066	0.096	24.77	0.022	575.6	26.88
	20:00	46.1	91.4	0.063	0.091	24.22	0.022	574.7	26.44
	21:00	46.3	92.1	0.064	0.093	23.78	0.022	575.0	25.91
	22:00	44.4	91.8	0.057	0.084	23.48	0.022	571.6	25.99
	23:00	42.9	90.9	0.052	0.077	25.15	0.022	568.9	28.18
4/21/2015	0:00	42.7	89.7	0.051	0.075	25.92	0.022	568.5	29.11
	8:00	37.3	87.6	0.036	0.055	23.70	0.022	558.8	27.68
	9:00	41.0	93.0	0.048	0.071	23.13	0.022	565.5	26.24
	10:00	44.8	96.1	0.062	0.090	26.03	0.022	572.3	28.59
	11:00	45.6	96.7	0.065	0.094	25.23	0.022	573.8	27.51
	12:00	46.1	95.4	0.066	0.095	24.45	0.022	574.7	26.58
	14:00	47.6	92.5	0.069	0.100	25.05	0.022	577.4	26.97
	16:00	46.6	92.3	0.065	0.095	25.97	0.022	575.6	28.21
	18:00	46.3	91.8	0.064	0.093	26.93	0.022	575.0	29.35
	20:00	42.8	90.5	0.052	0.076	25.58	0.022	568.7	28.70
	22:00	40.9	88.8	0.045	0.068	24.57	0.022	565.3	27.98
4/22/2015	0:00	40.5	87.9	0.044	0.066	23.38	0.022	564.6	26.73

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
	8:00	35.1	86.3	0.031	0.048	26.42	0.022	554.9	31.30
	10:00	42.0	93.1	0.051	0.075	25.98	0.022	567.3	29.25
	12:00	45.1	90.7	0.059	0.086	22.62	0.022	572.9	24.92
	14:00	45.5	89.4	0.059	0.087	24.07	0.022	573.6	26.46
	16:00	47.4	93.1	0.069	0.100	23.47	0.022	577.0	25.29
	18:00	46.5	92.8	0.065	0.095	23.55	0.022	575.4	25.59
	20:00	44.5	92.3	0.058	0.085	23.28	0.022	571.8	25.73
	22:00	43.8	93.4	0.056	0.083	22.30	0.022	570.5	24.76
4/23/2015	0:00	41.3	93.6	0.049	0.073	23.07	0.022	566.0	26.09
	8:00	39.6	89.9	0.043	0.064	24.63	0.022	563.0	28.29
	10:00	43.5	93.0	0.055	0.081	25.73	0.022	570.0	28.65
	12:00	47.3	92.7	0.068	0.099	25.82	0.022	576.8	27.86
	14:00	46.4	92.3	0.065	0.094	23.97	0.022	575.2	26.08
	16:00	48.2	93.4	0.072	0.104	25.22	0.022	578.4	26.97
	18:00	46.8	92.8	0.066	0.096	26.82	0.022	575.9	29.06
	20:00	44.2	91.5	0.056	0.083	24.73	0.022	571.2	27.42
	22:00	43.1	90.4	0.052	0.077	23.35	0.022	569.3	26.14
4/24/2015	0:00	42.8	89.3	0.051	0.075	25.62	0.022	568.7	28.77
	8:00	38.7	91.8	0.041	0.062	26.85	0.022	561.3	30.98
	10:00	39.4	90.4	0.042	0.064	27.88	0.022	562.6	32.05
	12:00	39.9	91.4	0.044	0.066	25.58	0.022	563.5	29.28

Site: Bountyland Quick Stop #6 - Event 2 of 2
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CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
4/20/2015	12:00	0	7.82	50000	50000	24948	- - -	- - -	0.00
	12:30	30	28.73	45900	45900	22902	0.00143	2.46	1.23
	13:00	30	29.62	33200	33200	16566	0.00103	1.84	0.92
	13:30	30	29.27	38100	38100	19010	0.00119	2.08	1.04
	14:00	30	30.20	22600	22600	11277	0.00070	1.28	0.64
	14:30	30	32.32	25300	25300	12624	0.00079	1.53	0.76
	15:00	30	29.61	21900	21900	10927	0.00068	1.21	0.61
	15:30	30	33.46	31600	31600	15767	0.00098	1.98	0.99
	16:00	30	33.75	38700	38700	19310	0.00121	2.44	1.22
	16:30	30	26.29	44400	44400	22154	0.00138	2.18	1.09
	17:00	30	26.09	56200	56200	28042	0.00175	2.74	1.37
	17:30	30	27.06	57300	57300	28590	0.00178	2.90	1.45
	18:00	30	27.26	56600	56600	28241	0.00176	2.88	1.44
	18:30	30	26.56	58200	58200	29040	0.00181	2.89	1.44
	19:00	30	25.97	59100	59100	29489	0.00184	2.87	1.43
	19:30	30	26.88	57300	57300	28590	0.00178	2.88	1.44
	20:00	30	26.44	56900	56900	28391	0.00177	2.81	1.41
	21:00	60	25.91	54800	54800	27343	0.00171	2.65	2.65
	22:00	60	25.99	54500	54500	27193	0.00170	2.65	2.65
	23:00	60	28.18	52600	52600	26245	0.00164	2.77	2.77
4/21/2015	0:00	60	29.11	55100	55100	27493	0.00172	3.00	3.00
	8:00	480	27.68	46300	46300	23102	0.00144	2.40	19.16
	9:00	60	26.24	42400	42400	21156	0.00132	2.08	2.08
	10:00	60	28.59	43100	43100	21505	0.00134	2.30	2.30
	11:00	60	27.51	45400	45400	22653	0.00141	2.33	2.33
	12:00	60	26.58	40400	40400	20158	0.00126	2.01	2.01
	14:00	120	26.97	43600	43600	21755	0.00136	2.20	4.40
	16:00	120	28.21	46200	46200	23052	0.00144	2.44	4.87
	18:00	120	29.35	41700	41700	20807	0.00130	2.29	4.57
	20:00	120	28.70	40200	40200	20058	0.00125	2.16	4.31
	22:00	120	27.98	46100	46100	23002	0.00144	2.41	4.82
4/22/2015	0:00	120	26.73	45400	45400	22653	0.00141	2.27	4.54

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
	8:00	480	31.30	49600	49600	24748	0.00155	2.90	23.21
	10:00	120	29.25	46200	46200	23052	0.00144	2.53	5.05
	12:00	120	24.92	45200	45200	22553	0.00141	2.10	4.21
	14:00	120	26.46	50000	50000	24948	0.00156	2.47	4.95
	16:00	120	25.29	50000	50000	24948	0.00156	2.36	4.73
	18:00	120	25.59	50000	50000	24948	0.00156	2.39	4.78
	20:00	120	25.73	50000	50000	24948	0.00156	2.40	4.81
	22:00	120	24.76	50000	50000	24948	0.00156	2.31	4.63
4/23/2015	0:00	120	26.09	50000	50000	24948	0.00156	2.44	4.88
	8:00	480	28.65	50000	50000	24948	0.00156	2.68	21.42
	10:00	120	27.86	50000	50000	24948	0.00156	2.60	5.21
	12:00	120	26.08	50000	50000	24948	0.00156	2.44	4.87
	14:00	120	26.97	50000	50000	24948	0.00156	2.52	5.04
	16:00	120	29.06	50000	50000	24948	0.00156	2.72	5.43
	18:00	120	27.42	50000	50000	24948	0.00156	2.56	5.13
	20:00	120	26.14	50000	50000	24948	0.00156	2.44	4.88
	22:00	120	28.77	50000	50000	24948	0.00156	2.69	5.38
4/24/2015	0:00	120	30.98	50000	50000	24948	0.00156	2.90	5.79
	8:00	480	29.28	50000	50000	24948	0.00156	2.74	21.89
	10:00	120	29.28	50000	50000	24948	0.00156	2.74	5.47
	12:00	120	0.00	50000	50000	24948	0.00156	0.00	0.00

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-3, RW-4, & RW-5 **236.71**

APPENDIX C

Disposal Manifest(s)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1295

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC Hwy 11 South, Westminister, S.C

25-403.7-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main Street, Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	4597	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland — Signature: Billy Pittenger — Date: Month 4 Day 21 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials: Quick Stop

Printed/Typed Name: Billy Pittenger — Signature: Billy Pittenger — Date: Month 4 Day 21 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: GARY COLBERTSON — Signature: Gary Colbertson — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Lukan — Signature: Steven Lukan — Date: Month 4 Day 22 Year 15

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAD990724916

Manifest Document No. 1296

2. Page 1 of

3. Generator's Name and Mailing Address Bountyland Quick Stop #6
5034 SC Hwy 11
Westminister, S.C

4. Generator's Phone ( )

25-403.7-15

5. Transporter 1 Company Name ~~ARM ENVIRONMENTAL SERVICES, INC~~ Nu Earth

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main Street
Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	4261	Gal.
c.				
d.				

G. Additional Descriptions for Materials Listed Above

Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pitterger Agent for Bountyland Quick Stop #6
Signature: Billy Pitterger
Date: Month 4 Day 22 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pitterger
Signature: Billy Pitterger
Date: Month 4 Day 22 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: Eric Lemley
Signature:
Date: Month 4 Day 22 Year 15

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Wilson
Signature: Steven Wilson
Date: Month 4 Day 22 Year 15

NON-HAZARDOUS WASTE

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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
				ARM009-VAC

GENERATOR

5. Generator's Name and Mailing Address
ARM Environmental Services
1210 First St South Ext
Columbia, SC
Generator's Phone:

Generator's Site Address (if different than mailing address)
5034 SC 11
Westminster, SC

6 Transporter 1 Company Name
NuEarth, LLC
U.S. EPA ID Number

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
VLS Recovery Services
305 S Main St
Maulain, SC
Facility's Phone:
U.S. EPA ID Number

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	Non-Haz Petroleum Contaminated Water	1	TT	4,057 BBL	
2.					
3.					
4					

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Billy Pittenger Agent for Boantyland Quickstop # Signature: Billy Pittenger Month: 4 Day: 24 Year: 15

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Clyde Snell Signature: Clyde Snell Month: 4 Day: 24 Year: 15

Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Steven Urban Signature: Steven Urban Month: 4 Day: 24 Year: 15

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. CAD990724916	Manifest Document No. 1298	2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC 11 South, Westminister, S.C

4. Generator's Phone ( )

25-403.7-15

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main Street, Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	1976	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pitteger Agent for Bountyland Quick Stop #6 | Signature: Billy Pitteger | Date: Month 4 Day 24 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pitteger | Signature: Billy Pitteger | Date: Month 4 Day 24 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Brian Tripp II | Signature | Date: Month 4 Day 24 Year 15

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. CAD990724916	Manifest Document No. 1299	2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland 5034 SC 11 South Westminster, S.C

4. Generator's Phone ( )

25- 403.7-15

5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID
ARM ENVIRONMENTAL SERVICES, INC.		B. Transporter 1 Phone 803-783-3314
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID
		D. Transporter 2 Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	E. State Facility's ID
VLS Recovery 305 South Main Street Maulden, S.C		F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	856 BP ~~862~~	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
PO BOX 50285
COLUMBIA, SC 29250

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Billy Pittenger Agent for Bountyland Quick Stop #6	Billy Pittenger	4	24	15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Michael Bonfilio		4	24	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Brian Tripp II		4	24	15

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D H E C
PROMOTE PROTECT PROSPER
W. Marshall Taylor Jr., Acting Director
Promoting and protecting the health of the public and the environment

JUN 1 1 2015

MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672



Re: Aggressive fluid and vapor recovery (AFVR) directive
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711; CA #50386
Release reported December 1, 2011
Oconee County

Dear Mr. Waller:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) recognizes your commitment to continue work at this site using ARM Environmental Services, Inc. The next appropriate remedial activity is to continue AFVR to remove free-phase product. Please have your contractor conduct one 96-hour event on recovery wells RW-1and RW-5, and one 96-hour event on RW-2 and RW-3 to remove free-phase product. The events must be conducted in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 2.0. A copy of QAPP Revision 2.0 is available at http://www.scdhec.gov/environment/docs/QAPP_Rev-2_April2013.pdf.

Please notify the UST Management Division prior to commencing AFVR at the site. The stinger must be advanced to a target depth of 32 feet within the first 8 hours of the event. Thereafter, the stinger should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone (approximately 25 to 30 foot interval). Off–gas treatment will be necessary.

Cost Agreement (CA) #50386 has been approved in the amount shown on the enclosed cost agreement form for the AFVR events. Please note that all applicable South Carolina certification requirements apply to report preparation. Further, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Your contractor may directly bill the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Agency is obtained. If for any reason additional tasks will be

completed, these additional tasks and the associated cost must be pre-approved by the Agency for the cost to be paid. The Agency reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, the Agency reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Management Division grants pre-approval for transportation of petroleum-contaminated, investigative-derived waste (IDW) from the referenced site to a permitted treatment/disposal facility. The transport and disposal must be conducted in accordance with QAPP Revision 2.0.

On all correspondence concerning this facility, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.afvr4

enc: Approved cost agreement form

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 50386

Facility: 06711 BOUNTYLAND QUICK STOP 6

PADGETJP

PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
19 RPT/PROJECT MNGT & COORDINATIO					
		PRT REPORT PREPARATION	0.1200	40,881.25	4,905.75
23 EFR					
		A4 96 HOUR EVENT	2.0000	12,567.50	25,135.00
		C4 OFF GAS TREATMENT 96 HOUR	2.0000	780.00	1,560.00
		D SITE RECONNAISSANCE	1.0000	203.25	203.25
		F1 EFFLUENT DISPOSAL	30,000.0000	0.44	13,200.00
		G AFVR EQUIPMENT MOB	2.0000	391.50	783.00
			Total Amount		45,787.00

Re: Bountyland Quick Stop 6; UST Permit #06711



Padgett, Joel P.

Thu 10/1/2015 7:46 AM

Sent Items

To: mfaris@armenv.com <mfaris@armenv.com>;

How much time do you need?

From: Michael Faris <mfaris@armenv.com>
Sent: Wednesday, September 30, 2015 4:34 PM
To: Padgett, Joel P.
Subject: Bountyland Quick Stop 6; UST Permit #06711

Joel,
We are finally getting back around to completing the third AFVR at this site. We would like to do the event next week.
May we please have a brief extension on the due date?

Thanks,
Michael

Michael L. Faris, P.G.
ARM Environmental Services, Inc.



ARM Environmental Services | South Carolina based ...

ARM Environmental Services is a South Carolina based consulting firm, which provides comprehensive environmental consulting and site rehabilitation services on ...

Read more...

1210 First Street South
Columbia, SC 29209
www.armenv.com
ph: 803 783-3314
cell: 803 269-3913

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*

October 21, 2015



Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Re: (3) 96-Hour Aggressive Fluid Vapor Recovery Events
Bountyland Quick Stop #6
5034 SC-11 South
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #50386
ARM Project #25-403.8-15

Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed three (3) 96-hour Aggressive Fluid Vapor Recovery (AFVR) events at the above-referenced site located in Westminster, South Carolina. The pertinent information regarding the AFVRs and gauging events are presented on the following pages and in the appendices of this document.

The first 96-hour AFVR event was conducted on monitoring wells RW-2 and RW-3. The second 96-hour AFVR event was conducted on monitoring wells RW-1 and RW-5. The third 96-hour AFVR event was conducted on monitoring well RW-8. Based on gauging of the fluid levels upon completion of the AFVR events, it appears that no free product was present above the groundwater in the referenced monitoring wells.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc.

Michele McLeod
Staff Scientist

Michael L. Faris, P.G.
Senior Geologist

cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard Suite 202, Seneca, SC 29671

AFVR 1 of 3

ARM personnel mobilized to the Bountyland Quick Stop #6 site on August 10, 2015. Ambient air temperature was 70° - 90° F and the general weather conditions were mostly sunny with scattered showers. The depths to product and water were measured and recorded for monitoring wells RW-2 and RW-3 prior to and subsequent to the event. Approximately 1.59 feet and 2.14 feet of free product were measured in recovery wells RW-2 and RW-3 prior to stinger placement into the wells, respectively. A Topographic Site Location Map is included as Figure 1 and a Site Base Map, depicting the location of each monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 11:00 on August 10, 2015 and ended at 11:00 on April 14, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 9,671 gallons of petroleum contact water and 5 gallons of free product were removed from the referenced wells during the event.

AFVR 2 of 3

ARM personnel mobilized to the Bountyland Quick Stop #6 site on August 10, 2015. Ambient air temperature was 85° - 97° F and the general weather conditions were mostly sunny with scattered showers. The depths to product and water were measured and recorded for monitoring wells RW-1 and RW-5 prior to and subsequent to the event. Approximately 0.75 foot and 1.03 feet of free product were measured in monitoring wells RW-1 and RW-5 prior to stinger placement into the wells, respectively.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 11:00 on August 10, 2015 and ended at 11:00 on August 14, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 5,301 gallons of petroleum contact water were removed from the referenced wells during the event.

AFVR 3 of 3

ARM personnel mobilized to the Bountyland Quick Stop #6 site on October 12, 2015. Ambient air temperature was 50° - 80° F and the general weather conditions were clear. The depths to product and water were measured and recorded for monitoring well RW-

8 prior to and subsequent to the event. Approximately 1.63 feet of free product were measured in monitoring well RW-8 prior to stinger placement into the well.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 11:30 on October 12, 2015 and ended at 11:30 on October 16, 2015. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in RW-8. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 3,824 gallons of petroleum contact water and 3 gallons of free product were removed from the referenced wells during the event.

Pollutant Mass Removal

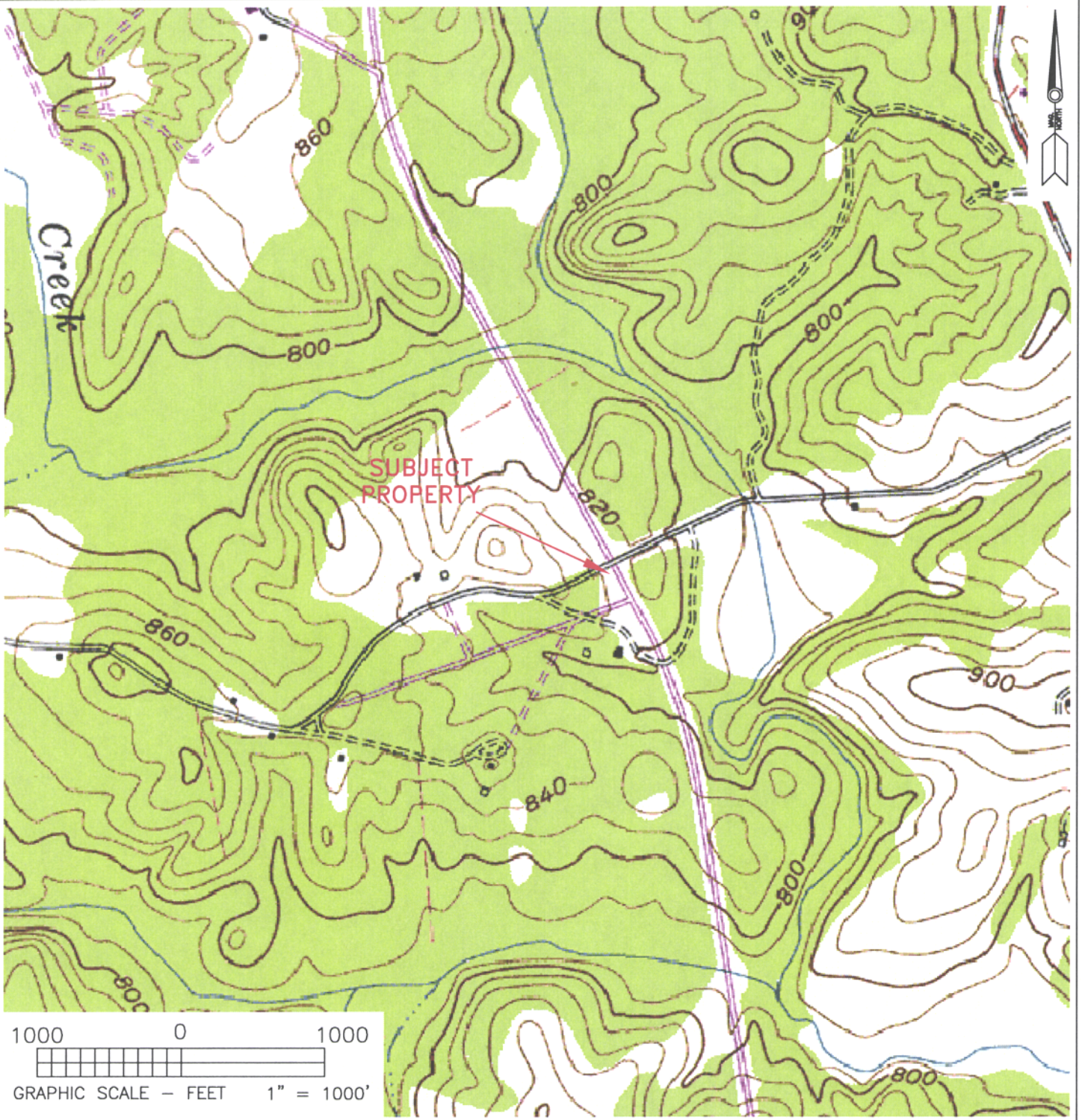
Weights of 157.08, 181.76, and 96.29 pounds of petroleum as vapor (total gaseous non-methane organic emissions) were removed during the 96-hour events based on the data collected during the AFVRs. A TVA-1000B Flame Ionization Detector (FID) was utilized to measure the volatile vapors expelled from the vacuum truck. During each event, several measurements recorded were greater than the 50,000 parts per million (ppm) range of the FID; therefore, the value of 50,000 ppm was utilized, though the actual values may have been higher. The equations, variables, and calculations used to determine the pollutant mass removals are included in Appendix B.

Disposal

Disposal manifests for the 18,796 gallons of petroleum contact water and 8 gallons of free product generated during the events are included in Appendix C.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Base Map



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #50386

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

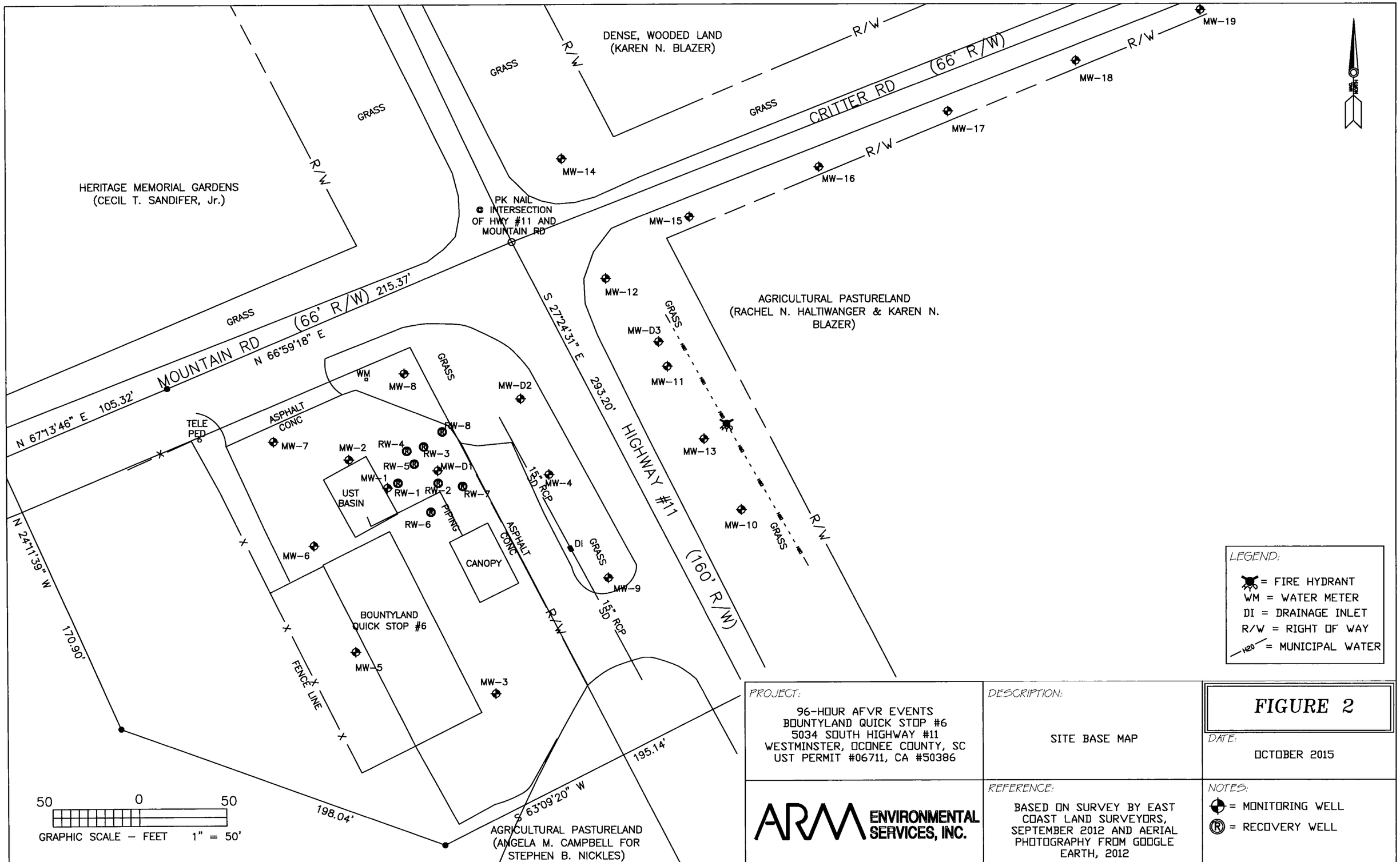
OCTOBER 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER - 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #50386

DESCRIPTION:

SITE BASE MAP

FIGURE 2

DATE:

OCTOBER 2015

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL

APPENDICES

A. Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets
B. AFVR Mass Removal Calculations
C. Disposal Manifest(s)

APPENDIX A

Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets

ARM ENVIRONMENTAL SERVICES, INC.

25-403.8-15

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop 6 Location: 5034 SC Hwy 11 Seneca, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy Pittenger, Mike Bonfillio, Kenneth, Anthony

Date: August 10-14, 2015 Ambient Air Temperature and General Weather Condition: occasional rain shower, 70°-90°

Start Time 1: 11:00 (August 10) Stop Time 1: 11:00 (August 14) Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 9671 gallons

Total volume of product removed during the 96-hour AFVR Event: 5 gallons

Product / Water Recovery Rate: 1.67 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-2	28.9	30.49	NM	33-78	4838 gallons	
RW-3	28.26	30.4	NM	32.95	4838 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 8-10

Time	MW-RW-2 Vacuum at Targeted Well (in. Hg)	MW-RW-3 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
11:00	22-23	22-23					
11:30	22-23	22-23					
12:00	22-23	22-23					
12:30	22-23	22-23					
13:00	22-23	22-23					
13:30	22-23	22-23					
14:00	22-23	22-23					
14:30	22-23	22-23					
15:00	22-23	22-23					
15:30	22-23	22-23					
16:00	22-23	22-23					
16:30	22-23	22-23					
17:00	22-23	22-23					
17:30	22-23	22-23					
18:00	22-23	22-23					
18:30	22-23	22-23					
19:00	22-23	22-23					
20:00	22-23	22-23					
21:00	22-23	22-23					
22:00	22-23	22-23					
23:00	22-23	22-23					
24:00	22-23	22-23					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW- RW-2	*MW-* RW-3	*MW-*	*MW-*	*MW-*	*MW-*	*MW-*
	Time	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)	**Vacuum at Targeted Well** (in. Hg)
Tuesday 8-11	08:00	22-23	22-23					
	09:00	22-23	22-23					
	10:00	22-23	22-23					
	11:00	22-23	22-23					
	13:00	22-23	22-23					
	15:00	22-23	22-23					
	17:00	22-23	22-23					
	19:00	22-23	22-23					
	21:00	22-23	22-23					
	23:00	22-23	22-23					
	24:00	22-23	22-23					
Wednesday 8-12	08:00	22-23	22-23					
	10:00	22-23	22-23					
	12:00	22-23	22-23					
	14:00	22-23	22					
	16:00	22-23	22					
	18:00	22-23	22					
	20:00	22-23	22					
	22:00	22-23	22					
	24:00	22-23	22-23					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

		MW-RW-2	MW-RW-3	MW-	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
8-13 Thursday	08:00	22-23	22-23					
	10:00	22-23	22-23					
	12:00	22-23	22-23					
	14:00	22-23	22-23					
	16:00	22-23	22-23					
	18:00	22-23	22-23					
	20:00	22-23	22-23					
	22:00	22-23	22-23					
	24:00	22-23	22-23					
8-14 Friday	08:00	22-23	22-23					
	10:00	22-23	22-23					
	11:00	22-23	22-23					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: MW- RW-2		*Stinger Placement: MW- RW-3*		*Stinger Placement: MW-*		*Stinger Placement: MW-*	
Time	**Stinger Depth**	**Notes**	**Stinger Depth**	**Notes**	**Stinger Depth**	**Notes**	**Stinger Depth**	**Notes**
11:00	30.5		30.5					
11:30	30.5		30.5					
12:00	30.5		30.5					
12:30	30.5		30.5					
13:00	30.5		30.5					
13:30	30.5		30.5					
14:00	30.5		30.5					
14:30	31.0		31.0					
15:00	31.0		31.0					
15:30	31.0		31.0					
16:00	31.0		31.0					
16:30	31.0		31.0					
17:00	31.5		31.5					
17:30	31.5		31.5					
18:00	31.5		31.5					
18:30	32.0		32.0					
19:00	32.0		32.0					
20:00	32.0		32.0					
21:00	32.0		32.0					
22:00	32.0		32.0					
23:00	32.0		32.0					
24:00	32.0		32.0					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-2		*Stinger Placement: MW- RW-3*		*Stinger Placement: MW-*		*Stinger Placement: MW-*	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 8-11	08:00	32.0		32.0					
	09:00	32.0		32.0					
	10:00	32.0		32.0					
	11:00	32.0		32.0					
	13:00	32.0		32.0					
	15:00	32.0		32.0					
	17:00	32.0		32.0					
	19:00	32.0		32.0					
	21:00	32.0		32.0					
	23:00	32.0		32.0					
	24:00	32.0		32.0					
Wednesday 8-12	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: ~~MW-~~ RW-2		Stinger Placement: ~~MW-~~ RW-3		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 8-13	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					
Friday 8-14	08:00	32.0		32.0					
	10:00	32.0		32.0					
	11:00	32.0		32.0					

Vacuum at Pump: 25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

Monday 8-10

Time	MW-4		~~MW-~~ RW-8		MW-		MW-	
	Water Level	Vacuum Influence at Well (in. Hg)	Water Level DTP DTW	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
11:00	32.94		28.76 30.2					
11:30		.0029		.2942				
12:00		.0044		.4413				
12:30		.0044		.5148				
13:00		.0044		.6619				
13:30		.0044		.6619				
14:00		.0044		.6619				
14:30		.0044		.6619				
15:00		.0044		.6619				
15:30		.0044		.6619				
16:00		.0044		.6619				
16:30		.0044		.6619				
17:00		.0044		.6619				
17:30		.0044		.6619				
18:00		.0044		.7355				
18:30		.0044		.7355				
19:00		.0044		.7355				
20:00		.0044		.7355				
21:00		.0044		.7355				
22:00		.0044		.7355				
23:00		.0044		.7355				
24:00		.0044		.7355				
				~~.7355~~				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW-4		~~MW-~~ RW-8		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 8-11	08:00		.0294		.7355				
	09:00		.0147		.7355				
	10:00		.0147		.7355				
	11:00		.0147		.7355				
	13:00		.0147		.7355				
	15:00		.0147		.7355				
	17:00		.0147		.7355				
	19:00		.0220		.7355				
	21:00		.0294		.7355				
	23:00		.0294		.7355				
	24:00		.0294		.7356				
Wednesday 8-12	08:00		.0294		.7355				
	10:00		.0220		.7355				
	12:00		.0220		.7355				
	14:00		.0220		.7355				
	16:00		.0294		.7355				
	18:00		.0294		.7355				
	20:00		.0294		.7355				
	22:00		.0294		.7355				
	24:00		.0294		.7355				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW-4		~~MW-~~ RW-8		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 8-13	08:00		.0220		.7355				
	10:00		.0220		.7355				
	12:00		.0220		.7355				
	14:00		.0220		.7355				
	16:00		.0294		.7355				
	18:00		.0294		.7355				
	20:00		.0294		.7355				
	22:00		.0294		.7355				
	24:00		.0294		.7355				
Friday 8-13	08:00		0367		.7355				
	10:00		.0367	DTP DTW	.7355				
	11:00	33.1	.0367	33.93 36.24	.7355				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
11:00	flame out	113	1033	44.4	92.5	
11:30	flame out	303	1373	55.6	94.6	
12:00	flame out	624	1449	59.0	93.8	
12:30	flame out	856	1476	59.3	95.0	
13:00	61,600	1014	1354	59.6	96.7	
13:30	63,400	1438	1316	59.9	97.6	
14:00	60,300	1821	1338	60.4	97.6	
14:30	61,800	2423	1350	62.0	93.5	
15:00	59,600	2630	1410	62.4	94.7	
15:30	60,400	2961	1370	61.6	93.3	
16:00	58,700	3376	1212	60.8	92.9	
16:30	57,300	3637	1138	60.2	92.2	
17:00	57,900	3815	1016	58.8	92.5	
17:30	54,000	4110	1149	57.9	91.9	
18:00	56,600	4324	1217	54.3	90.7	
18:30	57,100	4563	1103	53.7	92.4	
19:00	59,000	4871	1163	53.0	92.2	
20:00	58,600	5463	1007	50.7	91.3	
21:00	56,700	5876	1071	49.9	93.4	
22:00	55,000	6348	1140	49.1	91.8	
23:00	57,300	6861	1068	48.3	93.9	
24:00	58,400	7305	1127	47.9	94.7	
08:00	51,200	138	1080	53.4	94.5	
09:00	53,400	379	1105	55.6	93.7	
10:00	48,600	714	1161	57.8	94.4	
11:00	49,100	1004	1169	59.2	95.6	
13:00	50,300	1314	1204	59.4	96.1	
15:00	47,600	1721	1135	61.3	96.8	

Monday 8-10

Tuesday 8-11

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 8-11	17:00	48,300	2330	1213	58.2	94.1	
	19:00	45,600	2949	1149	54.9	93.8	
	21:00	45,000	3758	1074	52.4	91.3	
	23:00	44,400	4645	1117	51.6	92.7	
	24:00	43,600	5309	1033	50.4	93.2	
Wednesday 8-12	08:00	41,700	114	1188	52.4	93.6	
	10:00	42,900	289	1341	56.0	96.2	
	12:00	42,000	715	1224	57.3	94.8	
	14:00	41,600	1048	1114	56.2	92.4	
	16:00	44,200	1569	1073	55.3	91.1	
	18:00	45,000	2138	1218	54.6	93.7	
	20:00	43,700	2876	1182	52.1	92.8	
	22:00	43,200	3549	1263	54.5	92.6	
	24:00	42,100	4143	1187	52.9	90.2	
Thursday 8-13	08:00	41,100	133	1061	48.3	92.9	
	10:00	43,800	404	1102	53.0	95.5	
	12:00	44,200	713	1154	56.4	97.1	
	14:00	40,300	1241	1238	58.6	96.3	
	16:00	42,700	1873	1115	58.9	93.9	
	18:00	40,100	2461	1213	57.4	92.6	
	20:00	38,600	2738	1229	57.1	92.2	
	22:00	39,300	3536	1105	56.6	93.0	
	24:00	41,500	4408	1169	54.2	93.6	
Friday 8-14	08:00	44,100	112	1228	49.6	93.9	
	10:00	43,300	309	1306	51.3	92.6	
	11:00	45,000	739	1211	53.8	91.4	

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: B Bountyland #6 Location: 5034 SC. 11 Westminister S.C.

AFVR Contractor: ARM Environmental Svcs. Personnel: Michael Bonfilio, Kenneth Dennis, Anthony Binson

Date: 8/10/15 8/14/15 Ambient Air Temperature and General Weather Condition: 85°F-97°F mostly sunny, scattered showers

Start Time 1: 11:00 8/10/15 Stop Time 1: 11:00 8/14/15 ; Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 5301 gallons

Total volume of product removed during the 96-hour AFVR Event: _____

Product / Water Recovery Rate: .92 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-1	28.39	29.14	N/M	33.08	2121	
RW-5	28.17	29.20	N/M	33.67	3180	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 8/10/15

Time	~~MW-~~ RW-1 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-5 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
11:00	19	18					
11:30	19	18					
12:00	19	18					
12:30	20	18					
13:00	20	18					
13:30	20	19					
14:00	20	18					
14:30	20	18					
15:00	20	18					
15:30	21	19					
16:00	21	19					
16:30	21	19					
17:00	21	18					
17:30	21	18					
18:00	21	18					
18:30	20	18					
19:00	20	18					
20:00	20	17					
21:00	20	17					
22:00	20	18					
23:00	20	18					
24:00	21	18					

Vacuum at Pump: 29-30

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		~~MW-~~ RW-1	~~MW-~~ RW-5	MW-	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Tuesday 8/11/15	08:00	20	19					
	09:00	20	19					
	10:00	20	18					
	11:00	20	18					
	13:00	21	18					
	15:00	21	17					
	17:00	20	18					
	19:00	19	18					
	21:00	19	18					
	23:00	20	17					
	24:00	20	17					
Wednesday 8/12/15	08:00	19	17					
	10:00	19	17					
	12:00	19	17					
	14:00	18	18					
	16:00	19	18					
	18:00	19	18					
	20:00	21	18					
	22:00	21	18					
	24:00	21	18					

Vacuum at Pump: 28, 31

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

	~~MW-~~ RW-1	~~MW-~~ RW-5	MW-	MW-	MW-	MW-	MW-
Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 8/13/15							
08:00	21	17					
10:00	21	17					
12:00	22	17					
14:00	22	18					
16:00	20	18					
18:00	20	17					
20:00	20	17					
22:00	19	19					
24:00	19	17					
Friday 8/14/15							
08:00	19	17					
10:00	19	18					
11:00	19	18					

Vacuum at Pump: 30, 30

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

Monday 8/10/15

Time	Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-5		Stinger Placement: MW-		Stinger Placement: MW-	
	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
11:00	29.5		29.5					
11:30	30.0		30.0					
12:00	30.5		30.5					
12:30	31.0		31.0					
13:00	31.5		31.5					
13:30	32.0		32.0					
14:00	32.0		32.0					
14:30	32.0		32.0					
15:00	32.0		32.0					
15:30	32.0		32.0					
16:00	32.0		32.0					
16:30	32.0		32.0					
17:00	32.0		32.0					
17:30	32.0		32.0					
18:00	32.0		32.0					
18:30	32.0		32.0					
19:00	32.0		32.0					
20:00	32.0		32.0					
21:00	32.0		32.0					
22:00	32.0		32.0					
23:00	32.0		32.0					
24:00	32.0		32.0					

Vacuum at Pump: 29-30

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

	Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-5		Stinger Placement: MW-		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 8/11/15								
08:00	32.0		32.0					
09:00	32.0		32.0					
10:00	32.0		32.0					
11:00	32.0		32.0					
13:00	32.0		32.0					
15:00	32.0		32.0					
17:00	32.0		32.0					
19:00	32.0		32.0					
21:00	32.0		32.0					
23:00	32.0		32.0					
24:00	32.0		32.0					
Wednesday 8/12/15								
08:00	32.0		32.0					
10:00	32.0		32.0					
12:00	32.0		32.0					
14:00	32.0		32.0					
16:00	32.0		32.0					
18:00	32.0		32.0					
20:00	32.0		32.0					
22:00	32.0		32.0					
24:00	32.0		32.0					

Vacuum at Pump: 28, 31

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: MW-		Stinger Placement: MW-		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 8/13/15	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					
Friday 8/14/15	08:00	32.0		32.0					
	10:00	32.0		32.0					
	11:00	32.0		32.0					

Vacuum at Pump: 30, 30

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW-		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
11:00	28.58	0						
11:30		0						
12:00		0						
12:30		0						
13:00		0						
13:30		.0014						
14:00		.0014						
14:30		.0007						
15:00		.0007						
15:30		.0007						
16:00		.0014						
16:30		.0014						
17:00		.0029						
17:30		.0029						
18:00		.0025						
18:30		.0029						
19:00		.0036						
20:00		.0036						
21:00		.0036						
22:00		.0029						
23:00		.0029						
24:00		.0029						

8/10/15 Monday

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 6		MW-		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 8/11/15	06:00		.0036						
	09:00		.0036						
	10:00		.0029						
	11:00		.0036						
	13:00		.0044						
	15:00		.0044						
	17:00		.0044						
	19:00		.0044						
	21:00		.0036						
	23:00		.0036						
	24:00		.0044						
Wednesday 8/12/15	0800		.0036						
	10:00		.0036						
	12:00		.0051						
	14:00		.0051						
	16:00		.0051						
	18:00		.0058						
	20:00		.0051						
	22:00		.0036						
	24:00		.0036						

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 6		MW-		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 8/13/15	08:00		.0029						
	10:00		.0029						
	12:00		.0036						
	14:00		.0036						
	16:00		.0029						
	18:00		.0029						
	20:00		.0029						
	22:00		.0036						
	24:00		.0029						
Friday 8/14/15	08:00		.0029						
	10:00		.0022						
	11:00		.0022						

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
11:00	75600	730	1411	56.3	98.3	
11:30	81600	770	1430	56.4	100	
12:00	84500	936	1326	54.3	100	
12:30	91800	1532	1294	51.9	100	
13:00	96100	2294	1366	52.3	100	
13:30	104000	8632	1340	52.9	100	
14:00	103600	9202	1372	53.2	100	
14:30	116100	10361	1281	53.0	100	
15:00	116100	12290	1292	53.6	100	
15:30	116300	482	1303	52.9	100	
16:00	115000	1160	1175	52.9	99.5	
16:30	120000	1593	1220	50.0	100	
17:00	101400	1599	1246	49.6	100	
17:30	103400	1901	1068	47.0	100	
18:00	110700	2135	954	49.6	100	
18:30	110100	2682	1027	49.1	100	
19:00	116800	5019	1143	50.4	100	
20:00	103400	5250	1004	50.9	100	
21:00	107600	7215	938	50.1	100	
22:00	107000	7298	1072	49.2	100	
23:00	112200	9613	1131	48.7	100	
24:00	112900	9689	1158	84.1	100	
08:00	138100	1545	1270	51.1	88.7	
09:00	135300	1803	1292	51.5	92.3	
10:00	122900	11450	1304	53.3	96.8	
11:00	145000	12091	1275	53.2	100	
13:00	139700	12530	1264	55.5	100	
15:00	139700	12916	1282	56.0	100	

8/10/15 Monday

8/11/15 Tuesday

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 8/11/15	17:00	158600	13239	1076	53.7	100	
	19:00	141700	13563	992	52.1	100	
	21:00	143900	13714	1112	50.4	100	
	23:00	152200	13976	1209	50.6	100	
	24:00	150700	14091	1184	50.1	100	
Wednesday 8/12/15	08:00	163900	18690	1408	52.2	93.7	
	10:00	161200	19120	1140	52.4	96.0	
	12:00	147500	11241	1202	55.1	100	
	14:00	160000	12506	1197	54.8	100	
	16:00	175000	15678	1028	54.1	100	
	18:00	183400	19243	1173	53.4	100	
	20:00	198700	12400	1306	50.9	100	
	22:00	203100	14190	1160	52.6	98.3	
	24:00	202000	16580	1234	51.2	96.0	
Thursday 8/13/15	08:00	226400	20300	934	50.6	923	
	10:00	233400	21000	981	51.0	95.0	
	12:00	229700	24000	1018	54.2	100	
	14:00	230700	26000	1267	55.1	100	
	16:00	201400	9840	1264	54.2	100	
	18:00	213900	10800	1110	53.0	100	
	20:00	206800	16200	1153	53.1	100	
	22:00	210000	20100	1396	52.2	100	
	2400	218100	22300	1021	49.9	98.8	
Friday 8/14/15	08:00	189000	5580	1401	51.2	88.3	
	10:00	193200	9315	1372	55.5	90.9	
	11:00	199500	12400	1381	55.9	94.7	

25-403.8-15

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 SouthWestminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy, Anthony, Andrew

Date: Oct 12-16-2015 Ambient Air Temperature and General Weather Condition: clear, 50°-80°

Start Time 1: 11:30 (Oct 12) Stop Time 1: 11:30 (Oct 16) ; Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 3824 gallons

Total volume of product removed during the 96-hour AFVR Event: 3 gallons

Product / Water Recovery Rate: .66 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-8	28.86	30.49	NM	33.05	3827 gallons	

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 2 of 12]

Monday 10-12

Time	MW-RW-8 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
11:30	20						
12:00	20						
12:30	20						
13:00	20						
13:30	20						
14:00	20						
14:30	20						
15:00	20						
15:30	20						
16:00	20						
16:30	20						
17:00	20						
17:30	20						
18:00	20						
18:30	20						
19:00	20						
19:30	20						
20:30	20						
21:30	20						
22:30	20						
23:30	20						
24:00	20						

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

		MW- RW-8	MW-	MW-	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
10-13 Tuesday	08:00	20						
	09:00	20						
	10:00	20						
	11:00	20						
	12:00	20						
	14:00	20						
	16:00	20						
	18:00	20						
	20:00	20						
	22:00	20						
	24:00	20						
10-14 Wednesday	08:00	20						
	10:00	20						
	12:00	20						
	14:00	20						
	16:00	20						
	18:00	20						
	20:00	20						
	22:00	20						
	24:00	20						

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

		MW- RW-8	MW-	MW-	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 10-15	08:00	20						
	10:00	20						
	12:00	20						
	14:00	20						
	16:00	20						
	18:00	20						
	20:00	20						
	22:00	20						
	24:00	20						
Friday 10-16	08:00	20						
	10:00	20						
	11:30	20						

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: MW- RW-8		Stinger Placement: MW-		Stinger Placement: MW-		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
11:30	29.0							
12:00	29.0							
12:30	29.5							
13:00	29.5							
13:30	30.0							
14:00	30.0							
14:30	30.0							
15:00	30.0							
15:30	30.5							
16:00	30.5							
16:30	30.5							
17:00	31.0							
17:30	31.0							
18:00	31.5							
18:30	31.5							
19:00	32.0							
19:30	32.0							
20:30	32.0							
21:30	32.0							
22:30	32.0							
23:30	32.0							
24:00	32.0							

Monday 10-10

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-8		Stinger Placement: MW-		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 10-13	08:00	32.0							
	09:00	32.0							
	10:00	32.0							
	11:00	32.0							
	12:00	32.0							
	14:00	32.0							
	16:00	32.0							
	18:00	32.0							
	20:00	32.0							
	22:00	32.0							
	24:00	32.0							
Wednesday 10-14	08:00	32.0							
	10:00	32.0							
	12:00	32.0							
	14:00	32.0							
	16:00	32.0							
	18:00	32.0							
	20:00	32.0							
	22:00	32.0							
	24:00	32.0							

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 7 of 12]

		Stinger Placement: MW- RW-8		Stinger Placement: MW-		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 10-15	08:00	32.0							
	10:00	32.0							
	12:00	32.0							
	14:00	32.0							
	16:00	32.0							
	18:00	32.0							
	20:00	32.0							
	22:00	32.0							
	24:00	32.0							
Friday 10-16	08:00	32.0							
	10:00	32.0							
	11:30	32.0							

Vacuum at Pump: 26

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 4		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
11:30	28.98		33.29					
12:00		0		0				
12:30		0		.0036				
13:00		0		.0058				
13:30		0		0				
14:00		0		0				
14:30		0		0				
15:00		0		0				
15:30		0		0				
16:00		.0007		0				
16:30		.0007		0				
17:00		.0007		.0044				
17:30		.0007		.0007				
18:00		.0022		.0014				
18:30		.0022		.0014				
19:00		.0022		.0110				
19:30		.0014		.0014				
20:30		.0022		.0014				
21:30		.0022		.0022				
22:30		.0029		.0022				
23:30		.0029		.0022				
24:00		.0029		.0022				

Monday 10-21

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 4		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
08:00		.0110		.0183				
09:00		.0110		.0183				
10:00		.0132		.0183				
11:00		0		.0183				
12:00		0		.0183				
14:00		0		.0147				
16:00		.0022		.0147				
18:00		.0029		.0294				
20:00		.0036		.0294				
22:00		.0022		0294				
24:00		.0029		.0294				
08:00		.0014		.0117				
10:00		.0014		.0147				
12:00		.0014		.0147				
14:00		.0014		.0147				
16:00		.0036		0294				
18:00		.0029		.0294				
20:00		.0029		.0294				
22:00		.0022		.0147				
24:00		.0022		.0220				

21-12 Monday

12-13 Tuesday

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 4		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
08:00		0		.0147				
10:00		0		.0073				
12:00		0		.0073				
14:00		0		.0147				
16:00		.0007		.0147				
18:00		.0014		.0147				
20:00		.0014		.0220				
22:00		.0014		.0220				
24:00		.0014		.0294				
08:00		.0014		.0147				
10:00		.0014		.0220				
11:30	29.31	.0007	33.25	.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
11:30	flame out	68	1040	37.3	89.6	
12:00		131	1151	52.4	92.0	
12:30	flame out	193	1048	52.3	92.3	
13:00		276	1032	52.7	92.6	
13:30	flame out	413	1056	53.1	92.7	
14:00		558	1080	53.3	93.2	
14:30	flame out	736	1016	54.1	93.0	
15:00	57,400	958	1042	53.6	93.2	
15:30	55,500	1236	1191	52.6	92.7	
16:00	50,400	1573	1272	53.0	92.6	
16:30	52,700	1931	1236	52.1	92.3	
17:00	51,500	2453	1311	51.7	92.5	
17:30	53,200	2883	1272	50.9	92.1	
18:00	49,700	3245	1010	50.1	92.8	
18:30	46,600	3671	1056	52.9	91.4	
19:00	46,900	4216	1025	53.1	90.7	
19:30	44,000	4663	1084	48.6	90.6	
20:30	41,300	4848	1095	45.1	89.8	
21:30	40,500	5216	1054	43.7	88.6	
22:30	41,200	5330	1073	43.0	86.9	
23:30	38,600	5615	1068	41.7	87.6	
24:00	36,500	5815	1107	42.9	88.8	
08:00	26,800	21	983	41.6	91.6	
09:00	25,300	56	961	42.3	89.3	
10:00	23,200	83	977	45.1	86.2	
11:00	24,700	114	1034	50.2	91.6	
12:00	22,800	193	985	51.4	92.0	
14:00	28,500	276	1026	52.5	92.5	

10-12 Monday

10-13 Tuesday

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 12 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 10-13 16:00	23,300	498	1060	52.5	92.6	
18:00	27,100	913	1044	50.7	92.1	
20:00	24,400	1673	1105	47.5	89.9	
22:00	28,500	2461	1083	43.9	88.4	
24:00	30,100	2753	1021	41.6	86.8	
Wednesday 10-14 08:00	26,900	69	885	37.1	87.3	
10:00	28,300	616	944	48.3	89.1	
12:00	25,600	938	1035	49.9	93.7	
14:00	23,400	1749	929	52.9	93 0	
16:00	25,400	2163	1181	51.5	92.2	
18:00	26,300	2815	1053	49.5	91.7	
20:00	23,900	3306	1015	43.7	89.3	
22:00	25,400	3671	1007	41.7	88.1	
24:00	24,500	4003	971	40.0	86.5	
Thursday 10-15 08:00	27,600	83	867	39.6	87.6	
10:00	26,900	414	941	49.7	91.8	
12:00	27,500	758	1186	49.5	92.4	
14:00	26,300	1163	1075	50.3	91.8	
16:00	28,100	1881	1114	51.5	92.3	
18:00	29,300	2463	1004	50.0	93.0	
20:00	31,100	3308	976	47.3	91.7	
22:00	28,200	3861	983	45.6	89.7	
24:00	27,500	4408	937	44.4	88.8	
Friday 10-16 08:00	24,100	103	1046	38.8	91.8	
10:00	22,600	309	1079	39.1	92.3	
11:30	22,700	783	1136	42.3	87.6	

APPENDIX B

AFVR Mass Removal Calculations

Site: Bountyland Quick Stop #6 - Event 1 of 3
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c\,m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 dsm^3/10^6 mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 1 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
8/10/2015	11:00	44.4	92.5	0.058	0.085	17.22	0.022	571.6	19.04
	11:30	55.6	94.6	0.112	0.152	22.88	0.022	591.8	22.64
	12:00	59.0	93.8	0.135	0.178	24.15	0.022	597.9	22.94
	12:30	59.3	95.0	0.139	0.183	24.60	0.022	598.4	23.21
	13:00	59.6	96.7	0.145	0.188	22.57	0.022	599.0	21.12
	13:30	59.9	97.6	0.149	0.193	21.93	0.022	599.5	20.39
	14:00	60.4	97.6	0.154	0.198	22.30	0.022	600.4	20.58
	14:30	62.0	93.5	0.160	0.204	22.50	0.022	603.3	20.50
	15:00	62.4	94.7	0.166	0.210	23.50	0.022	604.0	21.21
	15:30	61.6	93.3	0.156	0.200	22.83	0.022	602.6	20.94
	16:00	60.8	92.9	0.148	0.192	20.20	0.022	601.1	18.76
	16:30	60.2	92.2	0.142	0.185	18.97	0.022	600.0	17.80
	17:00	58.8	92.5	0.131	0.174	16.93	0.022	597.5	16.18
	17:30	57.9	91.9	0.123	0.165	19.15	0.022	595.9	18.53
	18:00	54.3	90.7	0.099	0.137	20.28	0.022	589.4	20.51
	18:30	53.7	92.4	0.098	0.135	18.38	0.022	588.3	18.66
	19:00	53.0	92.2	0.094	0.131	19.38	0.022	587.1	19.82
	20:00	50.7	91.3	0.081	0.115	16.78	0.022	582.9	17.59
	21:00	49.9	93.4	0.080	0.113	17.85	0.022	581.5	18.80
	22:00	49.1	91.8	0.075	0.107	19.00	0.022	580.1	20.20
	23:00	48.3	93.9	0.073	0.105	17.80	0.022	578.6	19.01
8/11/2015	0:00	47.9	94.7	0.072	0.104	18.78	0.022	577.9	20.12
	8:00	53.4	94.5	0.099	0.137	18.00	0.022	587.8	18.26
	9:00	55.6	93.7	0.111	0.151	18.42	0.022	591.8	18.25
	10:00	57.8	94.4	0.127	0.169	19.35	0.022	595.7	18.65
	11:00	59.2	95.6	0.140	0.183	19.48	0.022	598.2	18.38
	13:00	59.4	96.1	0.142	0.186	20.07	0.022	598.6	18.86
	15:00	61.3	96.8	0.160	0.204	18.92	0.022	602.0	17.27
	17:00	58.2	94.1	0.129	0.172	20.22	0.022	596.4	19.39
	19:00	54.9	93.8	0.107	0.146	19.15	0.022	590.5	19.13
	21:00	52.4	91.3	0.090	0.126	17.90	0.022	586.0	18.45
	23:00	51.6	92.7	0.087	0.123	18.62	0.022	584.6	19.30

Site: Bountyland Quick Stop #6 - Event 1 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
8/12/2015	0:00	50.4	93.2	0.082	0.116	17.22	0.022	582.4	18.05
	8:00	52.4	93.6	0.092	0.129	19.80	0.022	586.0	20.33
	10:00	56.0	96.2	0.117	0.158	22.35	0.022	592.5	21.94
	12:00	57.3	94.8	0.124	0.166	20.40	0.022	594.8	19.77
	14:00	56.2	92.4	0.113	0.153	18.57	0.022	592.8	18.32
	16:00	55.3	91.1	0.105	0.144	17.88	0.022	591.2	17.87
	18:00	54.6	93.7	0.105	0.144	20.30	0.022	590.0	20.35
	20:00	52.1	92.8	0.090	0.126	19.70	0.022	585.5	20.32
	22:00	54.5	92.6	0.103	0.141	21.05	0.022	589.8	21.17
8/13/2015	0:00	52.9	90.2	0.091	0.127	19.78	0.022	586.9	20.32
	8:00	48.3	92.9	0.072	0.104	17.68	0.022	578.6	18.91
	10:00	53.0	95.5	0.098	0.135	18.37	0.022	587.1	18.68
	12:00	56.4	97.1	0.121	0.162	19.23	0.022	593.2	18.76
	14:00	58.6	96.3	0.136	0.179	20.63	0.022	597.2	19.59
	16:00	58.9	93.9	0.134	0.177	18.58	0.022	597.7	17.67
	18:00	57.4	92.6	0.121	0.162	20.22	0.022	595.0	19.65
	20:00	57.1	92.2	0.118	0.159	20.48	0.022	594.5	20.00
	22:00	56.6	93.0	0.116	0.157	18.42	0.022	593.6	18.06
8/14/2015	0:00	54.2	93.6	0.102	0.141	19.48	0.022	589.2	19.62
	8:00	49.6	93.9	0.079	0.112	20.47	0.022	581.0	21.60
	10:00	51.3	92.6	0.086	0.121	21.77	0.022	584.0	22.64
	11:00	53.8	91.4	0.097	0.135	20.18	0.022	588.5	20.50

Site: Bountyland Quick Stop #6 - Event 1 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
8/10/2015	11:00	0	19.04	50000	50000	24948	- - -	- - -	0.00
	11:30	30	22.64	50000	50000	24948	0.00156	2.12	1.06
	12:00	30	22.94	50000	50000	24948	0.00156	2.14	1.07
	12:30	30	23.21	50000	50000	24948	0.00156	2.17	1.08
	13:00	30	21.12	50000	50000	24948	0.00156	1.97	0.99
	13:30	30	20.39	50000	50000	24948	0.00156	1.91	0.95
	14:00	30	20.58	48300	48300	24100	0.00150	1.86	0.93
	14:30	30	20.50	50000	50000	24948	0.00156	1.92	0.96
	15:00	30	21.21	50000	50000	24948	0.00156	1.98	0.99
	15:30	30	20.94	49900	49900	24898	0.00155	1.95	0.98
	16:00	30	18.76	50000	50000	24948	0.00156	1.75	0.88
	16:30	30	17.80	50000	50000	24948	0.00156	1.66	0.83
	17:00	30	16.18	50000	50000	24948	0.00156	1.51	0.76
	17:30	30	18.53	50000	50000	24948	0.00156	1.73	0.87
	18:00	30	20.51	50000	50000	24948	0.00156	1.92	0.96
	18:30	30	18.66	50000	50000	24948	0.00156	1.74	0.87
	19:00	30	19.82	50000	50000	24948	0.00156	1.85	0.93
	20:00	60	17.59	50000	50000	24948	0.00156	1.64	1.64
	21:00	60	18.80	50000	50000	24948	0.00156	1.76	1.76
	22:00	60	20.20	50000	50000	24948	0.00156	1.89	1.89
	23:00	60	19.01	50000	50000	24948	0.00156	1.78	1.78
8/11/2015	0:00	60	20.12	50000	50000	24948	0.00156	1.88	1.88
	8:00	480	18.26	50000	50000	24948	0.00156	1.71	13.65
	9:00	60	18.25	50000	50000	24948	0.00156	1.71	1.71
	10:00	60	18.65	48600	48600	24250	0.00151	1.69	1.69
	11:00	60	18.38	49100	49100	24499	0.00153	1.69	1.69
	13:00	120	18.86	50000	50000	24948	0.00156	1.76	3.52
	15:00	120	17.27	47600	47600	23751	0.00148	1.54	3.07
	17:00	120	19.39	48300	48300	24100	0.00150	1.75	3.50
	19:00	120	19.13	45600	45600	22753	0.00142	1.63	3.26
	21:00	120	18.45	45000	45000	22453	0.00140	1.55	3.10
	23:00	120	19.30	44400	44400	22154	0.00138	1.60	3.20

Site: Bountyland Quick Stop #6 - Event 1 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
8/12/2015	0:00	60	18.05	43600	43600	21755	0.00136	1.47	1.47
	8:00	480	20.33	41700	41700	20807	0.00130	1.58	12.68
	10:00	120	21.94	42900	42900	21405	0.00134	1.76	3.52
	12:00	120	19.77	42000	42000	20956	0.00131	1.55	3.10
	14:00	120	18.32	41600	41600	20757	0.00130	1.42	2.85
	16:00	120	17.87	44200	44200	22054	0.00138	1.48	2.95
	18:00	120	20.35	45000	45000	22453	0.00140	1.71	3.42
	20:00	120	20.32	43700	43700	21805	0.00136	1.66	3.32
	22:00	120	21.17	43200	43200	21555	0.00135	1.71	3.42
8/13/2015	0:00	120	20.32	42100	42100	21006	0.00131	1.60	3.20
	8:00	480	18.91	41100	41100	20507	0.00128	1.45	11.62
	10:00	120	18.68	43800	43800	21855	0.00136	1.53	3.06
	12:00	120	18.76	44200	44200	22054	0.00138	1.55	3.10
	14:00	120	19.59	40300	40300	20108	0.00126	1.48	2.95
	16:00	120	17.67	42700	42700	21306	0.00133	1.41	2.82
	18:00	120	19.65	40100	40100	20008	0.00125	1.47	2.95
	20:00	120	20.00	38600	38600	19260	0.00120	1.44	2.89
	22:00	120	18.06	39300	39300	19609	0.00122	1.33	2.65
8/14/2015	0:00	120	19.62	41500	41500	20707	0.00129	1.52	3.04
	8:00	480	21.60	44100	44100	22004	0.00137	1.78	14.24
	10:00	120	22.64	43300	43300	21605	0.00135	1.83	3.66
	11:00	60	20.50	45000	45000	22453	0.00140	1.72	1.72

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-2 & RW-3 **157.08**

Site: Bountyland Quick Stop #6 - Event 2 of 3
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\cdot m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c\,m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 2 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
8/10/2015	11:00	56.3	98.3	0.122	0.164	23.52	0.022	593.0	22.91
	11:30	56.4	100.0	0.125	0.167	23.83	0.022	593.2	23.11
	12:00	54.3	100.0	0.111	0.151	22.10	0.022	589.4	21.98
	12:30	41.9	100.0	0.055	0.080	21.57	0.022	567.1	24.15
	13:00	52.3	100.0	0.099	0.137	22.77	0.022	585.8	23.17
	13:30	52.9	100.0	0.102	0.141	22.33	0.022	586.9	22.58
	14:00	53.2	100.0	0.104	0.143	22.87	0.022	587.4	23.04
	14:30	53.0	100.0	0.103	0.142	21.07	0.022	587.1	21.27
	15:00	53.6	100.0	0.107	0.146	21.53	0.022	588.2	21.60
	15:30	52.9	100.0	0.102	0.141	21.72	0.022	586.9	21.95
	16:00	52.9	99.5	0.102	0.140	19.58	0.022	586.9	19.81
	16:30	50.0	100.0	0.087	0.122	20.33	0.022	581.7	21.20
	17:00	49.6	100.0	0.085	0.120	20.77	0.022	581.0	21.73
	17:30	47.0	100.0	0.073	0.105	17.80	0.022	576.3	19.10
	18:00	49.6	100.0	0.085	0.120	15.90	0.022	581.0	16.64
	18:30	49.1	100.0	0.082	0.117	17.12	0.022	580.1	18.00
	19:00	50.4	100.0	0.089	0.124	19.05	0.022	582.4	19.78
	20:00	50.9	100.0	0.091	0.128	16.73	0.022	583.3	17.28
	21:00	50.1	100.0	0.087	0.123	15.63	0.022	581.9	16.28
	22:00	49.2	100.0	0.083	0.117	17.87	0.022	580.2	18.77
	23:00	48.7	100.0	0.081	0.114	18.85	0.022	579.3	19.90
8/11/2015	0:00	84.1	100.0	0.850	0.577	19.30	0.022	643.1	8.78
	8:00	51.1	88.7	0.081	0.114	21.17	0.022	583.7	22.18
	9:00	51.5	92.3	0.086	0.121	21.53	0.022	584.4	22.36
	10:00	53.3	96.8	0.101	0.139	21.73	0.022	587.6	21.99
	11:00	53.2	100.0	0.104	0.143	21.25	0.022	587.4	21.41
	13:00	55.5	100.0	0.119	0.160	21.07	0.022	591.6	20.66
	15:00	56.0	100.0	0.122	0.164	21.37	0.022	592.5	20.82
	17:00	53.7	100.0	0.107	0.147	17.93	0.022	588.3	17.96
	19:00	52.1	100.0	0.098	0.135	16.53	0.022	585.5	16.86
	21:00	50.4	100.0	0.089	0.124	18.53	0.022	582.4	19.24
	23:00	50.6	100.0	0.090	0.126	20.15	0.022	582.8	20.88

Site: Bountyland Quick Stop #6 - Event 2 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
8/12/2015	0:00	50.1	100.0	0.087	0.123	19.73	0.022	581.9	20.55
	8:00	52.2	93.7	0.091	0.128	23.47	0.022	585.6	24.14
	10:00	52.4	96.0	0.095	0.132	19.00	0.022	586.0	19.44
	12:00	55.1	100.0	0.116	0.157	20.03	0.022	590.9	19.74
	14:00	54.8	100.0	0.114	0.155	19.95	0.022	590.3	19.73
	16:00	54.1	100.0	0.110	0.150	17.13	0.022	589.1	17.08
	18:00	53.4	100.0	0.105	0.144	19.55	0.022	587.8	19.65
	20:00	50.9	100.0	0.091	0.128	21.77	0.022	583.3	22.48
	22:00	52.6	98.3	0.099	0.137	19.33	0.022	586.4	19.66
8/13/2015	0:00	51.2	98.0	0.091	0.127	20.57	0.022	583.8	21.24
	8:00	50.6	92.3	0.082	0.116	15.57	0.022	582.8	16.31
	10:00	51.0	95.0	0.087	0.122	16.35	0.022	583.5	16.99
	12:00	54.2	100.0	0.110	0.150	16.97	0.022	589.2	16.90
	14:00	55.1	100.0	0.116	0.157	21.12	0.022	590.9	20.81
	16:00	54.2	100.0	0.110	0.150	21.07	0.022	589.2	20.98
	18:00	53.0	100.0	0.103	0.142	18.50	0.022	587.1	18.68
	20:00	53.1	100.0	0.104	0.142	19.22	0.022	587.3	19.38
	22:00	52.2	100.0	0.098	0.136	23.27	0.022	585.6	23.70
8/14/2015	0:00	49.9	98.8	0.085	0.120	17.02	0.022	581.5	17.79
	8:00	51.2	88.3	0.081	0.114	23.40	0.022	583.8	24.51
	10:00	55.5	90.9	0.106	0.146	22.87	0.022	591.6	22.81
	11:00	94.7	94.7	3.212	0.837	23.02	0.022	662.1	3.91

Site: Bountyland Quick Stop #6 - Event 2 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
8/10/2015	11:00	0	22.91	50000	50000	24948	- - -	- - -	0.00
	11:30	30	23.11	50000	50000	24948	0.00156	2.16	1.08
	12:00	30	21.98	50000	50000	24948	0.00156	2.05	1.03
	12:30	30	24.15	50000	50000	24948	0.00156	2.26	1.13
	13:00	30	23.17	50000	50000	24948	0.00156	2.16	1.08
	13:30	30	22.58	50000	50000	24948	0.00156	2.11	1.05
	14:00	30	23.04	50000	50000	24948	0.00156	2.15	1.08
	14:30	30	21.27	50000	50000	24948	0.00156	1.99	0.99
	15:00	30	21.60	50000	50000	24948	0.00156	2.02	1.01
	15:30	30	21.95	50000	50000	24948	0.00156	2.05	1.03
	16:00	30	19.81	50000	50000	24948	0.00156	1.85	0.93
	16:30	30	21.20	50000	50000	24948	0.00156	1.98	0.99
	17:00	30	21.73	50000	50000	24948	0.00156	2.03	1.02
	17:30	30	19.10	50000	50000	24948	0.00156	1.78	0.89
	18:00	30	16.64	50000	50000	24948	0.00156	1.56	0.78
	18:30	30	18.00	50000	50000	24948	0.00156	1.68	0.84
	19:00	30	19.78	50000	50000	24948	0.00156	1.85	0.92
	20:00	60	17.28	50000	50000	24948	0.00156	1.62	1.62
	21:00	60	16.28	50000	50000	24948	0.00156	1.52	1.52
	22:00	60	18.77	50000	50000	24948	0.00156	1.75	1.75
	23:00	60	19.90	50000	50000	24948	0.00156	1.86	1.86
8/11/2015	0:00	60	8.78	50000	50000	24948	0.00156	0.82	0.82
	8:00	480	22.18	50000	50000	24948	0.00156	2.07	16.58
	9:00	60	22.36	50000	50000	24948	0.00156	2.09	2.09
	10:00	60	21.99	50000	50000	24948	0.00156	2.05	2.05
	11:00	60	21.41	50000	50000	24948	0.00156	2.00	2.00
	13:00	120	20.66	50000	50000	24948	0.00156	1.93	3.86
	15:00	120	20.82	50000	50000	24948	0.00156	1.95	3.89
	17:00	120	17.96	50000	50000	24948	0.00156	1.68	3.36
	19:00	120	16.86	50000	50000	24948	0.00156	1.58	3.15
	21:00	120	19.24	50000	50000	24948	0.00156	1.80	3.60
	23:00	120	20.88	50000	50000	24948	0.00156	1.95	3.90

Site: Bountyland Quick Stop #6 - Event 2 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
8/12/2015	0:00	60	20.55	50000	50000	24948	0.00156	1.92	1.92
	8:00	480	24.14	50000	50000	24948	0.00156	2.26	18.05
	10:00	120	19.44	50000	50000	24948	0.00156	1.82	3.63
	12:00	120	19.74	50000	50000	24948	0.00156	1.84	3.69
	14:00	120	19.73	50000	50000	24948	0.00156	1.84	3.69
	16:00	120	17.08	50000	50000	24948	0.00156	1.60	3.19
	18:00	120	19.65	50000	50000	24948	0.00156	1.84	3.67
	20:00	120	22.48	50000	50000	24948	0.00156	2.10	4.20
	22:00	120	19.66	50000	50000	24948	0.00156	1.84	3.67
8/13/2015	0:00	120	21.24	50000	50000	24948	0.00156	1.98	3.97
	8:00	480	16.31	50000	50000	24948	0.00156	1.52	12.19
	10:00	120	16.99	50000	50000	24948	0.00156	1.59	3.18
	12:00	120	16.90	50000	50000	24948	0.00156	1.58	3.16
	14:00	120	20.81	50000	50000	24948	0.00156	1.94	3.89
	16:00	120	20.98	50000	50000	24948	0.00156	1.96	3.92
	18:00	120	18.68	50000	50000	24948	0.00156	1.75	3.49
	20:00	120	19.38	50000	50000	24948	0.00156	1.81	3.62
	22:00	120	23.70	50000	50000	24948	0.00156	2.21	4.43
8/14/2015	0:00	120	17.79	50000	50000	24948	0.00156	1.66	3.32
	8:00	480	24.51	50000	50000	24948	0.00156	2.29	18.33
	10:00	120	22.81	50000	50000	24948	0.00156	2.13	4.26
	11:00	60	3.91	50000	50000	24948	0.00156	0.37	0.37

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-1 & RW-5 **181.76**

Site: Bountyland Quick Stop #6 - Event 3 of 3
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c\,m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c\,m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 3 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
10/12/2015	11:30	37.3	89.6	0.037	0.056	17.33	0.022	558.8	20.22
	12:00	52.4	92.0	0.090	0.127	19.18	0.022	586.0	19.75
	12:30	52.3	92.3	0.090	0.126	17.47	0.022	585.8	17.99
	13:00	52.7	92.6	0.093	0.129	17.20	0.022	586.5	17.64
	13:30	53.1	92.7	0.095	0.132	17.60	0.022	587.3	17.97
	14:00	53.3	93.2	0.097	0.134	18.00	0.022	587.6	18.32
	14:30	54.1	93.0	0.101	0.139	16.93	0.022	589.1	17.09
	15:00	53.6	93.2	0.098	0.136	17.37	0.022	588.2	17.62
	15:30	52.6	92.7	0.092	0.129	19.85	0.022	586.4	20.37
	16:00	53.0	92.6	0.094	0.131	21.20	0.022	587.1	21.67
	16:30	52.1	92.3	0.089	0.125	20.60	0.022	585.5	21.26
	17:00	51.7	92.5	0.087	0.123	21.85	0.022	584.7	22.64
	17:30	50.9	92.1	0.083	0.118	21.20	0.022	583.3	22.15
	18:00	50.1	92.8	0.080	0.114	16.83	0.022	581.9	17.71
	18:30	52.9	91.4	0.092	0.129	17.60	0.022	586.9	18.04
	19:00	53.1	90.7	0.093	0.129	17.08	0.022	587.3	17.50
	19:30	48.6	90.6	0.072	0.103	18.07	0.022	579.2	19.33
	20:30	45.1	89.8	0.058	0.085	18.25	0.022	572.9	20.12
	21:30	43.7	88.6	0.053	0.078	17.57	0.022	570.3	19.61
	22:30	43.0	86.9	0.050	0.074	17.88	0.022	569.1	20.10
	23:30	41.7	87.6	0.047	0.070	17.80	0.022	566.7	20.18
10/13/2015	0:00	42.9	88.8	0.051	0.075	18.45	0.022	568.9	20.71
	8:00	41.6	91.6	0.049	0.072	16.38	0.022	566.6	18.52
	9:00	42.3	89.3	0.049	0.073	16.02	0.022	567.8	18.05
	10:00	45.1	86.2	0.056	0.082	16.28	0.022	572.9	18.02
	11:00	50.2	91.6	0.079	0.113	17.23	0.022	582.0	18.14
	12:00	51.4	92.0	0.085	0.120	16.42	0.022	584.2	17.07
	14:00	52.5	92.5	0.091	0.128	17.10	0.022	586.2	17.57
	16:00	52.5	92.6	0.092	0.128	17.67	0.022	586.2	18.15
	18:00	50.7	92.1	0.082	0.116	17.40	0.022	582.9	18.22
	20:00	47.5	89.9	0.067	0.097	18.42	0.022	577.2	19.91
	22:00	43.9	88.4	0.053	0.079	18.05	0.022	570.7	20.12

Site: Bountyland Quick Stop #6 - Event 3 of 3
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
10/14/2015	0:00	41.6	86.8	0.046	0.069	17.02	0.022	566.6	19.32
	8:00	37.1	87.3	0.036	0.054	14.75	0.022	558.5	17.25
	10:00	48.3	89.1	0.069	0.100	15.73	0.022	578.6	16.91
	12:00	49.9	93.7	0.080	0.114	17.25	0.022	581.5	18.16
	14:00	52.9	93.0	0.094	0.131	15.48	0.022	586.9	15.83
	16:00	51.5	92.2	0.086	0.121	19.68	0.022	584.4	20.44
	18:00	49.5	91.7	0.076	0.109	17.55	0.022	580.8	18.59
	20:00	43.7	89.3	0.053	0.079	16.92	0.022	570.3	18.87
	22:00	41.7	88.1	0.047	0.070	16.78	0.022	566.7	19.02
10/15/2015	0:00	40.0	86.5	0.042	0.063	16.18	0.022	563.7	18.58
	8:00	39.6	87.6	0.041	0.062	14.45	0.022	563.0	16.62
	10:00	49.7	91.8	0.077	0.110	15.68	0.022	581.1	16.58
	12:00	49.5	92.4	0.077	0.110	19.77	0.022	580.8	20.92
	14:00	50.3	91.8	0.080	0.114	17.92	0.022	582.2	18.84
	16:00	51.5	92.3	0.086	0.121	18.57	0.022	584.4	19.28
	18:00	50.0	93.0	0.080	0.113	16.73	0.022	581.7	17.61
	20:00	47.3	91.7	0.067	0.098	16.27	0.022	576.8	17.58
	22:00	45.6	89.7	0.060	0.087	16.38	0.022	573.8	18.00
10/16/2015	0:00	44.4	88.8	0.055	0.081	15.62	0.022	571.6	17.33
	8:00	38.8	91.8	0.042	0.063	17.43	0.022	561.5	20.10
	10:00	39.1	92.3	0.043	0.064	17.98	0.022	562.1	20.69
	11:30	42.3	87.6	0.048	0.072	18.93	0.022	567.8	21.37

Site: Bountyland Quick Stop #6 - Event 3 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
10/12/2015	11:30	0	20.22	50000	50000	24948	- - -	- - -	0.00
	12:00	30	19.75	50000	50000	24948	0.00156	1.85	0.92
	12:30	30	17.99	50000	50000	24948	0.00156	1.68	0.84
	13:00	30	17.64	50000	50000	24948	0.00156	1.65	0.82
	13:30	30	17.97	50000	50000	24948	0.00156	1.68	0.84
	14:00	30	18.32	50000	50000	24948	0.00156	1.71	0.86
	14:30	30	17.09	50000	50000	24948	0.00156	1.60	0.80
	15:00	30	17.62	50000	50000	24948	0.00156	1.65	0.82
	15:30	30	20.37	50000	50000	24948	0.00156	1.90	0.95
	16:00	30	21.67	50000	50000	24948	0.00156	2.02	1.01
	16:30	30	21.26	50000	50000	24948	0.00156	1.99	0.99
	17:00	30	22.64	50000	50000	24948	0.00156	2.12	1.06
	17:30	30	22.15	50000	50000	24948	0.00156	2.07	1.03
	18:00	30	17.71	49700	49700	24798	0.00155	1.64	0.82
	18:30	30	18.04	46600	46600	23252	0.00145	1.57	0.79
	19:00	30	17.50	46900	46900	23401	0.00146	1.53	0.77
	19:30	30	19.33	44000	44000	21954	0.00137	1.59	0.79
	20:30	60	20.12	41300	41300	20607	0.00129	1.55	1.55
	21:30	60	19.61	40500	40500	20208	0.00126	1.48	1.48
	22:30	60	20.10	41200	41200	20557	0.00128	1.55	1.55
	23:30	60	20.18	38600	38600	19260	0.00120	1.46	1.46
10/13/2015	0:00	30	20.71	36500	36500	18212	0.00114	1.41	0.71
	8:00	480	18.52	26800	26800	13372	0.00083	0.93	7.42
	9:00	60	18.05	25300	25300	12624	0.00079	0.85	0.85
	10:00	60	18.02	23200	23200	11576	0.00072	0.78	0.78
	11:00	60	18.14	24700	24700	12324	0.00077	0.84	0.84
	12:00	60	17.07	22800	22800	11376	0.00071	0.73	0.73
	14:00	120	17.57	28500	28500	14220	0.00089	0.94	1.87
	16:00	120	18.15	23300	23300	11626	0.00073	0.79	1.58
	18:00	120	18.22	27100	27100	13522	0.00084	0.92	1.85
	20:00	120	19.91	24400	24400	12175	0.00076	0.91	1.82
	22:00	120	20.12	28500	28500	14220	0.00089	1.07	2.14

Site: Bountyland Quick Stop #6 - Event 3 of 3
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
10/14/2015	0:00	120	19.32	30100	30100	15019	0.00094	1.09	2.17
	8:00	480	17.25	26900	26900	13422	0.00084	0.87	6.94
	10:00	120	16.91	28300	28300	14121	0.00088	0.89	1.79
	12:00	120	18.16	25600	25600	12773	0.00080	0.87	1.74
	14:00	120	15.83	23400	23400	11676	0.00073	0.69	1.38
	16:00	120	20.44	25400	25400	12674	0.00079	0.97	1.94
	18:00	120	18.59	26300	26300	13123	0.00082	0.91	1.83
	20:00	120	18.87	23900	23900	11925	0.00074	0.84	1.69
	22:00	120	19.02	25400	25400	12674	0.00079	0.90	1.81
10/15/2015	0:00	120	18.58	24500	24500	12225	0.00076	0.85	1.70
	8:00	480	16.62	27600	27600	13771	0.00086	0.86	6.86
	10:00	120	16.58	26900	26900	13422	0.00084	0.83	1.67
	12:00	120	20.92	27500	27500	13721	0.00086	1.08	2.15
	14:00	120	18.84	26300	26300	13123	0.00082	0.93	1.85
	16:00	120	19.28	28100	28100	14021	0.00088	1.01	2.03
	18:00	120	17.61	29300	29300	14620	0.00091	0.96	1.93
	20:00	120	17.58	31100	31100	15518	0.00097	1.02	2.04
	22:00	120	18.00	28200	28200	14071	0.00088	0.95	1.90
10/16/2015	0:00	120	17.33	27500	27500	13721	0.00086	0.89	1.78
	8:00	480	20.10	24100	24100	12025	0.00075	0.91	7.24
	10:00	120	20.69	22600	22600	11277	0.00070	0.87	1.75
	11:30	90	21.37	22700	22700	11326	0.00071	0.91	1.36

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-8 **96.29**

APPENDIX C

Disposal Manifest(s)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

ARM 395 - C292

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1376

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop, 5034 SC-11, Westminster, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main, Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	4559	Gal.
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop | Signature: Billy Pittenger | Date: Month 8 | Day 12 | Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: BGARY CULBERTSON | Signature: Gary Culbertson | Date: Month 8 | Day 12 | Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month | Day | Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Urban | Signature | Date: Month 8 | Day 12 | Year 15

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAD990724916

Manifest Document No. 1377

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC 11, Westminister, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main, Moultin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit WL/Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	5,070	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Billy Pittenger Agent for Bountyland Quick Stop	Billy Pittenger	8 / 14 / 15

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Eric Lowe	Eric Lowe	8 / 14 / 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Steven McCann		

NON-HAZARDOUS WASTE — GENERATOR — TRANSPORTER — FACILITY

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Rev. 3/95

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAD990724916

Manifest Document No. 1378

2. Page 1 of

3. Generator's Name and Mailing Address Bounty land Quick Stop #6
5034 SC. 11
Westminister, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main
Mawlin, SC

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	3137	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above
profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bounty land Quick Stop
Signature: Billy Pittenger
Date: Month 10 Day 14 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Bonfilio
Signature:
Date: Month 10 Day 14 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name:
Signature:
Date: Month 10 Day 14 Year 15

NON-HAZARDOUS WASTE

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AMERICAN LABELMARK CO. — CHICAGO, IL 60648 299592-DQ

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAD990724916

Manifest Document No. 1379

2. Page 1 of

3. Generator's Name and Mailing Address Bountyland Quick Stop #6
5034 SC 11
Westminister, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main St.
Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	2211	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop Signature: Billy Pittenger Date: Month 8 Day 14 Year 15

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pittenger Signature: Billy Pittenger Date: Month 8 Day 14 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name Signature Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 18.

Printed/Typed Name: Steve Mullen Signature: Steve Mullen Date: Month 8 Day 14 Year 15

NON-HAZARDOUS WASTE
GENERATOR
TRANSPORTER
FACILITY

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAD990724916

Manifest Document No. 1423

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC 11 South, Westminster, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main Street, Moulding, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	1470	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 8594

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy P. Henger Agent for Bountyland Quick Stop #6 | Signature: Billy Pittenger | Date: Month 10 Day 15 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Clyde Sweet | Signature | Date: Month 10 Day 15 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: James Courtwell | Signature: James Courtwell | Date: Month 10 Day 15 Year 15

NON-HAZARDOUS WASTE

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NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CAD990724916

Manifest Document No.: 1424

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6
5034 Hwy 11 S
Westminster, S.C

25-403.8-15

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM ENVIRONMENTAL SERVICES, INC.

6. US EPA ID Number:

A. State Transporter's ID:

B. Transporter 1 Phone: 803-783-3314

7. Transporter 2 Company Name:

8. US EPA ID Number:

C. State Transporter's ID:

D. Transporter 2 Phone:

9. Designated Facility Name and Site Address: VLS Recovery
305 South Main
Mauldin, S.C

10. US EPA ID Number:

E. State Facility's ID:

F. Facility's Phone:

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	2357	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: profile 8594

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pitterger Agent for Bountyland Quick Stop #6

Signature: Billy Pitterger

Date: Month 10 Day 16 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pitterger

Signature: Billy Pitterger

Date: Month 10 Day 16 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:

Signature:

Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Brien Tolye II

Signature:

Date: Month 10 Day 16 Year 15

NON-HAZARDOUS WASTE

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Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment

UST 36 DOCKETING

MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672

MAY 17 2016

Re: Site-specific work plan request
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711
Release reported December 1, 2011
Oconee County

Dear Mr. Waller:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) recognizes your commitment to continue work at this site using ARM Environmental Services, Inc. as your contractor. The next scope of work is ground-water sampling as outlined in UST Quality Assurance Program Plan (QAPP) Revision 3.0. Please have your contractor plan to sample all monitoring wells for BTEX+naph+MtBE+DCA+oxygenates. Do not sample wells containing measurable (0.01') free-phase product. All work must be done in accordance with QAPP Revision 2.0 and in compliance with all applicable regulations. A copy of QAPP Revision 3.0 is available at http://www.scdhec.gov/Environment/docs/QAPPRevision3.0.pdf.

Your contractor must complete and submit a site-specific work plan and cost proposal for the sampling within 30 days of the date of this letter. Upon review and approval of the plan and cost proposal, the Division will issue a directive to you for the work.

On all correspondence concerning this site, please reference UST Permit #06711. If there are any questions, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.sswp1

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209
Technical file

D H E C

PROMOTE PROTECT PROSPER

Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment

DEBRAH B. CARL
ENVIRONMENTAL/LICENSING MANAGER
CIRCLE K STORES INC
2440 WHITEHALL PARK DR STE 800
CHARLOTTE NC 28273

MAY 17 2016

Re: **Site Specific Work Plan (SSWP) Request**
St. Stephens Shell, 3862 Byrnes Dr. Hwy 52, St. Stephens, SC
UST Permit #01225
Release Reported May 31, 1999
Berkeley County

Dear Ms. Carl:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) recognizes your commitment to continue work at this site using ATC Group Services, LLC as your contractor. The next appropriate scope of work at the site is a comprehensive groundwater sampling event.

The groundwater sampling event should be conducted in accordance with the current revision of the UST Quality Assurance Program Plan (QAPP) Revision and must be conducted in compliance with all applicable regulations. Groundwater samples should be collected from all monitoring wells and analyzed for BTEX + Naphth + MtBE, 1,2-DCA, 8 oxygenates, and EDB. All wells should be purged prior to sample collection. A copy of the Agency QAPP for the UST Management Division is available at https://www.scdhec.gov/environment/lw/ust/ReleaseAssessmentClean-up/QualityAssurance/.

Please have your contractor complete and submit the Site Specific Work Plan (SSWP) and Cost Proposal within thirty (30) days of the date of this letter. Every component may not be necessary to complete the above scope of work. The State Underground Petroleum Environmental Response Bank (SUPERB) Account allowable cost for each component is included on the Assessment Component Cost Agreement Form. **Please note that technical and financial preapproval from the Agency must be issued before work begins**.

On all correspondence concerning this site, please reference **UST Permit #01225.** If there are any questions concerning this project, please contact me at (803) 898-0607 or by email at thrasham@dhec.sc.gov.

Sincerely,

Ashleigh Thrash

Ashleigh Thrash, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

cc: ATC Group Services, LLC, 7499 Parklane Rd. Ste. 112, Columbia, SC 29223
Technical File

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*



TRANSMITTAL COVER SHEET

TO: **Joel P. Padgett, P.G., Geologist/Hydrologist**

COMPANY / AGENCY: **UST Program / Bureau of Land and Waste Management**



FROM: **Joseph Goings**

RE: **Bountyland Quick Stop #6; UST Permit #06711**
Site-Specific Work Plan and
Assessment Component Cost Proposal

DATE: **April 19, 2016**

TRANSMITTAL VIA: **_✓_ Standard US Mail** **___ Priority US Mail**
___ Overnight Courier **___ Hand Delivery**

COMMENTS:

Enclosed you will find a Site-Specific Work Plan and Assessment Component Cost Proposal for the activities requested at the site.

Upon your approval of the Work Plan and cost proposal, ARM personnel will initiate the assessment.

Please do not hesitate to give me a call if you have any questions or if further information is required.

Sincerely,
ARM Environmental Services, Inc.

Joseph A. Goings, P.G.
Project Geologist

1210 1st STREET SOUTH EXTENSION / COLUMBIA, SC 29209 / phone 803-783-3314 fax 803-783-2587

D H E C
PROMOTE PROTECT PROSPER

Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: Joel P. Padgett, P.G. (SCDHEC Project Manager)
From: Joseph Goings (Contractor Project Manager)
Contractor: ARM Environmental Services, Inc. UST Contractor Certification Number: #4

Facility Name: Bountyland Quick Stop #6 UST Permit #: 06711
Facility Address: 5034 South Highway 11, Westminster, SC
Responsible Party: Bountyland Food Service, Inc. Phone:
RP Address: 1510 Blue Ridge Blvd, Suite 202, Seneca, SC 29672
Property Owner (if different): same
Property Owner Address: same
Current Use of Property: Gas station & convenience store

Scope of Work (Please check all that apply)

- ☐ IGWA
- ☐ Tier I
- ☐ Tier II
- ☐ Monitoring Well Installation
- ☑ Groundwater Sampling
- ☐ Other
- ☐ GAC

Analyses (Please check all that apply)

Groundwater/Surface Water:

- ☑ BTEXNMDCA (8260B)
- ☑ Oxygenates (8260B)
- ☐ EDB (8011)
- ☐ PAH (8270D)
- ☐ Lead
- ☐ 8 RCRA Metals
- ☐ TPH
- ☐ pH
- ☐ BOD
- ☐ Nitrate
- ☐ Sulfate
- ☐ Other
- ☐ Methane
- ☐ Ethanol
- ☐ Dissolved Iron

Soil:

- ☐ BTEXNM
- ☐ Lead
- ☐ PAH
- ☐ 8 RCRA Metals
- ☐ Oil & Grease (9071)
- ☐ TPH-DRO (3550B/8015B)
- ☐ TPH-GRO (5030B/8015B)
- ☐ Grain Size
- ☐ TOC

Air:

- ☐ BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

____ Soil	____ Water Supply Wells	____ Air	3 Field Blank
30 Monitoring Wells	3 Surface Water	2 Duplicate	1 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.
of shallow points proposed: ____ Estimated Footage: ____ feet per point
of deep points proposed: ____ Estimated Footage: ____ feet per point
Field Screening Methodology: ____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.
of shallow wells: ____ Estimated Footage: ____ feet per point
of deep wells: ____ Estimated Footage: ____ feet per point
of recovery wells: ____ Estimated Footage: ____ feet per point
Monitoring Well development method (consistent with SOP): ____
Comments, if warranted:

UST Permit #: 06711 Facility Name: Bountyland Quick Stop #6

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 15 Field Work Completion: 30
Report Submittal: 60 # of Copies Provided to Property Owners: 1

Aquifer Characterization
Pump Test: ☐ Slug Test: ☐ (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 70 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

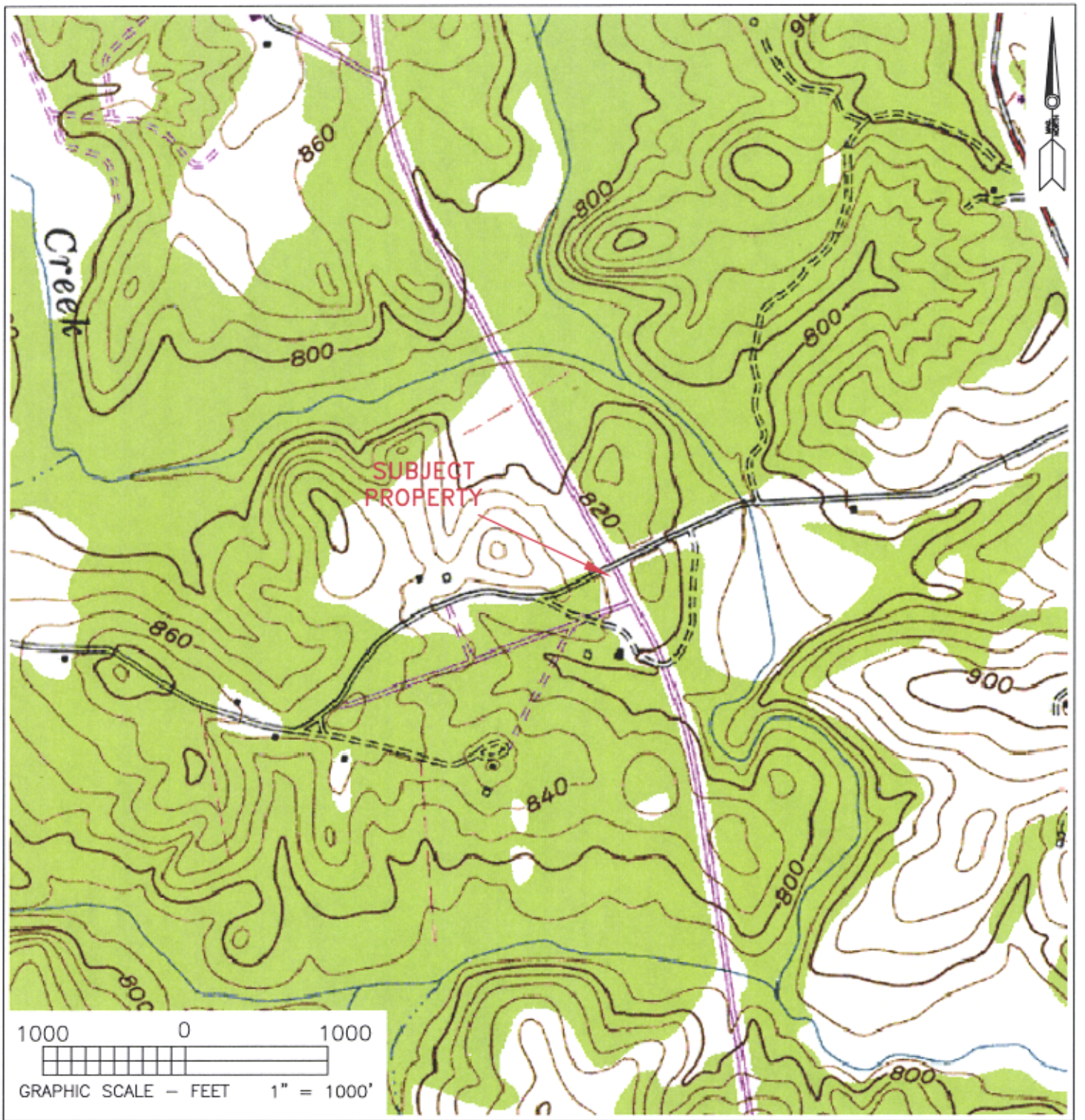
Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repaired, well pads/bolts/caps to replace, details of AFVR event, etc.
MW-1 through MW-19, MW-D1, MW-D2, MW-D3, RW-1 through RW-8
Surface water samples from nearby creek - SW-1, SW-2, SW-3

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____

____ Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____

____ Other variations from ACQAP. Please describe below.

Attachments
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
   - North Arrow
   - Location of property lines
   - Location of buildings
   - Previous soil sampling locations
   - Previous monitoring well locations
   - Proposed soil boring locations
   - Proposed monitoring well locations
   - Legend with facility name and address, UST permit number, and bar scale
   - Streets or highways (indicate names and numbers)
   - Location of all present and former ASTs and USTs
   - Location of all potential receptors
3. Assessment Component Cost Agreement, SCDHEC Form D-3664



PROJECT:

GROUNDWATER SAMPLING PROPOSAL
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #PENDING

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

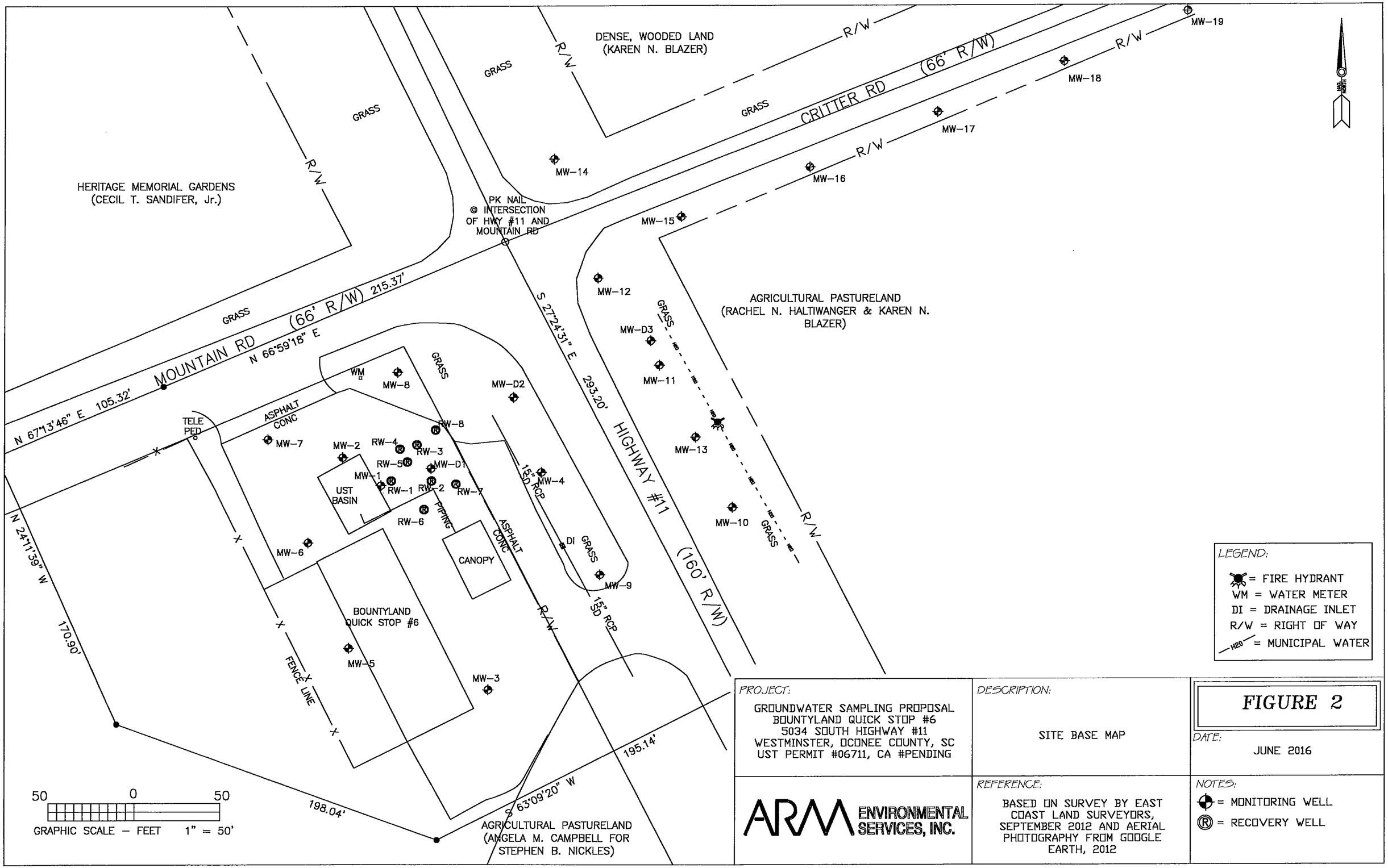
JUNE 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER – 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER

PROJECT:

GROUNDWATER SAMPLING PROPOSAL
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #PENDING

DESCRIPTION:

SITE BASE MAP

FIGURE 2

DATE:

JUNE 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:

= MONITORING WELL
® = RECOVERY WELL

D H E C

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South Carolina Department of Health and Environmental Control

ASSESSMENT COMPONENT PROPOSAL

SOUTH CAROLINA

Department of Health and Environmental Control

Underground Storage Tank Management Division

State Underground Petroleum Environmental Response Bank Account

May 15, 2014

Facility Name: Bountyland Quick Stop 36

UST Permit #: 06711 **Cost Agreement #:**

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. **Plan Preparation**				
A1. Site-specific Work Plan	1	each	$150.00	$150.00
B1. Tax Map		each	$70.00	$0.00
C1. Tier II or Comp. Plan /QAPP Appendix B		each	$250.00	$0.00
2. A1. **Receptor Survey ***		each	$551.00	$0.00
3. **Survey (500 ft x 500 ft)**				
A1. Comprehensive Survey		each	$1,040.00	$0.00
B. Subsurface Geophysical Survey				
1B. < 10 meters below grade		each	$1,300.00	$0.00
2B. > 10 meters below grade		each	$2,310.00	$0.00
C1. Geophysical UST or Drum Survey		each	$910.00	$0.00
4. **Mob/Demob**				
A1. Equipment		each	$1,020.00	$0.00
B1. Personnel	2	each	$423.00	$846.00
C1. Adverse Terrain Vehicle		each	$500.00	$0.00
5. A1. **Soil Borings (hand auger)***		foot	$5.00	$0.00
6. **Soil Borings (requiring equipment, push technology, etc)* or Field Screening (including water sample, soil sample, soil gas sample, etc.)***				
AA. Standard		per foot	$15.00	$0.00
C1. Fractured Rock		per foot	$20.20	$0.00
7. A1. **Soil Leachability Model**		each	$60.00	$0.00
8. **Abandonment (per foot)***				
A1. 2" diameter or less		per foot	$3.10	$0.00
B1. Greater than 2" to 6" diameter		per foot	$4.50	$0.00
C1. Dug/Bored well (up to 6 feet diameter)		per foot	$15.00	$0.00
9. **Well Installation (per foot)***				
A1. Water Table (hand augered)		per foot	$10.60	$0.00
B1. Water Table (drill rig)		per foot	$38.00	$0.00
CC. Telescoping		per foot	$50.00	$0.00
DD. Rock Drilling		per foot	$58.00	$0.00
E1. 2" Rock Coring		per foot	$30.90	$0.00
G1. Rock Multi-sampling ports/screens		per foot	$33.40	$0.00
HH. Recovery Well (4" diameter)		per foot	$45.00	$0.00
II. Pushed Pre-packed screen (1.25" dia)		per foot	$15.00	$0.00
J1. Rotosonic (2" diameter)		per foot	$44.00	$0.00
K. Re-develop Existing Well		per foot	$11.00	$0.00
10. **Groundwater Sample Collection / Gauge Depth to Water or Product ***				
A1. Groundwater Purge	30	per well/receptor	$60.00	$1,800.00
B1. Air or Vapors		per receptor	$12.00	$0.00
C1. Water Supply		per well/receptor	$22.00	$0.00
D1. Groundwater (No Purge or Duplicate)	5	per well/receptor	$28.00	$140.00
E1. Gauge Well only		per well	$7.00	$0.00
F1. Sample Below Product		per well	$12.00	$0.00
G1. Passive Diffusion Bag		each	$26.00	$0.00
H1. Field Blank	3	each	$24.60	$73.80

11. Laboratory Analyses-Groundwater					
A2. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)	39	per sample	$122.00		$4,758.00
AA1. Lead, Filtered		per sample	$13.80		$0.00
B2. Rush EPA Method 8260B (All of item A.)		per sample	$153.60		$0.00
C2. Trimethal, Butyl, and Isopropyl Benzenes		per sample	$36.40		$0.00
D1. PAH's		per sample	$60.60		$0.00
E1. Lead		per sample	$16.00		$0.00
F1. EDB by EPA 8011		per sample	$45.20		$0.00
FF1. EDB by EPA Method 8011 Rush		per sample	$68.20		$0.00
G1. 8 RCRA Metals		per sample	$63.40		$0.00
H1. TPH (9070)		per sample	$41.00		$0.00
II. pH		per sample	$5.20		$0.00
J1. BOD		per sample	$20.00		$0.00
PP. Ethanol		per sample	$14.80		$0.00
11. **Analyses-Soil**					
Q1. BTEX + Naphth.		per sample	$64.00		$0.00
R1. PAH's		per sample	$64.04		$0.00
S1. 8 RCRA Metals		per sample	$56.40		$0.00
U1. TPH-DRO (3550C/8015C)		per sample	$40.00		$0.00
V1. TPH- GRO (5030B/8015C)		per sample	$35.96		$0.00
W1. Grain size/hydrometer		per sample	$104.00		$0.00
X1. Total Organic Carbon		per sample	$30.60		$0.00
11. **Analyses-Air**					
Y1. BTEX + Naphthalene		per sample	$216.00		$0.00
11. **Analyses-Free Phase Product**					
Z1. Hydrocarbon Fuel Identification		per sample	$357.00		$0.00
12. **Aquifer Characterization**					
A1. Pumping Test*		per hour	$23.00		$0.00
B1. Slug Test*		per test	$191.00		$0.00
C1. Fractured Rock		per test	$100.00		$0.00
13. A1. **Free Product Recovery Rate Test***		each	$38.00		$0.00
14. **Fate/Transport Modeling**					
A1. Mathematical Model		each	$100.00		$0.00
B1. Computer Model		each	$100.00		$0.00
15. **Risk Evaluation**					
A. Tier I Risk Evaluation		each	$300.00		$0.00
B1. Tier II Risk Evaluation		each	$100.00		$0.00
16. A1. **Subsequent Survey***		each	$260.00		$0.00
17. **Disposal (gallons or tons)***					
AA. Wastewater	70	gallon	$0.56		$39.20
BB. Free Product		gallon	$0.50		$0.00
C1. Soil Treatment/Disposal		ton	$60.00		$0.00
D1. Drilling fluids		gallon	$0.42		$0.00
18. **Miscellaneous (attach receipts)**					
		each	$0.00		$0.00
		each	$0.00		$0.00
		each	$0.00		$0.00
20. **Tier I Assessment (Use DHEC 3665 form)**		standard			$0.00
21. **IGWA (Use DHEC 3666 form)**		standard			$0.00
22. **Corrective Action (Use DHEC 3667 form)**		PFP Bid			$0.00

23. **Aggressive Fluid & Vapor Recovery (AFVR)**					
A1. 8-hour Event*		each	$1,375.00		$0.00
AA. 24-hour Event*		each	$3,825.00		$0.00
A3. 48-hour Event*		each	$6,265.00		$0.00
A4. 96-hour Event*		each	$12,567.50		$0.00
C1. Off-gas Treatment 8 hour		per event	$122.50		$0.00
C2. Off-gas Treatment 24 hour		per event	$241.50		$0.00
C3. Off-gas Treatment 48 hour		per event	$327.00		$0.00
C4. Off-gas Treatment 96 hour		per event	$780.00		$0.00
D. Site Reconnaissance		each	$203.25		$0.00
E1. Additional Hook-ups		each	$25.75		$0.00
F1. Effluent Disposal		gallon	$0.44		$0.00
G. AFVR Mobilization/Demobilization		each	$391.50		$0.00
24. **Granulated Activated Carbon (GAC) filter system installation & service:**					
A1. New GAC System Installation*		each	$1,900.00		$0.00
BB. Refurbished GAC Sys. Install*		each	$900.00		$0.00
C1. Filter replacement/removal*		each	$350.00		$0.00
DD. GAC System removal, cleaning, & refurbishment*		each	$275.00		$0.00
E1. GAC System housing*		each	$250.00		$0.00
F. In-line particulate filter		each	$150.00		$0.00
G1. Additional piping & fittings		foot	$1.50		$0.00
25. **Well Repair**					
A1. Additional Copies of the Report Delivered	1	each	$50.00		$50.00
B1. Repair 2x2 MW pad*		each	$50.00		$0.00
C1. Repair 4x4 MW pad*		each	$88.00		$0.00
D1. Repair well vault*		each	$118.00		$0.00
F1. Replace well cover bolts		each	$2.60		$0.00
G. Replace locking well cap & lock		each	$15.00		$0.00
H1. Replace/Repair stick-up*		each	$134.00		$0.00
II. Convert Flush-mount to Stick-up*		each	$150.00		$0.00
J1. Convert Stick-up to Flush-mount*		each	$130.00		$0.00
K1. Replace missing/illegible well ID plate		each	$12.00		$0.00
Report Prep & Project Coordination	12%	percent	$7,857.00		$942.84
TOTAL					$8,799.84

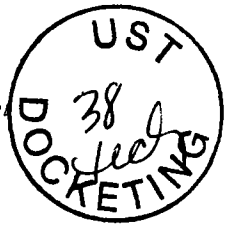
*The appropriate mobilization cost can be added to complete these tasks, as necessary.

D H E C

PROMOTE PROTECT PROSPER

Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment



MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672

JUN 3 0 2016

Re: Ground-water sampling directive
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711; CA #52840
Release reported December 1, 2011
Site-specific work plan (SSWP) received June 9, 2016
Oconee County

Dear Mr. Waller:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) has reviewed and approved the referenced site-specific work plan (SSWP) submitted by ARM Environmental Services, Inc. Ground-water sampling as outlined in the plan may proceed immediately upon receipt of this letter. The work must be done in accordance with QAPP Revision 3.0 and in compliance with all applicable regulations. A copy of QAPP Revision 3.0 is available at http://www.scdhec.gov/Environment/docs/QAPPRevision3.0.pdf.

Cost Agreement (CA) #52840 been approved in the amount shown on the enclosed cost agreement form for the sampling of 30 monitoring/recovery wells and 3 surface water locations for BTEX+naph+MtBE+DCA+oxygenates. Do not sample wells containing measurable (0.01') free-phase product. Please note that all applicable South Carolina certification requirements apply to the sampling and report preparation. Further, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

A monitoring report, contractor checklist (QAPP Appendix K), and invoice are due within 60 days from the date of this letter. Your contractor may directly bill the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay it will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Agency is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Agency for the cost to be paid. The Agency reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, the Agency reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Management Division grants pre-approval for transportation of petroleum-contaminated, investigative-derived waste (IDW) from the referenced site to a permitted treatment/disposal facility. The transport and disposal must be conducted in accordance with QAPP revision 3.0.

On all correspondence concerning this facility, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.mr1

enc: Approved cost agreement form

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 52840

Facility. 06711 BOUNTY LAND QUICK STOP 6

PADGETJP

PO Number.

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
01 PLAN						
		A1	SITE SPECIFIC WORK PLAN	1 0000	$150 000	150 00
04 MOB/DEMOB						
		B1	PERSONNEL	2 0000	$423 000	846 00
10 SAMPLE COLLECTION						
		A1	GROUNDWATER (PURGE)	30 0000	$60 000	1,800 00
		D1	GROUNDWATER NO PURGE/DUPLICATE	5 0000	$28 000	140 00
		H1	FIELD BLANK	3 0000	$24 600	73 80
11 ANALYSES						
	GW GROUNDWATER	A2	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	39 0000	$122 000	4,758 00
17 DISPOSAL						
		AA	WASTEWATER	70 0000	$0 560	39 20
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0 1200	$7,857.000	942 84
25 WELL REPAIR						
		A1	ADDITIONAL COPIES OF REPORT	1 0000	$50 000	50 00
				Total Amount		8,799 84

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*

September 7, 2016



Joel P. Padgett, P.G., Geologist/Hydrologist
Correction Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Re: Groundwater Sampling Assessment
Bountyland Quick Stop #6
5034 South Highway #11
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #52840
ARM Project #15-403.9-16

Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed the Groundwater Sampling Assessment requested at the referenced site located in Westminster, South Carolina. The pertinent information regarding this assessment, including conclusions and recommendations, is presented on the following pages and in the attached Figures, Tables, and Appendices.

Based on the data collected during this assessment, it appears that the contaminant plume is migrating in the downgradient direction (east of the source area). During this assessment free product was measured in recovery wells RW-1 (1.36 feet), RW-3 (0.42 foot), RW-5 (2.08 feet), and RW-8 (1.04 feet). Monitoring wells MW-1, MW-2, MW-4, MW-11, MW-13, MW-15 and recovery wells RW-6 and RW-7 contain Chemicals of Concern (CoC) at concentrations greater than their respective Risk-Based Screening Levels (RBSLs).

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc., Certification #4

Michele McLeod
Staff Scientist

Joseph A. Goings, P.G.
Project Geologist



cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard, Suite 202, Seneca, SC 29672

Background

This site is currently in the corrective action section of the Underground Storage Tank (UST) Program in order to monitor the contaminant plume for natural attenuation and migration.

According to the South Carolina Department of Health & Environmental Control's (SCDHEC) UST Registry, the site currently operates four (4) USTs.

Table 1 – Current and Former USTs

Tank ID	Size (gallons)	Contents	Status
1	10,000	Gasoline	Currently In Use
2	10,000	Gasoline	Currently In Use
3	10,000	Kerosene	Currently In Use
4	10,000	Diesel fuel	Currently In Use

RG – Removed from Ground

According to the SCDHEC UST Registry, there is one release reported for the site. A Site Check was conducted at the site in November 2011. The Site Check was completed at the spill bucket for the regular gasoline tank. The results of the soil sample collected adjacent to the regular gas spill bucket indicated the presence of contaminants of concern. Benzene, toluene, ethylbenzene, xylenes, and naphthalene were present at elevated concentrations. Therefore, a release was reported on December 1, 2011. The release was confirmed by SCDHEC on December 14, 2011, and a directive for an Initial Groundwater Assessment (IGWA) was issued.

The IGWA was completed at the site by ARM Environmental Services on April 19, 2012, and is documented in a report dated May 7, 2012. The report was received and accepted by DHEC on May 11, 2012. The results of the soil sampling indicated the presence of petroleum constituents at concentrations significantly greater than their respective regulatory limits. Upon completion of the well, MW-1, gauging indicated the presence of free product at a thickness of 0.06 foot.

A Tier I Assessment was completed at the site by ARM in September 2012 and is documented in a report dated September 28, 2012. The report was received and accepted by DHEC on October 3, 2012. The results of the Tier I indicated that the free product thickness in MW-1 had increased to 4.23 feet. Additionally, significant concentrations of dissolved-phase Chemicals of Concern (CoC) were identified in MW-2 and MW-4. A Tier II Assessment was completed at the site by ARM in July 2013 and is documented in a report dated July 12, 2013. The results of the Tier II Assessment indicated that the downgradient edge of the contaminant plume had been defined. The owners of the adjacent property to

the east (the downgradient direction) declined to give permission to install permanent monitoring wells. However, they allowed the installation of temporary monitoring wells (TMWs). ARM installed and sampled an arc of 10 TMWs in order to define the downgradient extent of the plume. Additionally, ARM collected two surface water samples from the nearby Coneross Creek. The most recent sampling event was in April 2014 and was summarized in a report dated May 13, 2014. The most recent AFVR events were conducted in August & October 2015 and summarized in a report dated October 21, 2015.

The site is currently owned and operated by Bountyland Enterprises Inc., whose address is 1510 Blue Ridge Boulevard, Suite 202, in Seneca, SC 29672. The site currently exists as a Bountyland gas station and convenience store. The adjacent properties were identified as follows:

North – Mountain road is located adjacent to the north, beyond which is Heritage Memorial Gardens, a cemetery.

East – South Highway #11 is located adjacent to the east, beyond which is agricultural pasture land.

South – Agricultural pasture land is located adjacent to the south.

West – Agricultural pasture land is located adjacent to the west.

The site is located in the Piedmont Physiographic Province of South Carolina. The site is underlain by the Walhalla metamorphic suite, which consists of Cambrian- or Neoproterozoic-aged hornblende-plagioclase gneiss and amphibolite. The soils encountered during the installation of the soil borings and monitoring wells for this assessment consisted primarily of silty sand and sandy clay.

According to the USGS Topographic Quadrangle Map of *Westminster, South Carolina*, dated 1963 and revised in 1980, the elevation of the site is approximately 820 feet above mean sea level (MSL). Groundwater in the general vicinity of the site generally flows to the east, toward Coneross Creek. A Topographic Site Location Map is included as Figure 1.

Summary of Findings

Gauging

On July 11, 2016, the sampling crew located and gauged all of the monitoring wells MW-1 through MW-17, MW-19, MW-D1 through MW-D3 and recovery wells RW-1 and RW-3 through RW-6. MW-18 could not be located and RW-2 was unable to be sampled due to the well pad and cover being destroyed. Prior to the initiation of any gauging, purging or sampling activities, clean plastic sheeting was placed on the ground surface around each well in order to provide a clean work area. Each located well was opened and gauged with a decontaminated electronic water level indicator to the nearest 0.01 foot. Fluid levels and total depths of the monitoring wells were recorded on field data sheets in indelible ink. Free product was measured in recovery wells RW-1 (1.36 feet), RW-3 (0.42 foot), RW-5 (2.08 feet), and RW-8 (1.04 feet). A general groundwater flow direction of the shallow aquifer was determined to be to the east-northeast of the site. The current and historical potentiometric data are summarized in Table 2. A Generalized Potentiometric Surface Map, displaying groundwater elevations at each well and groundwater flow directions for the shallow aquifer, is included as Figure 5.

Purging

All of the monitoring wells and recovery wells not containing free product were purged utilizing either disposable hand bailers with disposable colorless nylon bailer twine or a low-flow pump and disposable tubing prior to sampling. Prior to purging, the well volumes were calculated using the diameter of the well, the static water level and the total depth of the well. The disposable bailers were lowered slowly into the water column, allowed to fill and carefully withdrawn from the wells. When using the low-flow pump, the well was purged at a rate that did not excessively agitate the recharge water.

Temperature, pH, specific conductivity, dissolved oxygen, and turbidity were measured and recorded throughout the purging process and purging continued until these parameters stabilized, typically in three to five well volumes. Stabilization occurs when pH measurements remain constant within 0.1 Standard Unit (SU), or reproducible to within 0.1 (SU), dissolved oxygen remains constant within 0.2 mg/L, and specific conductance, temperature, and turbidity vary no more than 5 percent, and the turbidity has stabilized or is below 10 Nephelometric Turbidity Units (NTU). Wells purged to dryness were considered sufficiently purged. Samples were collected immediately after the purging process was complete. Prior to commencement of purging, the purging meters were calibrated according to manufacturer's specifications. Also, the meters' calibration was checked mid-way through and after the purging activities. The calibration checks indicated that the meters remained calibrated within the

acceptable ranges of the meters' standards throughout the purging activities. The purging data were recorded on field data sheets in indelible ink. The Purge Meter Calibration Data Sheets and Monitoring Well Purging Data Sheets are included in Appendix B.

Groundwater Sampling

Groundwater samples were collected from all of the located monitoring wells and recovery wells not containing free product and placed into pre-labeled, laboratory-prepared sample containers utilizing disposable polyethylene hand bailers with disposable colorless nylon bailer twine or a low-flow pump and disposable tubing. In order to further ensure sample integrity, samples were immediately placed on ice in an insulated cooler upon collection and entered into chain of custody.

Purging parameters were again measured and recorded immediately after sample collection at each well. In order to further ensure sample integrity, samples were immediately placed on ice in an insulated cooler upon collection and entered into chain of custody. Field blanks were collected at the completion of each day's sampling activities. A laboratory-prepared trip blank was included with the insulated sample coolers to ensure cross-contamination did not occur between the collected groundwater samples. Duplicate samples were collected from monitoring wells MW-1 (Dup-1) and RW-4 (Dup-2).

Surface water samples, designated SW-1, SW-2, and SW-3 were collected from Coneross Creek. The sample locations are indicated on the Aerial Map included as Figure 2A.

The groundwater samples were submitted to Shealy Environmental Services, Inc., a South Carolina certified laboratory (certification #32010), for analysis of BTEX, naphthalene, methyl tert-butyl ether (MTBE), and 1,2-dichloroethane (1,2-DCA) by EPA method 8260B. Groundwater samples were also analyzed for the following eight oxygenates: di-isopropyl ether (DIPE), ethanol, ethyl tert-butyl alcohol (ETBA), ethyl tert-butyl either (ETBE), tert-amyl alcohol (TAA), tert-amyl methyl either (TAME), tert-butyl alcohol (TBA) and tert-butyl formate (TBF).

The laboratory analytical results from this assessment (current) are tabulated in Table 3. Results from previous groundwater sampling events are tabulated with the data from this assessment (current and historical) in Table 4. CoC detected at concentrations above the RBSLs established by SCDHEC are indicated in bold type. The complete laboratory analytical results, including chain-of-custody documentation, are included as Appendix B. A Groundwater CoC Site Map, indicating the July 2016 CoC concentrations in the groundwater at each monitoring well, is included as Figure 4.

Disposal

Approximately 25 gallons of contaminated purge water and decontamination fluids were collected during this assessment. The water and fluids were collected into a 55-gallon drum and are currently at the ARM office awaiting disposal. A disposal manifest will be forwarded upon receipt.

Contractor Checklist

The SCDHEC QAPP Contractor Checklist is included in Appendix K.

Conclusions and Recommendations

Based on a comparison between historical analytical data and the data collected during this assessment, it appears that elevated concentrations of several CoC remain present at the site and on the adjacent properties to the east of the site. Monitoring wells MW-1, MW-2, MW-4, MW-11, MW-13, and MW-15 and recovery wells RW-4, RW-6, and RW-7 contain CoC at concentrations greater than their respective RBSLs. None of the telescoping wells contained CoC at concentrations greater than their respective RBSLs.

The thicknesses of free product measured in MW-1, RW-1, RW-3, RW-4, and RW-6 have decreased since the previous sampling event in April 2014. During this assessment free product was measured in recovery wells RW-1 (1.36 feet), RW-3 (0.42 foot), RW-5 (2.08 feet), and RW-8 (1.04 feet). No free product was measured in MW-1 during this sampling assessment.

Contamination detected in MW-13 indicates that the contaminant plume is migrating to the east and northeast, toward Coneross Creek. The plume appears to be present on the property identified as Oconee Tax Map #s 236-00-04-018 and 231-00-01-022. The owners of the property (Ms. Blazer and Ms. Haltiwanger) allowed ARM to install temporary monitoring wells (TMWs) on their properties as part of the previous Tier II Assessment, but denied permission to install permanent monitoring wells. None of the samples collected from the TMWs on their properties contained any detectable concentrations of CoC. However, based on the apparently high hydraulic conductivity and seepage velocity previously calculated at the site, the downgradient edge of the contaminant plume cannot be determined.

Surface water samples SW-1, SW-2, and SW-3 collected from Coneross Creek did not contain any detectable concentrations of CoC. However, this creek is a quickly-flowing stream and low concentrations of CoC would likely not be detected.

It is recommended that multiple extended aggressive fluid vapor recovery (AFVR) events be conducted at the site in order to remove free product and vapors from the subsurface. Additionally, groundwater sampling should continue at the site in order to monitor the natural attenuation and migration of the CoC in the groundwater associated with the release. If further empirical information is desired regarding the current downgradient extent of the contaminant plume, the installation of additional TMWs on the Blazer/Haltiwanger properties will be required.

References

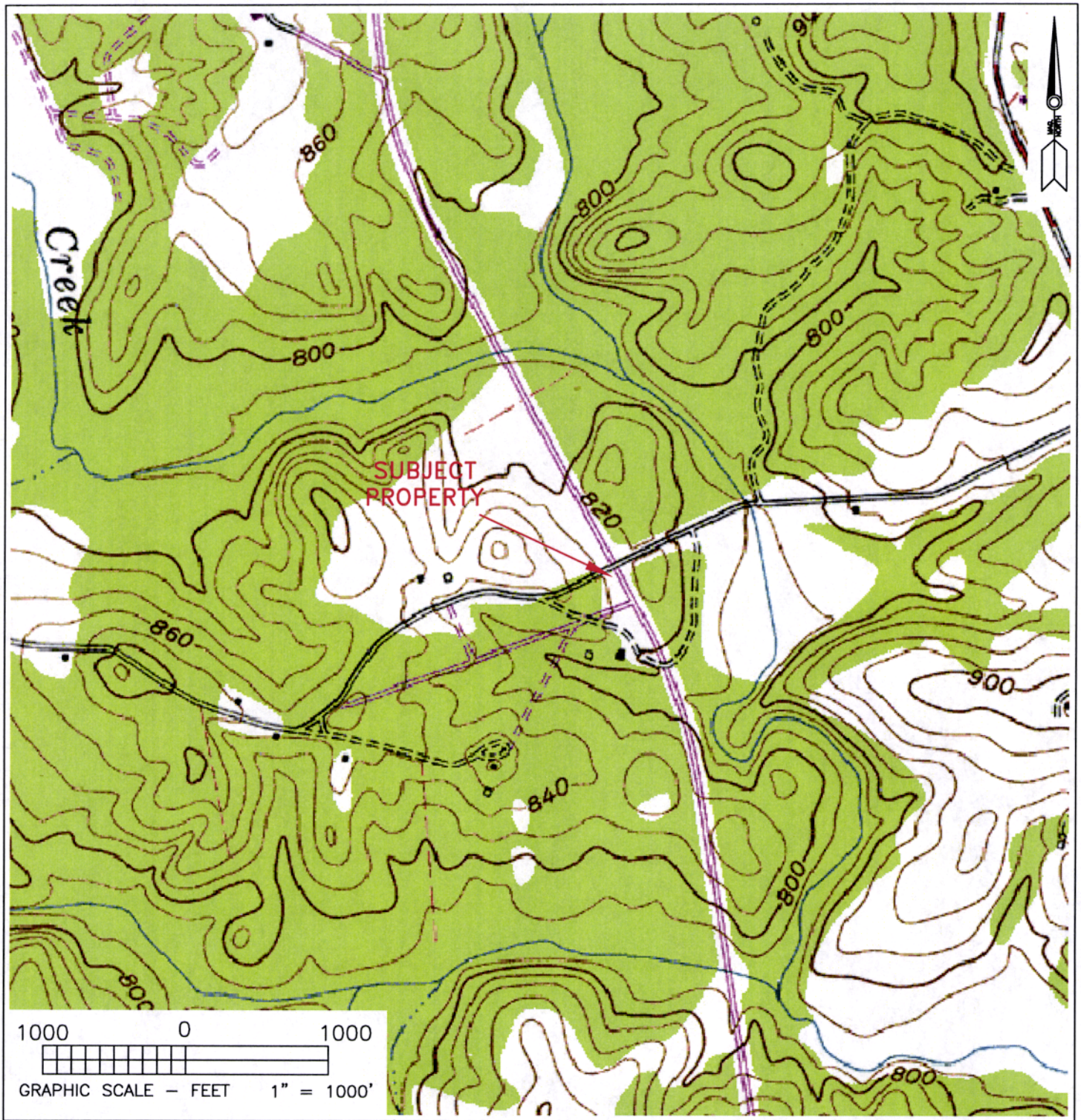
Maybin and Nystrom, 1997, revised by Willoughby, Howard and Nystrom, 2005. Generalized Geologic Map of South Carolina; South Carolina Department of Natural Resources Geological Survey.

USGS Open-File Report 2005-1323, Preliminary integrated geologic map databases for the United States: Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina, http://pubs.usgs.gov/of/2005/1323/

Oconee County Planning Department, Official County Zoning Map, 2012, http://www.oconeesc.com/Departments/KZ/PlanningDepartment/ZoningInformation.aspx

FIGURES

Figure 1 – Site Location Map (Topographic)
Figure 2 – Site Base Map
Figure 2A – Aerial Map (w/ surface water results)
Figure 3 – Not Included
Figure 4 – Groundwater CoC Map
Figure 4A – Groundwater CoC Map (Oxygenates)
Figure 5A – Potentiometric Map (Shallow Aquifer)
Figure 5B – Potentiometric Map (Deep Aquifer)



PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

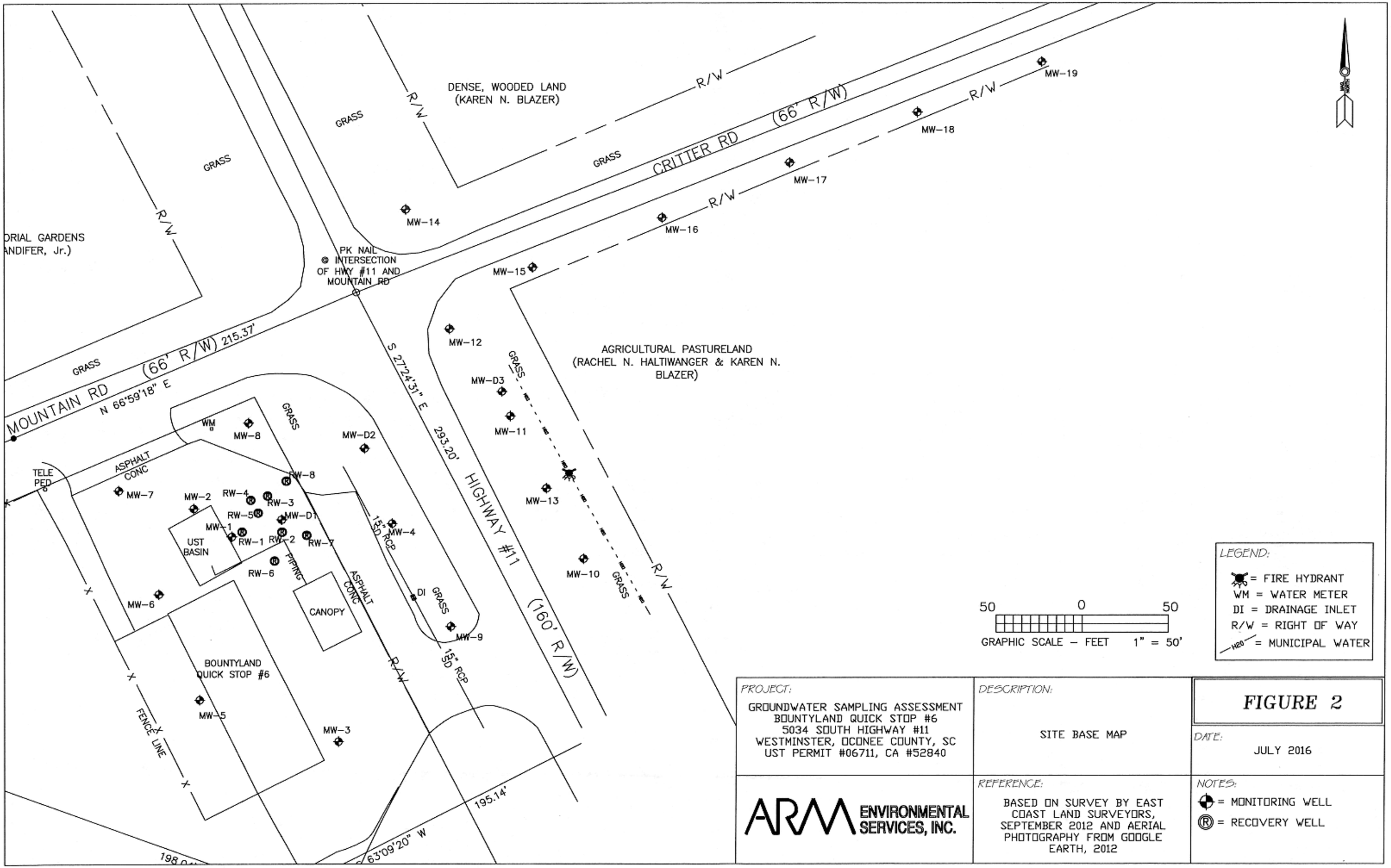
JULY 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER - 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



50 0 50

GRAPHIC SCALE – FEET 1" = 50'

LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER

PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

DESCRIPTION:

SITE BASE MAP

FIGURE 2

DATE:

JULY 2016

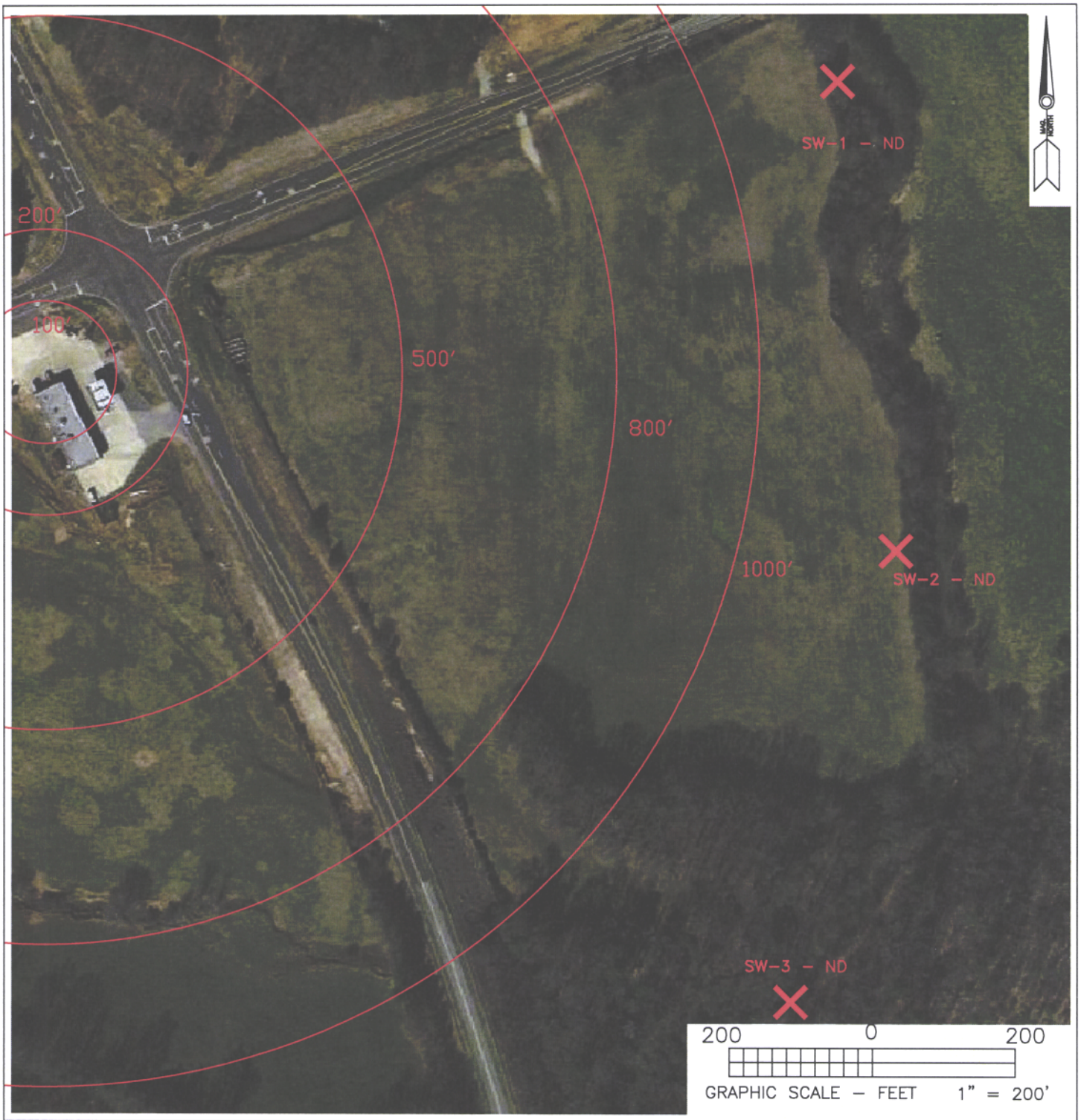
ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL



PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

DESCRIPTION:

AERIAL MAP (W/ SURFACE WATER RESULTS)

FIGURE 2A

DATE:

JULY 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH, DATED 2012
TMW SAMPLES COLLECTED DURING TIER II ASSESSMENT IN JUNE 2013

LEGEND:

X = SURFACE WATER COLLECTION POINT
ND() = NOT DETECTED > PQL

DENSE, WOODED LAND
(KAREN N. BLAZER)

AGRICULTURAL PASTURELAND
(RACHEL N. HALTIWANGER & KAREN N. BLAZER)

ORIAL GARDENS
ANDIFER, Jr.)

GRASS

R/W

CARTER RD (66' R/W)

MOUNTAIN RD (66' R/W) 215.37'
N 66°59'18" E

PK NAIL
@ INTERSECTION
OF HWY #11 AND
MOUNTAIN RD

S 27°24'31" E 293.20'

HIGHWAY #11 (160' R/W)

195.14'

ASPHALT CONC

TELE PED

UST BASIN

CANOPY

TIPPING

15" RCP

DI

FENCE LINE

BOUNTYLAND QUICK STOP #6

WM

FP(1.04')

FP(0.42')

FP(2.08')

FR(1.36')

RW-1 (NS)

MW-14
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-19
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-18 (NL)

MW-17
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-16
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-15
B 50
T ND(1.0)
E 14
X 80
N 6.4
M ND(1.0)
D ND(1.0)

MW-12
B 4.9
T ND(1.0)
E ND(1.0)
X 5.8
N 3.3
M ND(1.0)
D ND(1.0)

MW-D3
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-11
B 190
T 66
E 30
X 280
N 19
M ND(5.0)
D ND(5.0)

MW-13
B 260
T 460
E 76
X 440
N 33
M 310
D ND(5.0)

MW-10
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M 12
D ND(1.0)

MW-9
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-4
B 5,800
T 15,000
E 1,600
X 10,000
N 990
M 4,900
D ND(200)

MW-D2
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-8
B ND(1.0)
T 1.4
E ND(1.0)
X 1.0
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-2
B 9.2
T 4.2
E 3.0
X 22
N ND(1.0)
M 9.0
D ND(1.0)

MW-7
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

RW-4
B 230
T 830
E 140
X 1,300
N 95
M 300
D ND(5.0)

MW-D1
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

RW-7
B 7,300
T 12,000
E 520
X 4,000
N 950
M 13,000
D ND(200)

RW-6
B 61
T 170
E 19
X 150
N 21
M 25
D ND(5.0)

MW-1
B 6,800
T 11,000
E 630
X 5,200
N 960
M 19,000
D ND(200)

MW-6
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-5
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

MW-3
B ND(1.0)
T ND(1.0)
E ND(1.0)
X ND(1.0)
N ND(1.0)
M ND(1.0)
D ND(1.0)

50 0 50
GRAPHIC SCALE – FEET 1" = 50'

LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER
B– BENZENE
T– TOLUENE
E– ETHYLBENZENE
X– XYLENES
N– NAPHTHALENE
M– MTBE
D– 1,2–DCA
= GROUNDWATER FLOW

PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

DESCRIPTION:

COC SITE MAP
(GROUNDWATER)

FIGURE 4

DATE:

JULY 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, NAPHTHALENE, MTBE & 1,2-DCA CONENTRATIONS ARE INDICATED ADJACENT TO EACH MONITORING WELL IN ug/L.

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL
ND() = NOT DETECTED > PQL

DENSE, WOODED LAND
(KAREN N. BLAZER)

CRITTER RD (66' R/W)

AGRICULTURAL PASTURELAND
(RACHEL N. HALTIWANGER & KAREN N. BLAZER)

MOUNTAIN RD (66' R/W)

HIGHWAY #11 (160' R/W)

BOUNTYLAND QUICK STOP #6

PK NAIL @ INTERSECTION OF HWY #11 AND MOUNTAIN RD

UST BASIN

CANOPY

TELE PED

ASPHALT CONC

FENCE LINE

15" RCP

GRASS

R/W

N 66°59'18" E

215.37'

27°24'31" E

293.20'

195.14'

MW-1
DIPE 3,900
ETH. ND(20,000)
ETBA ND(4,000)
ETBE ND(200)
TAA 47,000
TAME ND(2,000)
TBA ND(4,000)
TBF ND(1,000)

MW-2
DIPE 11
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA 160
TAME ND(10)
TBA 22
TBF ND(5.0)

MW-3
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-4
DIPE 51
ETH. ND(500)
ETBA ND(100)
ETBE ND(5.0)
TAA 1,900
TAME ND(50)
TBA 160
TBF ND(25)

MW-4
DIPE 1,100
ETH. ND(20,000)
ETBA ND(4,000)
ETBE ND(200)
TAA 25,000
TAME ND(2,000)
TBA ND(4,000)
TBF ND(1,000)

MW-5
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-6
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-7
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-8
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-9
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-10
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-11
DIPE ND(5.0)
ETH. ND(5Q0)
ETBA ND(100)
ETBE ND(5.0)
TAA 520
TAME ND(50)
TBA ND(100)
TBF ND(25)

MW-12
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA 77
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-13
DIPE 160
ETH. ND(500)
ETBA ND(100)
ETBE ND(5.0)
TAA 1,000
TAME ND(50)
TBA ND(100)
TBF ND(25)

MW-14
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-15
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA 110
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-16
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-17
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-19
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-D1
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-D2
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

MW-D3
DIPE ND(1.0)
ETH. ND(100)
ETBA ND(20)
ETBE ND(1.0)
TAA ND(20)
TAME ND(10)
TBA ND(20)
TBF ND(5.0)

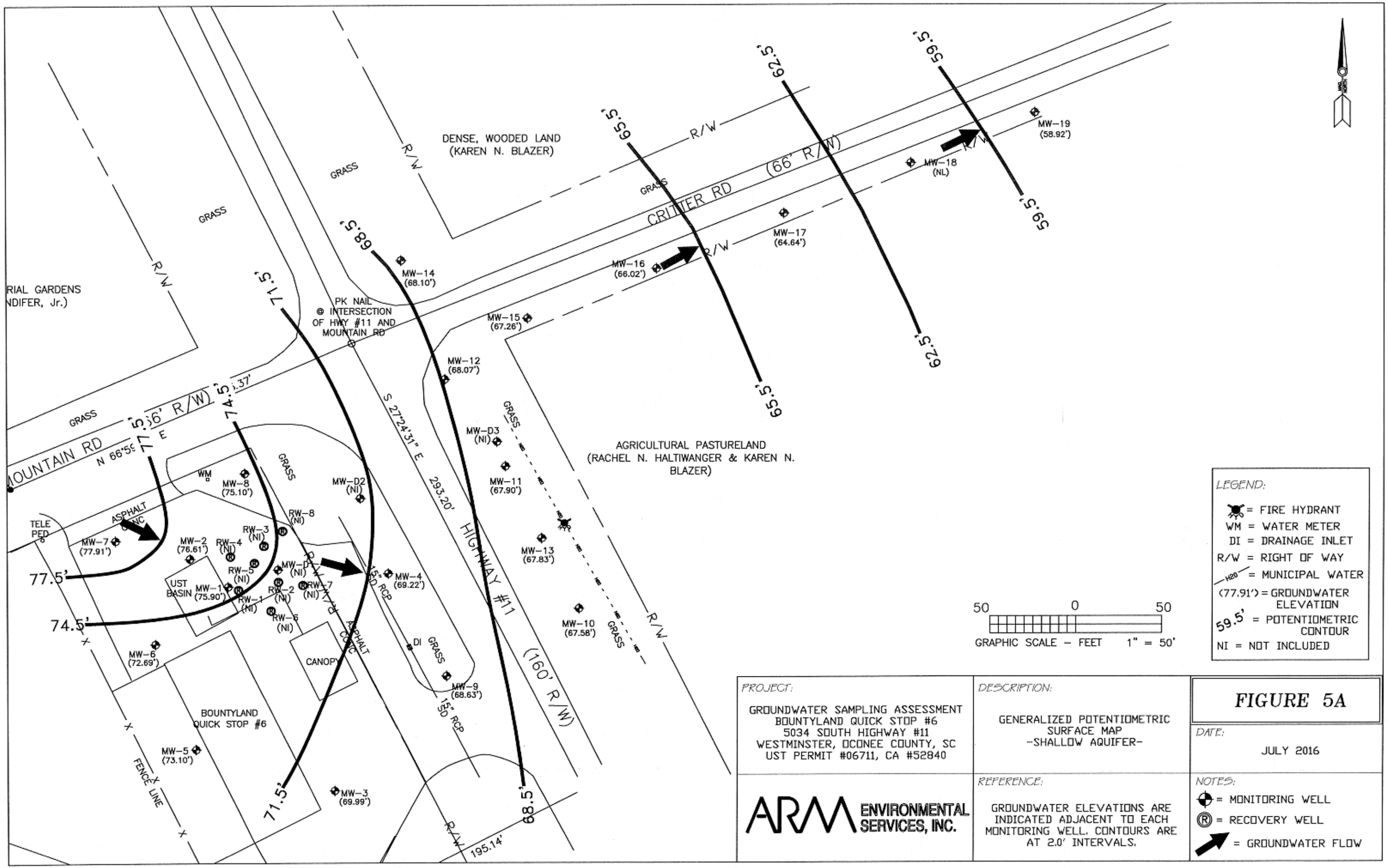
RW-1 FP(1.36')
RW-2 (NS)
RW-3 FP(0.42')
RW-4
RW-5 FP(2.08')
RW-6
RW-7
RW-8 FP(1.04')

LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER
= GROUNDWATER FLOW

50 0 50
GRAPHIC SCALE – FEET 1" = 50'

PROJECT: GROUNDWATER SAMPLING ASSESSMENT BOUNTYLAND QUICK STOP #6 5034 SOUTH HIGHWAY #11 WESTMINSTER, OCONEE COUNTY, SC UST PERMIT #06711, CA #52840	*DESCRIPTION:* COC SITE MAP – OXYGENATES (GROUNDWATER)	**FIGURE 4A** *DATE:* JULY 2016
ARM ENVIRONMENTAL SERVICES, INC.	*REFERENCE:* DIPE, ETHANOL, ETBA, ETBE, TAA, TAME, TBA, & TBF CONCENTRATIONS ARE INDICATED ADJACENT TO EACH MONITORING WELL IN ug/L.	*NOTES:* = MONITORING WELL (R) = RECOVERY WELL ND() = NOT DETECTED > PQL



PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

DESCRIPTION:

GENERALIZED POTENTIOMETRIC SURFACE MAP
-SHALLOW AQUIFER-

FIGURE 5A

DATE:

JULY 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

GROUNDWATER ELEVATIONS ARE INDICATED ADJACENT TO EACH MONITORING WELL. CONTOURS ARE AT 2.0' INTERVALS.

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL
= GROUNDWATER FLOW

DENSE, WOODED LAND
(KAREN N. BLAZER)

CRITTER RD (66' R/W)

MW-19 (NI)

MW-18 (NL)

MW-17 (NI)

MW-16 (NI)

MW-15 (NI)

MW-14 (NI)

R/W

GRASS

ORIAL GARDENS
ANDIFER, Jr.)

PK NAIL
@ INTERSECTION
OF HWY #11 AND
MOUNTAIN RD

MOUNTAIN RD (66' R/W)

215.37'

N 66°59'18" E

S 27°24'31" E

293.20'

HIGHWAY #11 (160' R/W)

AGRICULTURAL PASTURELAND
(RACHEL N. HALTIWANGER & KAREN N.
BLAZER)

MW-12 (NI)

MW-D3 (67.84')

MW-11 (NI)

MW-13 (NI)

MW-10 (NI)

MW-9 (NI)

MW-D2 (69.38')

MW-D1 (73.04')

MW-8 (NI)

MW-7 (NI)

MW-6 (NI)

MW-5 (NI)

MW-4 (NI)

MW-3 (NI)

MW-2 (NI)

MW-1 (NI)

RW-1 (NI)

RW-2 (NI)

RW-3 (NI)

RW-4 (NI)

RW-5 (NI)

RW-6 (NI)

RW-7 (NI)

RW-8 (NI)

WM

TELE PED

ASPHALT CONC

UST BASIN

CANOPY

BOUNTYLAND
QUICK STOP #6

FENCE LINE

15" RCP

DI

69'

71'

73'

75'

195.14'

S 13°09'20" W

50 0 50

GRAPHIC SCALE – FEET 1" = 50'

LEGEND:

= FIRE HYDRANT
WM = WATER METER
DI = DRAINAGE INLET
R/W = RIGHT OF WAY
H2O = MUNICIPAL WATER
(67.84') = GROUNDWATER ELEVATION
73' = POTENTIOMETRIC CONTOUR
NI = NOT INCLUDED

PROJECT:

GROUNDWATER SAMPLING ASSESSMENT
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #52840

ARM ENVIRONMENTAL SERVICES, INC.

DESCRIPTION:

GENERALIZED POTENTIOMETRIC
SURFACE MAP
-DEEP AQUIFER-

REFERENCE:

GROUNDWATER ELEVATIONS ARE INDICATED ADJACENT TO EACH MONITORING WELL. CONTOURS ARE AT 2.0' INTERVALS.

FIGURE 5B

DATE:

JULY 2016

NOTES:

= MONITORING WELL
(R) = RECOVERY WELL
= GROUNDWATER FLOW

TABLES

Table 1 – Not Included
Table 2 – Potentiometric Data
Table 3 – Current Analytical Data
Table 4 – Current & Historical Analytical Data

APPENDICES

A. Not Included
B. Purging Data Sheets and Laboratory Analytical Data
C. Not Included
D. Not Included
E. Well Completion Logs & SCDHEC 1903 Forms
F. Not Included
G. Disposal Manifest(s)
H. Not Included
I. Not Included
J. Not Included
K. SCDHEC Contractor Checklist

Bountyland Quick Stop #6, UST Permit #06711

Table 2 – Potentiometric Data

July 11, 2016

Monitor Well ID	Date Gauged	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-1	2/10/2011	38.0	28.0 - 38.0	102.15	31.30	31.24	0.06	31.26	70.89
	8/24/2012	38.0	28.0 - 38.0	102.15	35.03	30.80	4.23	31.94	70.21
	6/11/2013	38.0	28.0 - 38.0	102.15	29.74	28.52	1.22	28.85	73.30
	4/9/2014	38.0	28.0 - 38.0	102.15	27.45	25.82	1.63	26.26	75.89
	7/11/2016	38.0	28.0 - 38.0	102.15	26.25	N/A	N/A	N/A	75.90
MW-2	8/24/2012	37.0	27.0 - 37.0	101.67	30.51	N/A	N/A	N/A	71.16
	6/11/2013	37.0	27.0 - 37.0	101.67	27.98	N/A	N/A	N/A	73.69
	4/9/2014	37.0	27.0 - 37.0	101.67	25.13	N/A	N/A	N/A	76.54
	7/11/2016	37.0	27.0 - 37.0	101.67	25.06	N/A	N/A	N/A	76.61
MW-3	8/24/2012	42.5	32.5 - 42.5	102.21	35.59	N/A	N/A	N/A	66.62
	6/11/2013	42.5	32.5 - 42.5	102.21	32.91	N/A	N/A	N/A	69.30
	4/9/2014	42.5	32.5 - 42.5	102.21	31.36	N/A	N/A	N/A	70.85
	7/11/2016	42.5	32.5 - 42.5	102.21	32.22	N/A	N/A	N/A	69.99
MW-4	8/24/2012	41.5	31.5 - 41.5	100.16	34.71	N/A	N/A	N/A	65.45
	6/11/2013	41.5	31.5 - 41.5	100.16	32.15	N/A	N/A	N/A	68.01
	4/9/2014	41.5	31.5 - 41.5	100.16	30.58	N/A	N/A	N/A	69.58
	7/11/2016	41.5	31.5 - 41.5	100.16	30.94	N/A	N/A	N/A	69.22
MW-5	6/11/2013	35.0	25.0 - 35.0	102.93	27.10	N/A	N/A	N/A	75.83
	4/9/2014	35.0	25.0 - 35.0	102.93	25.12	N/A	N/A	N/A	77.81
	7/11/2016	35.0	25.0 - 35.0	102.93	29.83	N/A	N/A	N/A	73.10
MW-6	6/11/2013	35.0	25.0 - 35.0	102.42	27.09	N/A	N/A	N/A	75.33
	4/9/2014	35.0	25.0 - 35.0	102.42	24.43	N/A	N/A	N/A	77.99
	7/11/2016	35.0	25.0 - 35.0	102.42	29.83	N/A	N/A	N/A	72.59

Notes: * Corrected WL = Static WL - (Product Thickness x Product Gravity)
N/A - Not Applicable

Bountyland Quick Stop #6, UST Permit #06711

Table 2 – Potentiometric Data

July 11, 2016

Monitor Well ID	Date Gauged	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-7	6/11/2013	40.0	30.0 - 40.0	107.74	32.77	N/A	N/A	N/A	74.97
	4/9/2014	40.0	30.0 - 40.0	107.74	29.86	N/A	N/A	N/A	77.88
	7/11/2016	40.0	30.0 - 40.0	107.74	29.83	N/A	N/A	N/A	77.91
MW-8	6/11/2013	37.0	27.0 - 37.0	101.40	28.99	N/A	N/A	N/A	72.41
	4/9/2014	37.0	27.0 - 37.0	101.40	26.02	N/A	N/A	N/A	75.38
	7/11/2016	37.0	27.0 - 37.0	101.40	26.30	N/A	N/A	N/A	75.10
MW-9	6/11/2013	39.0	29.0 - 39.0	99.35	31.40	N/A	N/A	N/A	67.95
	4/9/2014	39.0	29.0 - 39.0	99.35	29.97	N/A	N/A	N/A	69.38
	7/11/2016	39.0	29.0 - 39.0	99.35	30.72	N/A	N/A	N/A	68.63
MW-10	6/11/2013	38.5	28.5 - 38.5	98.29	31.15	N/A	N/A	N/A	67.14
	4/9/2014	38.5	28.5 - 38.5	98.29	29.79	N/A	N/A	N/A	68.50
	7/11/2016	38.5	28.5 - 38.5	98.29	30.71	N/A	N/A	N/A	67.58
MW-11	6/11/2013	39.0	29.0 - 39.0	98.58	31.44	N/A	N/A	N/A	67.14
	4/9/2014	39.0	29.0 - 39.0	98.58	29.92	N/A	N/A	N/A	68.66
	7/11/2016	39.0	29.0 - 39.0	98.58	30.68	N/A	N/A	N/A	67.90
MW-12	6/11/2013	39.0	29.0 - 39.0	99.06	31.95	N/A	N/A	N/A	67.11
	4/9/2014	39.0	29.0 - 39.0	99.06	30.35	N/A	N/A	N/A	68.71
	7/11/2016	39.0	29.0 - 39.0	99.06	30.99	N/A	N/A	N/A	68.07
MW-13	6/11/2013	39.0	29.0 - 39.0	98.54	31.34	N/A	N/A	N/A	67.20
	4/9/2014	39.0	29.0 - 39.0	98.54	29.84	N/A	N/A	N/A	68.70
	7/11/2016	39.0	29.0 - 39.0	98.54	30.71	N/A	N/A	N/A	67.83
MW-14	6/11/2013	37.0	27.0 - 37.0	97.43	30.69	N/A	N/A	N/A	66.74
	4/9/2014	37.0	27.0 - 37.0	97.43	28.91	N/A	N/A	N/A	68.52
	7/11/2016	37.0	27.0 - 37.0	97.43	29.33	N/A	N/A	N/A	68.10

Notes: * Corrected WL = Static WL - (Product Thickness x Product Gravity)
N/A - Not Applicable

Bountyland Quick Stop #6, UST Permit #06711

Table 2 – Potentiometric Data

July 11, 2016

Monitor Well ID	Date Gauged	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-15	6/11/2013	36.0	26.0 - 36.0	96.07	29.55	N/A	N/A	N/A	66.52
	4/9/2014	36.0	26.0 - 36.0	96.07	28.03	N/A	N/A	N/A	68.04
	7/11/2016	36.0	26.0 - 36.0	96.07	28.81	N/A	N/A	N/A	67.26
MW-16	6/11/2013	32.0	22.0 - 32.0	91.39	25.56	N/A	N/A	N/A	65.83
	4/9/2014	32.0	22.0 - 32.0	91.39	24.34	N/A	N/A	N/A	67.05
	7/11/2016	32.0	22.0 - 32.0	91.39	25.37	N/A	N/A	N/A	66.02
MW-17	6/11/2013	28.0	18.0 - 28.0	86.35	21.38	N/A	N/A	N/A	64.97
	4/9/2014	28.0	18.0 - 28.0	86.35	20.36	N/A	N/A	N/A	65.99
	7/11/2016	28.0	18.0 - 28.0	86.35	21.71	N/A	N/A	N/A	64.64
MW-18	6/11/2013	27.0	17.0 - 27.0	81.96	19.92	N/A	N/A	N/A	62.04
	4/9/2014	27.0	17.0 - 27.0	81.96	19.08	N/A	N/A	N/A	62.88
	7/11/2016	27.0	17.0 - 27.0	81.96	Well not located				
MW-19	6/11/2013	24.0	14.0 - 24.0	76.72	16.15	N/A	N/A	N/A	60.57
	4/9/2014	24.0	14.0 - 24.0	76.72	15.01	N/A	N/A	N/A	61.71
	7/11/2016	24.0	14.0 - 24.0	76.72	17.80	N/A	N/A	N/A	58.92
MW-D1	6/11/2013	65.0	60.0 - 65.0	101.63	28.65	N/A	N/A	N/A	72.98
	4/9/2014	65.0	60.0 - 65.0	101.63	25.95	N/A	N/A	N/A	75.68
	7/11/2016	65.0	60.0 - 65.0	101.63	26.49	N/A	N/A	N/A	75.14
MW-D2	6/11/2013	70.0	65.0 - 70.0	99.50	31.30	N/A	N/A	N/A	68.20
	4/9/2014	70.0	65.0 - 70.0	99.50	29.55	N/A	N/A	N/A	69.95
	7/11/2016	70.0	65.0 - 70.0	99.50	30.12	N/A	N/A	N/A	69.38
MW-D3	6/11/2013	70.0	65.0 - 70.0	97.86	30.60	N/A	N/A	N/A	67.26
	4/9/2014	70.0	65.0 - 70.0	97.86	29.31	N/A	N/A	N/A	68.55
	7/11/2016	70.0	65.0 - 70.0	97.86	30.02	N/A	N/A	N/A	67.84

Notes: * Corrected WL = Static WL - (Product Thickness x Product Gravity)
N/A - Not Applicable

Bountyland Quick Stop #6, UST Permit #06711

Table 2 – Potentiometric Data

July 11, 2016

Monitor Well ID	Date Gauged	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
RW-1	6/11/2013	40.0	20.0 - 40.0	102.13	28.62	28.33	0.29	28.41	73.72
	4/9/2014	40.0	20.0 - 40.0	102.13	28.19	25.60	2.59	26.30	75.83
	7/11/2016	40.0	20.0 - 40.0	102.13	27.37	26.01	1.36	26.38	75.75
RW-2	6/11/2013	40.0	20.0 - 40.0	101.73	28.47	27.99	0.48	28.12	73.61
	4/9/2014	40.0	20.0 - 40.0	101.73	30.51	25.45	5.06	26.82	74.91
	7/11/2016	40.0	20.0 - 40.0	101.73	Well not sampled - well pad & cover destroyed				
RW-3	6/11/2013	40.0	20.0 - 40.0	101.62	29.74	26.83	2.91	27.62	74.00
	4/9/2014	40.0	20.0 - 40.0	101.62	30.63	25.10	5.53	26.59	75.03
	7/11/2016	40.0	20.0 - 40.0	101.62	28.69	28.27	0.42	28.38	73.24
RW-4	6/11/2013	40.0	20.0 - 40.0	101.74	28.43	N/A	N/A	N/A	73.31
	4/9/2014	40.0	20.0 - 40.0	101.74	26.03	25.93	0.10	25.96	75.71
	7/11/2016	40.0	20.0 - 40.0	101.74	26.05	N/A	N/A	N/A	75.69
RW-5	4/9/2014	40.0	20.0 - 40.0	102.13	26.97	N/A	N/A	N/A	75.16
	7/11/2016	40.0	20.0 - 40.0	102.13	27.78	25.70	2.08	26.26	75.87
RW-6	4/9/2014	40.0	20.0 - 40.0	101.73	26.73	26.04	0.69	26.23	75.50
	7/11/2016	40.0	20.0 - 40.0	101.73	26.84	N/A	N/A	N/A	74.89
RW-7	4/9/2014	40.0	20.0 - 40.0	101.62	27.61	N/A	N/A	N/A	74.01
	7/11/2016	40.0	20.0 - 40.0	101.62	27.67	N/A	N/A	N/A	73.95
RW-8	4/9/2014	40.0	20.0 - 40.0	101.74	26.61	26.45	0.16	26.49	75.13
	7/11/2016	40.0	20.0 - 40.0	101.74	27.40	26.36	1.04	26.64	75.10

Notes: * Corrected WL = Static WL - (Product Thickness x Product Gravity)
N/A - Not Applicable

Bountyland Quick Stop #6, UST Permit #06711

Table 3 – Current Groundwater Analytical Data

July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA
RBSLs	N/A	5	1,000	700	10,000	25	40	5 (MCL)
MW-1	7/13/2016	**6,800**	**11,000**	630	5,200	**960**	**19,000**	**ND (200)**
MW-2	7/13/2016	**9.2**	4.2	3.0	22	ND (1.0)	9.0	ND (1.0)
MW-3	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-4	7/12/2016	**5,800**	**15,000**	**1,600**	**10,000**	**990**	**4,900**	**ND (200)**
MW-5	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-6	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-7	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-8	7/12/2016	ND (1.0)	1.4	ND (1.0)	1.0	ND (1.0)	ND (1.0)	ND (1.0)
MW-9	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-10	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	12	ND (1.0)
MW-11	7/12/2016	**190**	66	30	280	19	ND (5.0)	ND (5.0)
MW-12	7/12/2016	4.9	ND (1.0)	ND (1.0)	5.8	3.3	ND (1.0)	ND (1.0)
MW-13	7/12/2016	**260**	460	76	440	**33**	**310**	ND (5.0)
MW-14	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-15	7/12/2016	**50**	ND (1.0)	14	80	6.4	ND (1.0)	ND (1.0)
MW-16	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-17	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-18	7/11/2016	Well not located						
MW-19	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-D1	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-D2	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-D3	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed
ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711
Table 3 – Current Groundwater Analytical Data
July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA
RBSLs	**N/A**	**5**	**1,000**	**700**	**10,000**	**25**	**40**	**5 (MCL)**
RW-1	7/11/2016	**Free Product (1.36 feet)**						
RW-2	7/11/2016	Well not sampled - well pad & cover destroyed						
RW-3	7/11/2016	**Free Product (0.42 foot)**						
RW-4	7/13/2016	**230**	830	140	1,300	**95**	**300**	ND (5.0)
RW-5	7/11/2016	**Free Product (2.08 feet)**						
RW-6	7/13/2016	**61**	170	19	150	21	25	ND (5.0)
RW-7	7/13/2016	**7,300**	**12,000**	520	4,000	**950**	**13,000**	**ND (200)**
RW-8	7/11/2016	**Free Product (1.04 feet)**						
SW-1	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
SW-2	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
SW-3	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
DUP-1 (MW-1)	7/13/2016	**5,800**	**9,400**	570	4,500	**420**	**18,000**	**ND (100)**
DUP-2 (RW-4)	7/13/2016	**210**	730	120	1,200	**80**	**300**	**ND (10)**
Field Blank-1	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Field Blank-2	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Field Blank-3	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trip Blank	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed
ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 3 – Current Groundwater Analytical Data

--8 Oxygenates--

July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
Action Levels	---	**150**	**10,000**	**N/A**	**47**	**240**	**128**	**1,400**	**N/A**
MW-1	7/13/2016	**3,900**	**ND (20,000)**	ND (4,000)	**ND (200)**	**47,000**	**ND (2,000)**	**ND (4,000)**	ND (1,000)
MW-2	7/13/2016	11	ND (100)	ND (20)	ND (1.0)	160	ND (10)	22	ND (5.0)
MW-3	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-4	7/12/2016	**1,100**	**ND (20,000)**	ND (4,000)	**ND (200)**	**25,000**	**ND (2,000)**	**ND (4,000)**	ND (1,000)
MW-5	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-6	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-7	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-8	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-9	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-10	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-11	7/12/2016	ND (5.0)	ND (500)	ND (100)	ND (5.0)	**520**	ND (50)	ND (100)	ND (25)
MW-12	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	77	ND (10)	ND (20)	ND (5.0)
MW-13	7/12/2016	**160**	ND (500)	ND (100)	ND (5.0)	**1,000**	ND (50)	ND (100)	ND (25)
MW-14	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-15	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	110	ND (10)	ND (20)	ND (5.0)
MW-16	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-17	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-18	7/11/2016	Well not located							
MW-19	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D1	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D2	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D3	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB) NA - Not Analyzed

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711
Table 3 – Current Groundwater Analytical Data
--8 Oxygenates--
July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
Action Levels	---	150	10,000	N/A	47	240	128	1,400	N/A
RW-1	7/11/2016	**Free Product (1.36 feet)**							
RW-2	7/11/2016	Well not sampled - well pad and cover destroyed							
RW-3	7/11/2016	**Free Product (0.42 foot)**							
RW-4	7/13/2016	51	ND (500)	ND (100)	ND (5.0)	**1,900**	ND (50)	160	ND (25)
RW-5	7/11/2016	**Free Product (2.08 feet)**							
RW-6	7/13/2016	24	ND (500)	ND (100)	ND (5.0)	**560**	ND (50)	ND (100)	ND (25)
RW-7	7/13/2016	**1,900**	**ND (20,000)**	ND (4,000)	**ND (200)**	**53,000**	**ND (2,000)**	**ND (4,000)**	ND (1000)
RW-8	7/11/2016	**Free Product (1.04 feet)**							
SW-1	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
SW-2	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
SW-3	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
DUP-1 (MW-1)	7/13/2016	**4,200**	ND (10,000)	ND (2,000)	**ND (100)**	**53,000**	**ND (1,000)**	**5,500**	ND (500)
DUP-2 (RW-4)	7/13/2016	51	ND (1,000)	ND (200)	ND (10)	**1,900**	ND (100)	ND (200)	ND (50)
Field Blank-1	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
Field Blank-2	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
Field Blank-3	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
Trip Blank	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)
ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 4 – Current and Historical Groundwater Analytical Data

July 11, 12, 13, & 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA	EDB	Lead
RBSLs	**N/A**	**5**	**1,000**	**700**	**10,000**	**25**	**40**	**5 (MCL)**	**0.05**	**15**
MW-1	4/19/2012	**Free Product (0.06 foot)**								
	8/24/2012	**Free Product (4.23 feet)**								
	6/11/2013*	**7,900**	**18,000**	**1,600**	8,900	**510**	**3,700**	**ND (200)**	ND (0.020)	ND (10)
	4/10/2014	**Free Product (1.63 feet)**								
	7/13/2016	**6,800**	**11,000**	630	5,200	**960**	**19,000**	**ND (200)**	NA	NA
MW-2	8/24/2012	**55**	60	43	190	ND (1.0)	2.0	ND (1.0)	ND (0.019)	**55**
	6/13/2013	**27**	33	ND (5.0)	18	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	ND (10)
	4/10/2014	**16**	ND (1.0)	ND (1.0)	7.9	ND (1.0)	4.3	ND (1.0)	NA	NA
	7/13/2016	**9.2**	4.2	3.0	22	ND (1.0)	9.0	ND (1.0)	NA	NA
MW-3	8/24/2012	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.019)	ND (10)
	6/13/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-4	8/24/2012	**6,100**	**11,000**	**1,100**	5,900	**270**	**7,600**	**ND (1.0)**	ND (0.020)	ND (10)
	6/13/2013	**4,200**	**9,300**	**750**	4,300	**230**	**4,800**	**ND (100)**	ND (0.020)	ND (10)
	4/10/2014	**8,000**	**19,000**	**1,800**	**10,000**	**500**	**13,000**	**ND (200)**	NA	NA
	7/12/2016	**5,800**	**15,000**	**1,600**	**10,000**	**990**	**4,900**	**ND (200)**	NA	NA
MW-5	6/13/2013	3.3	11	1.1	5.3	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-6	6/13/2013	3.9	16	1.6	8.8	ND (1.0)	1.4	ND (1.0)	ND (0.020)	13
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-7	6/13/2013	1.1	4.5	ND (1.0)	2.2	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	**83**
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-8	6/13/2013	1.5	5.6	ND (1.0)	2.8	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	**18**
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	1.4	ND (1.0)	1.0	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 4 – Current and Historical Groundwater Analytical Data

July 11, 12, 13, & 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA	EDB	Lead
RBSLs	N/A	5	1,000	700	10,000	25	40	5 (MCL)	0.05	15
MW-9	6/13/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	**23**
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-10	6/13/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	2.2	ND (1.0)	ND (0.019)	ND (10)
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	4.1	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	12	ND (1.0)	NA	NA
MW-11	6/13/2013	**1,600**	**2,100**	140	860	**41**	**60**	**ND (20)**	ND (0.020)	**15**
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	**190**	66	30	280	19	ND (5.0)	ND (5.0)	NA	NA
MW-12	6/13/2013	1.7	5.4	ND (1.0)	2.7	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	4.9	ND (1.0)	ND (1.0)	5.8	3.3	ND (1.0)	ND (1.0)	NA	NA
MW-13	6/13/2013	**1,600**	**4,100**	390	2,200	**120**	**1,000**	**ND (50)**	ND (0.020)	10
	4/10/2014	**140**	270	28	220	14	**210**	ND (5.0)	NA	NA
	7/12/2016	**260**	460	76	440	**33**	**310**	ND (5.0)	NA	NA
MW-14	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	**51**
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-15	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.019)	14
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	**50**	ND (1.0)	14	80	6.4	ND (1.0)	ND (1.0)	NA	NA
MW-16	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-17	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-18	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/11/2016	Well not located								

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711
Table 4 – Current and Historical Groundwater Analytical Data
July 11, 12, 13, & 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA	EDB	Lead
RBSLs	**N/A**	**5**	**1,000**	**700**	**10,000**	**25**	**40**	**5 (MCL)**	**0.05**	**15**
MW-19	6/12/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-D1	6/14/2013	**20**	130	29	150	**43**	11	ND (1.0)	ND (0.020)	**150**
	4/10/2014	ND (1.0)	1.4	ND (1.0)	1.4	ND (1.0)	1.8	ND (1.0)	NA	NA
	7/13/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-D2	6/14/2013	**98**	160	16	71	4.0	12	ND (1.0)	ND (0.020)	**54**
	4/10/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.1	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
MW-D3	6/14/2013	ND (1.0)	1.9	ND (1.0)	1.2	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.020)	ND (10)
	4/9/2014	ND (1.0)	1.9	ND (1.0)	1.2	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/12/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
RW-1	6/13/2013	**Free Product (0.29 foot)**								
	4/9/2014	**Free Product (2.59 feet)**								
	7/11/2016	**Free Product (1.36 feet)**								
RW-2	6/13/2013	**Free Product (0.48 foot)**								
	4/9/2014	**Free Product (5.06 feet)**								
	7/11/2016	Well not sampled - well pad and cover destroyed								
RW-3	6/13/2013	**Free Product (2.91 feet)**								
	4/9/2014	**Free Product (5.53 feet)**								
	7/11/2016	**Free Product (0.42 foot)**								
RW-4	6/13/2013	**2,700**	**8,200**	**990**	5,200	**250**	**560**	ND (1.0)	ND (0.031)	**140**
	4/9/2014	**Free Product (0.10 foot)**								
	7/13/2016	**230**	830	140	1,300	**95**	**300**	ND (5.0)	NA	NA
RW-5	4/11/2014	**1,200**	**2,600**	320	1,700	**130**	**250**	**ND (20)**	NA	NA
	7/11/2016	**Free Product (2.08 feet)**								
RW-6	4/9/2014	**Free Product (0.69 foot)**								
	7/13/2016	**61**	170	19	150	21	25	ND (5.0)		
RW-7	4/11/2014	**3,200**	**5,700**	470	2,600	**150**	**2,800**	**ND (100)**	NA	NA
	7/13/2016	**7,300**	**12,000**	520	4,000	**950**	**13,000**	**ND (200)**	NA	NA

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed
ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711
Table 4 – Current and Historical Groundwater Analytical Data
July 11, 12, 13, & 2016

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naph-thalene	MTBE	1,2-DCA	EDB	Lead
RBSLs	**N/A**	**5**	**1,000**	**700**	**10,000**	**25**	**40**	**5 (MCL)**	**0.05**	**15**
RW-8	4/9/2014	**Free Product (0.16 foot)**								
	7/11/2016	**Free Product (1.04 feet)**								
SW-1	3/21/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA	NA
	4/11/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
SW-2	3/21/2013	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA	NA
	4/11/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
SW-3	4/11/2014	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	7/11/2016	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level NA - Not Analyzed
ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 4 – Current and Historical Groundwater Analytical Data

--8 Oxygenates--

July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
Action Levels	---	**150**	**10,000**	**N/A**	**47**	**240**	**128**	**1,400**	**N/A**
MW-1	4/10/2014	**Free Product (1.63 feet)**							
	7/13/2016	**3,900**	**ND (20,000)**	ND (4,000)	**ND (200)**	**47,000**	**ND (2,000)**	**ND (4,000)**	ND (1,000)
MW-2	4/10/2014	2.4	ND (100)	ND (20)	ND (1.0)	30	ND (10)	ND (20)	ND (5.0)
	7/13/2016	11	ND (100)	ND (20)	ND (1.0)	160	ND (10)	22	ND (5.0)
MW-3	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-4	4/10/2014	1,900	ND (20,000)	ND (4,000)	**ND (200)**	**41,000**	**ND (2,000)**	**ND (4,000)**	ND (1,000)
	7/12/2016	**1,100**	**ND (20,000)**	ND (4,000)	**ND (200)**	**25,000**	**ND (2,000)**	**ND (4,000)**	ND (1,000)
MW-5	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-6	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-7	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-8	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-9	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-10	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-11	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (5.0)	ND (500)	ND (100)	ND (5.0)	**520**	ND (50)	ND (100)	ND (25)
MW-12	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	77	ND (10)	ND (20)	ND (5.0)
MW-13	4/10/2014	94	ND (500)	ND (100)	ND (5.0)	**460**	ND (50)	ND (100)	ND (25)
	7/12/2016	**160**	ND (500)	ND (100)	ND (5.0)	**1,000**	ND (50)	ND (100)	ND (25)

Note: All units expressed in µg/L (PPB) NA - Not Analyzed

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 4 – Current and Historical Groundwater Analytical Data

--8 Oxygenates--

July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
Action Levels	**---**	**150**	**10,000**	**N/A**	**47**	**240**	**128**	**1,400**	**N/A**
MW-14	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-15	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	110	ND (10)	ND (20)	ND (5.0)
MW-16	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-17	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-18	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/11/2016	Well not located							
MW-19	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D1	4/10/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/13/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D2	4/10/2014	1.0	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-D3	4/9/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/12/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
RW-1	4/9/2014	**Free Product (2.59 feet)**							
	7/11/2016	**Free Product (1.36 feet)**							
RW-2	4/9/2014	**Free Product (5.06 feet)**							
	7/11/2016	Well not sampled - well pad & cover destroyed							
RW-3	4/9/2014	**Free Product (5.53 feet)**							
	7/11/2016	**Free Product (0.42 foot)**							
RW-4	4/9/2014	**Free Product (0.01 foot)**							
	7/13/2016	51	ND (500)	ND (100)	ND (5.0)	**1,900**	ND (50)	160	ND (25)

Note: All units expressed in µg/L (PPB) NA - Not Analyzed

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

Bountyland Quick Stop #6, UST Permit #06711

Table 4 – Current and Historical Groundwater Analytical Data

--8 Oxygenates--

July 11, 12, & 13, 2016

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
Action Levels	**---**	**150**	**10,000**	**N/A**	**47**	**240**	**128**	**1,400**	**N/A**
RW-5	4/11/2014	120	ND (2,000)	ND (400)	ND (20)	**3,200**	**ND (200)**	ND (400)	ND (100)
	7/11/2016	**Free Product (2.08 feet)**							
RW-6	4/9/2014	**Free Product (0.69 foot)**							
	7/13/2016	24	ND (500)	ND (100)	ND (5.0)	**560**	ND (50)	ND (100)	ND (25)
RW-7	4/11/2014	280	ND (10,000)	ND (2,000)	ND (100)	**7,800**	**ND (1,000)**	**ND (2,000)**	ND (500)
	7/13/2016	**1,900**	**ND (20,000)**	ND (4,000)	**ND (200)**	**53,000**	**ND (2,000)**	**ND (4,000)**	ND (1000)
RW-8	4/9/2014	**Free Product (0.16 foot)**							
	7/11/2016	**Free Product (1.04 feet)**							
SW-1	4/11/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
SW-2	4/11/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
SW-3	4/11/2014	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	7/11/2016	ND (1.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)

ND( ) - Not Detected Above Practical Quantitation Limit (limit in µg/l)

APPENDIX A
NOT INCLUDED

APPENDIX B
PURGING DATA SHEETS &
LABORATORY ANALYTICAL DATA

ARM ENVIRONMENTAL SERVICES, INC.

Purge Meter Calibration Data Sheet

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94° Partly Cloudy

pH / Specific Conductivity Meter

Model & Serial # (check one):
- ____ ThermoScientific Orion 4 Star – A16729
- ____ ThermoScientific Orion Star A325 – G04904
- ✓ ThermoScientific Orion Star A325 – G07560

Dissolved Oxygen Meter

Model & Serial # (check one):
- ____ YSI 55 Dissolved Oxygen – 06H2811
- ____ YSI 55 Dissolved Oxygen – 09L100775
- ✓ YSI 55 Dissolved Oxygen – 15M102641

Turbidity Meter

Model & Serial # (check one):
- ____ Hanna Hi 98703 S/N 08509656
- ____ Hanna Hi 98703 S/N 08511753
- ✓ Hanna Hi 98703 S/N F0006492

Initial Calibration

pH Calibration: 4.00 / 6.95 / 10.02
pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1413
Spec. Cond. Standard: 1413

Turbidity Calibration: .11 / 14.9 / 100 / 751
Turbidity Standard: > 0.1 / 15.0 / 100 / 750

Date: 7-12-16
Time: 8:30

Midday Calibration Check

pH Calibration: 4.03 / 6.99 / 10.02
pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1417
Spec. Cond. Standard: 1413

Turbidity Calibration: .12 / 15.0 / 101 / 752
Turbidity Standard: > 0.1 / 15.0 / 100 / 750

Date: 7-12-16
Time: 12 30

End-of-Day Calibration Check

pH Calibration: 4.03 / 7.01 / 10.01
pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1420
Spec. Cond. Standard: 1413

Turbidity Calibration: .12 / 15.01 / 109 / 751
Turbidity Standard: > 0.1 / 15.0 / 100 / 750

Date: 7-12-16
Time: 1645

ARM ENVIRONMENTAL SERVICES, INC.

Purge Meter Calibration Data Sheet

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

pH / Specific Conductivity Meter

Model & Serial # (check one):
- ____ ThermoScientific Orion 4 Star – A16729
- ____ ThermoScientific Orion Star A325 – G04904
- ✓ ThermoScientific Orion Star A325 – G07560

Dissolved Oxygen Meter

Model & Serial # (check one):
- ____ YSI 55 Dissolved Oxygen – 06H2811
- ____ YSI 55 Dissolved Oxygen – 09L100775
- ✓ YSI 55 Dissolved Oxygen – 15M102641

Turbidity Meter

Model & Serial # (check one):
- ____ Hanna Hi 98703 S/N 08509656
- ____ Hanna Hi 98703 S/N 08511753
- ✓ Hanna Hi 98703 S/N F0006492

Initial Calibration

pH Calibration:	4.02	7.01	10.01	
pH Standard:	4.01	7.00	10.01	
Spec. Cond. Calibration:	1412			
Spec. Cond. Standard:	1413			
Turbidity Calibration:	.12	15.0	100	751
Turbidity Standard:	> 0.1	15.0	100	750

Date: 7-13-16
Time: 9:15

Midday Calibration Check

pH Calibration:	4.03	7.01	10.02	
pH Standard:	4.01	7.00	10.01	
Spec. Cond. Calibration:	1405			
Spec. Cond. Standard:	1413			
Turbidity Calibration:	.13	14.9	99	750
Turbidity Standard:	> 0.1	15.0	100	750

Date: 7-13-16
Time: 1245

End-of-Day Calibration Check

pH Calibration:	4.02	7.01	10.02	
pH Standard:	4.01	7.00	10.01	
Spec. Cond. Calibration:	1409			
Spec. Cond. Standard:	1413			
Turbidity Calibration:	.11	15.0	100	749
Turbidity Standard:	> 0.1	15.0	100	750

Date: 7-13-16
Time: 1500

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-1 Diameter (in): 2" Well Volume (gal): 1.91

Total Depth: 38' Static Water Level: 26.25 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0	1.25			
Time (military)	1055	1059	1101	1104	1106	1108			~~1113~~
pH (standard units)	5.77	5.62	5.41	5.76	5.31	5.27			5.25
Specific Cond. (µS/cm)	83.21	86.78	85.90	89.03	89.97	90.24			90.14
Water Temp (°C)	21.6	21.2°	21.1°	21.0°	20.9°	20.9°			20.9°
Turbidity (NTUs)	117	65.3	49.4	64.3	71.3	74.2			70.7
Dissolved Oxygen	3.46	1.92	1.85	1.77	1.72	1.69			1.67

Sample Collection Time: ~~1105~~ 1110 Purging Method: Bailer Sample Collection Method: Bailer

Remarks: DUP-1 Taken @ ~~1110~~ 1115

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-2 Diameter (in): 2" Well Volume (gal): 1.94

Total Depth: 37' Static Water Level: 25.06 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)	1030	1034	1038	1039					1045
pH (standard units)	5.47	5.44	5.43	5.41					5.39
Specific Cond. (µS/cm)	106.3	106.3	102.5	100.4					99.6
Water Temp (°C)	21.2°	20.9°	20.9°	20.8°					20.9°
Turbidity (NTUs)	117	58.2	41.9	40.8					54.3
Dissolved Oxygen	1.27	.92	1.02	1.21					1.25

Sample Collection Time: 1040 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-3 Diameter (in): 2" Well Volume (gal): 1.67

Total Depth: 42.5 Static Water Level: 32.22 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0	1.25			
Time (military)	1345	1349	1351	1354	1356	1358			1605
pH (standard units)	4.78	4.54	4.49	4.47	4.45	4.41			4.39
Specific Cond. (µS/cm)	106.4	212.1	255.6	290.6	293.4	296.1			298.4
Water Temp (°C)	23.7°	20.0°	19.9°	19.8°	19.8°	19.9°			19.9°
Turbidity (NTUs)	2.36	175	200	169	142	181			205
Dissolved Oxygen	5.28	5.55	5.58	5.61	5.64	5.69			5.71

Sample Collection Time: 1600 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94° Sunny

Well Data

Well Number: MW-4 Diameter (in): 2" Well Volume (gal): 1.72

Total Depth: 41.5 Static Water Level: 30.94 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.5	.75	1.0					
Time (military)	1540	1543	1545	1548					1555
pH (standard units)	5.03	5.00	4.98	4.89					4.87
Specific Cond. (µS/cm)	48.63	49.19	49.82	49.97					50.03
Water Temp (°C)	21.5°	21.1°	21.0°	20.9°					20.9°
Turbidity (NTUs)	52.9	37.0	22.8	22.1					20.7
Dissolved Oxygen	2.43	1.62	1.53	1.48					1.45

Sample Collection Time: 1550 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-5 Diameter (in): 2" Well Volume (gal): 1.59

Total Depth: 35' Static Water Level: 25.21 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75					
Time (military)	0925	0929	0931	0933					0940
pH (standard units)	5.22	5.25	5.24	5.24					5.27
Specific Cond. (µS/cm)	168.8	46.38	44.25	45.99					45.13
Water Temp (°C)	19.0°	18.4°	18.3°	18.3°					18.2°
Turbidity (NTUs)	19.0	32.4	28.2	30.7					112
Dissolved Oxygen	6.41	6.32	6.21	6.38					6.45

Sample Collection Time: 0935 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-6 Diameter (in): 2" Well Volume (gal): 1.67

Total Depth: 35' Static Water Level: 24.71 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)	9:45	0948	0950	0952	0954				0959
pH (standard units)	4.58	4.53	4.53	4.54	4.54				4.55
Specific Cond. (µS/cm)	30.03	33.37	35.77	36.15	36.29				36.73
Water Temp (°C)	19.1°	19.2°	19.1°	19.1°	19.0°				19.0°
Turbidity (NTUs)	11.5	44.4	39.3	47.9	49.6				57.9
Dissolved Oxygen	5.31	5.12	4.99	4.96	4.93				4.87

Sample Collection Time: 0955 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-7 Diameter (in): 2" Well Volume (gal): 1.65

Total Depth: 40' Static Water Level: 29.87 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)	1005	1009	1011	1013					1020
pH (standard units)	4.55	4.54	4.55	4.59					5.01
Specific Cond. (µS/cm)	23.33	22.85	22.10	22.20					22.35
Water Temp (°C)	20.0°	19.8°	19.7°	19.6°					19.6
Turbidity (NTUs)	24.5	153	161	145					145
Dissolved Oxygen	6.36	7.01	6.94	6.82					6.73

Sample Collection Time: 1015 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-8 Diameter (in): 2" Well Volume (gal): 1.74

Total Depth: 37' Static Water Level: 26.30 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		1.5	.75	1.0					
Time (military)	1615	1618	~~1620~~	1623					1630
pH (standard units)	4.70	4.76	4.73	4.71					7.68
Specific Cond. (µS/cm)	43.10	42.36	39.82	38.53					37.76
Water Temp (°C)	21.2°	20.9°	21.0°	21.0°					21.1°
Turbidity (NTUs)	3.9	80.4	113	90.7					107.6
Dissolved Oxygen	2.24	2.12	2.09	1.97					1.91

Sample Collection Time: 1625 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-9 Diameter (in): 2" Well Volume (gal): 1.34

Total Depth: 39' Static Water Level: 30.72 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0				
Time (military)	1515	1520	1524	1526	1528				1535
pH (standard units)	4.88	4.88	4.94	4.98	4.99				5.02
Specific Cond. (µS/cm)	60.98	48.25	46.99	47.85	48.32				48.78
Water Temp (°C)	31.5°	24.5°	22.0°	21.9°	21.9°				21.9°
Turbidity (NTUs)	34.3	10.7	17.8	15.7	21.3				23.7
Dissolved Oxygen	4.71	5.31	5.42	5.49	5.53				5.56

Sample Collection Time: 1530 Purging Method: Grab Sub Sample Collection Method: Grab Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-~~12~~-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-10 Diameter (in): 2" Well Volume (gal): 1.2a

Total Depth: 38.5 Static Water Level: 30.71 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75					
Time (military)	1325								
pH (standard units)	4.78								
Specific Cond. (µS/cm)	53.12								
Water Temp (°C)	23.2°								
Turbidity (NTUs)	7.18								
Dissolved Oxygen	4.78								

Sample Collection Time: 1330 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks: Well Ran Dry ~~Before~~ After initial reading.
Sediment @ 34.01

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-11 Diameter (in): 2" Well Volume (gal): 1.35

Total Depth: 39' Static Water Level: 30.68 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.5	.75	1.0	1.25	1.5	1.75		
Time (military)	1325	1329	1331	1333	1335	1337	1340		1345
pH (standard units)	4.84	4.83	4.85	4.86	4.88	4.87	4.88		4.89
Specific Cond. (µS/cm)	54.91	51.97	51.82	51.30	51.48	51.93	52.17		53.01
Water Temp (°C)	24.0°	21.8°	21.4°	21.2°	20.9°	21.0°	21.0°		21.0
Turbidity (NTUs)	123	182	154	67.9	46.8	21.7	9.83		11.37
Dissolved Oxygen	4.51	4.60	4.29	4.01	4.06	3.95	3.87		3.71

Sample Collection Time: 1342 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-12 Diameter (in): 2" Well Volume (gal): 1.30

Total Depth: 39' Static Water Level: 30.99 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.5	.75	1.0	1.25	1.5	1.75		
Time (military)	1125	1128	1130	1132	1134	1136	1138		1145
pH (standard units)	4.75	4.70	4.73	4.72	4.73	4.73	4.72		4.72
Specific Cond. (µS/cm)	55.63	53.47	54.70	53.55	51.95	49.86	49.53		49.74
Water Temp (°C)	29.3°	24.6	23.9°	23.6°	23.4°	23.3°	23.4°		23.3°
Turbidity (NTUs)	70.5	48.5	49.9	36.2	26.9	14.5	7.19		6.37
Dissolved Oxygen	3.69	3.85	3.78	3.58	3.39	3.29	3.22		3.21

Sample Collection Time: 1140 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-13 Diameter (in): 2" Well Volume (gal): 1.43

Total Depth: 39' Static Water Level: 30.71 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0				
Time (military)	1355	1357	1400	1402	1404				1410
pH (standard units)	4.82	4.78	4.73	4.73	4.72				4.71
Specific Cond. (µS/cm)	91.84	89.39	88.09	88.09	83.56				81.91
Water Temp (°C)	24.6°	21.6°	20.9°	20.9°	21.0°				21.1°
Turbidity (NTUs)	62.7	71.5	45.9	23.9	10.7				8.43
Dissolved Oxygen	3.40	3.95	3.93	3.83	3.74				3.65

Sample Collection Time: 1405 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-14 Diameter (in): 2" Well Volume (gal): 1.25

Total Depth: 37' Static Water Level: 29.33 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.5	.75	1.0	1.25	1.5			
Time (military)	1055	1059	1101	1103	1105	1107			1113
pH (standard units)	4.54	4.56	4.55	4.55	4.55	4.54			4.52
Specific Cond. (µS/cm)	48.45	46.01	46.81	46.82	47.2	47.82			47.99
Water Temp (°C)	24.1°	22.8°	22.4°	22.6°	22.6°	22.7°			22.7°
Turbidity (NTUs)	48.3	104	105	88.8	79.4	83.9			68.9
Dissolved Oxygen	3.84	4.20	4.28	4.24	4.23	4.04			3.89

Sample Collection Time: 1110 Purging Method: Grab Sub Sample Collection Method: Grab Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-15 Diameter (in): 2" Well Volume (gal): 1.17

Total Depth: 36' Static Water Level: 28.81 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0	1.25			
Time (military)	1030	1034	1036	1038	1040	1042			1048
pH (standard units)	4.82	4.74	4.74	4.73	4.73	4.72			4.73
Specific Cond. (µS/cm)	67.98	64.67	64.05	63.00	62.71	62.40			62.06
Water Temp (°C)	24.8°	22.9°	21.7°	21.5°	21.5°	21.5°			21.6°
Turbidity (NTUs)	308	357	254	166	125	131			113
Dissolved Oxygen	5.57	6.39	6.09	5.64	5.57	5.59			5.63

Sample Collection Time: 1044 Purging Method: ~~Low Flow~~ Grab Sub Sample Collection Method: ~~Pump~~ Grab Sub

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-16 Diameter (in): 2" Well Volume (gal): 1.08

Total Depth: 32' Static Water Level: 25.37 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0				
Time (military)	1000	1004	1006	1008	1010				1015
pH (standard units)	4.94	4.89	4.93	4.95	4.98				5.01
Specific Cond. (µS/cm)	48.14	47.41	42.24	42.25	42.91				43.03
Water Temp (°C)	23.8°	23.5°	23.0°	22.9°	22.8°				22.9°
Turbidity (NTUs)	17.8	19.1	11.7	10.1	9.61				7.93
Dissolved Oxygen	6.45	7.20	7.70	7.61	7.53				7.48

Sample Collection Time: 1012 Purging Method: Low Flow Sample Collection Method: Straw

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-17 Diameter (in): 2" Well Volume (gal): 1.02

Total Depth: 28' Static Water Level: 21.71 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0				
Time (military)	0940	0944	0946	0948	0949				0955
pH (standard units)	5.79	5.34	5.33	5.31	5.29				5.26
Specific Cond. (µS/cm)	33.86	29.39	26.36	25.93	25.85				25.68
Water Temp (°C)	21.1°	20.6°	20.0°	19.8°	19.7°				19.5°
Turbidity (NTUs)	17.1	6.84	4.91	5.73	3.79				4.25
Dissolved Oxygen	6.45	8.61	8.64	8.70	8.86				8.61

Sample Collection Time: 0950 Purging Method: Low Flow Sample Collection Method: Straw

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: ecg

Well Data

Well Number: MW-18 Diameter (in): _____ Well Volume (gal): _____

Total Depth: _____ Static Water Level: _____ Static Product Level: _____

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: _____ Sample Collection Method: _____

Remarks: CML - Could not locate

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-19 Diameter (in): 2" Well Volume (gal): .99

Total Depth: 24' Static Water Level: 17.80 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.25	.5	.75	1.0				
Time (military)	0900	0904	0907	0909	0911				0915
pH (standard units)	4.69	4.74	4.73	4.75	4.72				4.77
Specific Cond. (µS/cm)	42.69	42.23	40.60	39.22	38.09				37.45
Water Temp (°C)	20.9°	19.4°	19.7°	19.8°	19.8°				19.9°
Turbidity (NTUs)	66.3	53.3	47.6	35.1	37.4				29.1
Dissolved Oxygen	4.90	5.28	5.01	4.95	4.87				4.68

Sample Collection Time: 0912 Purging Method: Low Flow Sample Collection Method: Straw

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94°

Well Data

Well Number: RW-1 Diameter (in): 4" Well Volume (gal):

Total Depth: 40' Static Water Level: 27.37 Static Product Level: 26.01

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: Sample Collection Method:

Remarks: well had product

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94°

Well Data

Well Number: RW-2 Diameter (in): _____ Well Volume (gal): _____

Total Depth: 40' Static Water Level: _____ Static Product Level: _____

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: _____ Sample Collection Method: _____

Remarks: Well pad and Cover destroyed
No Sample Collected

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94°

Well Data

Well Number: RW-3 Diameter (in): 4" Well Volume (gal):

Total Depth: 40' Static Water Level: 28.69 Static Product Level: 28.27

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: Sample Collection Method:

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: RW-4 Diameter (in): 4" Well Volume (gal): 9.10

Total Depth: 40' Static Water Level: 24.05 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		1.0	1.5	2.0	2.5	3.0			
Time (military)	1125	1129	1131	1133	1135	1137			1147
pH (standard units)	5.34	5.58	5.61	5.65	5.66	5.67			6.69
Specific Cond. (µS/cm)	56.70	84.56	91.46	98.53	100.1	101.2			101.9
Water Temp (°C)	21.2°	21.1°	20.7°	20.6°	20.7°	20.7°			20.8°
Turbidity (NTUs)	6.84	11.3	20.9	21.2	17.2	10.1			11.7
Dissolved Oxygen	1.10	1.09	1.29	1.42	1.31	1.23			1.09

Sample Collection Time: 1140 Purging Method: Bailer Sample Collection Method: Bailer

Remarks: DUP-2 Taken @ 1145

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94°

Well Data

Well Number: RW-5 Diameter (in): 4" Well Volume (gal):

Total Depth: 40' Static Water Level: 27.78 Static Product Level: 25.70

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: Sample Collection Method:

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well
Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: BW-6 Diameter (in): 4" Well Volume (gal): 8.59

Total Depth: 40' Static Water Level: 28.84 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		1.0	1.5	2.0					
Time (military)	1610	1614	1616	1618					1625
pH (standard units)	4.88	4.90	4.93	4.94					4.97
Specific Cond. (µS/cm)	44.50	41.25	41.13	41.05					40.98
Water Temp (°C)	20.7°	20.5°	20.6°	20.7°					20.8°
Turbidity (NTUs)	40.5	9.29	4.59	2.22					7.43
Dissolved Oxygen	1.94	1.85	1.74	1.66					1.54

Sample Collection Time: 1620 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: EW-7 Diameter (in): 4" Well Volume (gal): 8.05

Total Depth: 40' Static Water Level: 27.67 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)	1635	1.0	1.5	2.0					
Time (military)	~~1635~~	1639	1641	1643					1650
pH (standard units)	5.29	5.32	5.33	5.34					5.35
Specific Cond. (µS/cm)	2922	29.26	29.86	30.26					30.91
Water Temp (°C)	21.3	20.7°	20.8°	20.8°					20.9°
Turbidity (NTUs)	5.56	12.2	11.2	10.2					9.31
Dissolved Oxygen	.91	.97	.96	.98					.97

Sample Collection Time: 1645 Purging Method: Bailers Sample Collection Method: Bailers

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-14

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94°

Well Data

Well Number: RW-8 Diameter (in): 4" Well Volume (gal):

Total Depth: 45' Static Water Level: 27.40 Static Product Level: 26.36

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: N/A Purging Method: Sample Collection Method:

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-13-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 99° Sunny

Well Data

Well Number: MW-D1 Diameter (in): 2" Well Volume (gal): 6.27

Total Depth: 45' Static Water Level: 24.49 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		1.0	1.5	2.0	2.5	2.75	3.0		
Time (military)	1155	1159	1201	1203	1205	1207	1209		1215
pH (standard units)	6.41	6.17	6.11	6.24	6.51	6.48	6.43		6.41
Specific Cond. (µS/cm)	99.60	51.62	50.29	60.15	102.1	100.4	98.31		89.98
Water Temp (°C)	22.6°	21.2°	20.9°	20.7°	20.9°	21.0°	21.1°		21.0°
Turbidity (NTUs)	25.4	8.59	14.6	17.4	26.8	16.3	9.73		11.7
Dissolved Oxygen	5.14	5.80	6.01	6.02	6.09	6.00	6.04		6.13

Sample Collection Time: 1210 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-D2 Diameter (in): 2" Well Volume (gal): 6.50

Total Depth: 70' Static Water Level: 30.12 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		1.0	1.5	2.0					
Time (military)	1600	1604	1606	1608					1613
pH (standard units)	5.66	5.68	5.68	5.69					5.74
Specific Cond. (µS/cm)	18.19	18.16	18.29	18.41					18.59
Water Temp (°C)	21.3°	20.8°	20.7°	20.7°					20.7°
Turbidity (NTUs)	16.9	10.6	14.4	17.7					15.3
Dissolved Oxygen	5.62	5.86	5.78	5.71					5.64

Sample Collection Time: 1610 Purging Method: Bailer Sample Collection Method: Bailer

Remarks:

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-12-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 95° Sunny

Well Data

Well Number: MW-D3 Diameter (in): 2" Well Volume (gal): 6.51

Total Depth: 70' Static Water Level: 30.02 Static Product Level: N/A

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)		.75	1.0	1.25	1.5				
Time (military)	1150	1154	1156	1158	1200				1205
pH (standard units)	5.81	5.72	5.76	5.74	5.73				5.73
Specific Cond. (µS/cm)	24.61	24.25	24.75	24.92	24.95				24.91
Water Temp (°C)	25.1°	20.4°	20.3°	20.4°	20.5°				20.6°
Turbidity (NTUs)	10.3	10.9	6.45	5.31	6.13				7.35
Dissolved Oxygen	4.98	5.80	5.65	5.60	5.56				5.51

Sample Collection Time: 1202 Purging Method: Geo Sub Sample Collection Method: Geo Sub

Remarks: ~~1202~~

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94° Sunny

Well Data

Well Number: SW-1 Diameter (in): _____ Well Volume (gal): _____

Total Depth: _____ Static Water Level: _____ Static Product Level: _____

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: 1515 Purging Method: _____ Sample Collection Method: B and W

Remarks: _____

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94° Sunny

Well Data

Well Number: SW-2 Diameter (in): _____ Well Volume (gal): _____

Total Depth: _____ Static Water Level: _____ Static Product Level: _____

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: 1545 Purging Method: _____ Sample Collection Method: Bailer

Remarks: _____

ARM ENVIRONMENTAL SERVICES, INC.

Monitoring Well Purging Data Sheet

Date: 7-11-16

Site Data

Facility Name: Bountyland Quick Stop #6 Facility Location: Westminster, SC

UST Permit # or Site ID #: 06711 Field Personnel: Jason Burakiewicz / Andrew Woodburn (full names) Weather: 94° Sunny

Well Data

Well Number: SW-3 Diameter (in): _____ Well Volume (gal): _____

Total Depth: _____ Static Water Level: _____ Static Product Level: _____

Note: Do not purge a certain number of well volumes. Purge the well until the parameters below have stabilized.

1" well: 1 well volume = (TD - SWL) x 0.047
2" well: 1 well volume = (TD - SWL) x 0.163
4" well: 1 well volume = (TD - SWL) x 0.653

Purging Data

	Initial	1st reading	2nd reading	3rd reading	4th reading	5th reading	6th reading	7th reading	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (NTUs)									
Dissolved Oxygen									

Sample Collection Time: 1615 Purging Method: _____ Sample Collection Method: Bailer

Remarks: _____

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

ARM Environmental Services, Inc.
1210 1st Street S. Ext.
Columbia, SC 29209
Attention: Joseph Goings

Project Name: **Bountyland Quick Stop #6**

Project Number: **15-403.9-16**

Lot Number: **RG15020**

Date Completed: **07/19/2016**

Lucas Odom
Project Manager

LABORATORY ACCREDITATION BUREAU ACCREDITED

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative

ARM Environmental Services, Inc.

Lot Number: RG15020

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 NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

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

Sample Summary

ARM Environmental Services, Inc.

Lot Number: RG15020

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	07/13/2016 1110	07/15/2016
002	MW-2	Aqueous	07/13/2016 1040	07/15/2016
003	MW-3	Aqueous	07/13/2016 1600	07/15/2016
004	MW-4	Aqueous	07/12/2016 1550	07/15/2016
005	MW-5	Aqueous	07/13/2016 0935	07/15/2016
006	MW-6	Aqueous	07/13/2016 0955	07/15/2016
007	MW-7	Aqueous	07/13/2016 1015	07/15/2016
008	MW-8	Aqueous	07/12/2016 1625	07/15/2016
009	MW-9	Aqueous	07/12/2016 1530	07/15/2016
010	MW-10	Aqueous	07/13/2016 1330	07/15/2016
011	MW-11	Aqueous	07/12/2016 1342	07/15/2016
012	MW-12	Aqueous	07/12/2016 1140	07/15/2016
013	MW-13	Aqueous	07/12/2016 1405	07/15/2016
014	MW-14	Aqueous	07/12/2016 1110	07/15/2016
015	MW-15	Aqueous	07/12/2016 1044	07/15/2016
016	MW-16	Aqueous	07/12/2016 1012	07/15/2016
017	MW-17	Aqueous	07/12/2016 0950	07/15/2016
018	MW-19	Aqueous	07/12/2016 0912	07/15/2016
019	RW-4	Aqueous	07/13/2016 1140	07/15/2016
020	RW-6	Aqueous	07/13/2016 1620	07/15/2016
021	RW-7	Aqueous	07/13/2016 1645	07/15/2016
022	MW-D1	Aqueous	07/13/2016 1210	07/15/2016
023	MW-D2	Aqueous	07/12/2016 1610	07/15/2016
024	MW-D3	Aqueous	07/12/2016 1202	07/15/2016
025	SW-1	Aqueous	07/11/2016 1515	07/15/2016
026	SW-2	Aqueous	07/11/2016 1545	07/15/2016
027	SW-3	Aqueous	07/11/2016 1615	07/15/2016
028	DUP-1	Aqueous	07/13/2016 1115	07/15/2016
029	DUP-2	Aqueous	07/13/2016 1145	07/15/2016
030	FIELD BLANK-1	Aqueous	07/11/2016 1620	07/15/2016
031	FIELD BLANK-2	Aqueous	07/12/2016 1230	07/15/2016
032	FIELD BLANK-3	Aqueous	07/13/2016 1245	07/15/2016
033	TRIP BLANK	Aqueous	07/11/2016	07/15/2016

(33 samples)

Executive Summary

ARM Environmental Services, Inc.

Lot Number: RG15020

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	47000		ug/L	7
001	MW-1	Aqueous	Benzene	8260B	6800		ug/L	7
001	MW-1	Aqueous	Diisopropyl ether (IPE)	8260B	3900		ug/L	7
001	MW-1	Aqueous	Ethylbenzene	8260B	630		ug/L	7
001	MW-1	Aqueous	Methyl tertiary butyl ether	8260B	19000		ug/L	7
001	MW-1	Aqueous	Naphthalene	8260B	960		ug/L	7
001	MW-1	Aqueous	Toluene	8260B	11000		ug/L	7
001	MW-1	Aqueous	Xylenes (total)	8260B	5200		ug/L	7
002	MW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	160		ug/L	8
002	MW-2	Aqueous	Benzene	8260B	9.2		ug/L	8
002	MW-2	Aqueous	Diisopropyl ether (IPE)	8260B	11		ug/L	8
002	MW-2	Aqueous	Ethylbenzene	8260B	3.0		ug/L	8
002	MW-2	Aqueous	Methyl tertiary butyl ether	8260B	9.0		ug/L	8
002	MW-2	Aqueous	tert-butyl alcohol (TBA)	8260B	22		ug/L	8
002	MW-2	Aqueous	Toluene	8260B	4.2		ug/L	8
002	MW-2	Aqueous	Xylenes (total)	8260B	22		ug/L	8
004	MW-4	Aqueous	tert-Amyl alcohol (TAA)	8260B	25000		ug/L	10
004	MW-4	Aqueous	Benzene	8260B	5800		ug/L	10
004	MW-4	Aqueous	Diisopropyl ether (IPE)	8260B	1100		ug/L	10
004	MW-4	Aqueous	Ethylbenzene	8260B	1600		ug/L	10
004	MW-4	Aqueous	Methyl tertiary butyl ether	8260B	4900		ug/L	10
004	MW-4	Aqueous	Naphthalene	8260B	990		ug/L	10
004	MW-4	Aqueous	Toluene	8260B	15000		ug/L	10
004	MW-4	Aqueous	Xylenes (total)	8260B	10000		ug/L	10
007	MW-7	Aqueous	Toluene	8260B	1.1		ug/L	13
008	MW-8	Aqueous	Toluene	8260B	1.4		ug/L	14
008	MW-8	Aqueous	Xylenes (total)	8260B	1.0		ug/L	14
010	MW-10	Aqueous	Methyl tertiary butyl ether	8260B	12		ug/L	16
011	MW-11	Aqueous	tert-Amyl alcohol (TAA)	8260B	520		ug/L	17
011	MW-11	Aqueous	Benzene	8260B	190		ug/L	17
011	MW-11	Aqueous	Ethylbenzene	8260B	30		ug/L	17
011	MW-11	Aqueous	Naphthalene	8260B	19		ug/L	17
011	MW-11	Aqueous	Toluene	8260B	66		ug/L	17
011	MW-11	Aqueous	Xylenes (total)	8260B	280		ug/L	17
012	MW-12	Aqueous	tert-Amyl alcohol (TAA)	8260B	77		ug/L	18
012	MW-12	Aqueous	Benzene	8260B	4.9		ug/L	18
012	MW-12	Aqueous	Naphthalene	8260B	3.3		ug/L	18
012	MW-12	Aqueous	Xylenes (total)	8260B	5.8		ug/L	18
013	MW-13	Aqueous	tert-Amyl alcohol (TAA)	8260B	1000		ug/L	19
013	MW-13	Aqueous	Benzene	8260B	260		ug/L	19
013	MW-13	Aqueous	Diisopropyl ether (IPE)	8260B	160		ug/L	19
013	MW-13	Aqueous	Ethylbenzene	8260B	76		ug/L	19
013	MW-13	Aqueous	Methyl tertiary butyl ether	8260B	310		ug/L	19
013	MW-13	Aqueous	Naphthalene	8260B	33		ug/L	19
013	MW-13	Aqueous	Toluene	8260B	460		ug/L	19

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
013	MW-13	Aqueous	Xylenes (total)	8260B	440		ug/L	19
015	MW-15	Aqueous	tert-Amyl alcohol (TAA)	8260B	110		ug/L	21
015	MW-15	Aqueous	Benzene	8260B	50		ug/L	21
015	MW-15	Aqueous	Ethylbenzene	8260B	14		ug/L	21
015	MW-15	Aqueous	Naphthalene	8260B	6.4		ug/L	21
015	MW-15	Aqueous	Xylenes (total)	8260B	80		ug/L	21
019	RW-4	Aqueous	tert-Amyl alcohol (TAA)	8260B	1900		ug/L	25
019	RW-4	Aqueous	Benzene	8260B	230		ug/L	25
019	RW-4	Aqueous	Diisopropyl ether (IPE)	8260B	51		ug/L	25
019	RW-4	Aqueous	Ethylbenzene	8260B	140		ug/L	25
019	RW-4	Aqueous	Methyl tertiary butyl ether	8260B	300		ug/L	25
019	RW-4	Aqueous	Naphthalene	8260B	95		ug/L	25
019	RW-4	Aqueous	tert-butyl alcohol (TBA)	8260B	160		ug/L	25
019	RW-4	Aqueous	Toluene	8260B	830		ug/L	25
019	RW-4	Aqueous	Xylenes (total)	8260B	1300		ug/L	25
020	RW-6	Aqueous	tert-Amyl alcohol (TAA)	8260B	560		ug/L	26
020	RW-6	Aqueous	Benzene	8260B	61		ug/L	26
020	RW-6	Aqueous	Diisopropyl ether (IPE)	8260B	24		ug/L	26
020	RW-6	Aqueous	Ethylbenzene	8260B	19		ug/L	26
020	RW-6	Aqueous	Methyl tertiary butyl ether	8260B	25		ug/L	26
020	RW-6	Aqueous	Naphthalene	8260B	21		ug/L	26
020	RW-6	Aqueous	Toluene	8260B	170		ug/L	26
020	RW-6	Aqueous	Xylenes (total)	8260B	150		ug/L	26
021	RW-7	Aqueous	tert-Amyl alcohol (TAA)	8260B	53000		ug/L	27
021	RW-7	Aqueous	Benzene	8260B	7300		ug/L	27
021	RW-7	Aqueous	Diisopropyl ether (IPE)	8260B	1900		ug/L	27
021	RW-7	Aqueous	Ethylbenzene	8260B	520		ug/L	27
021	RW-7	Aqueous	Methyl tertiary butyl ether	8260B	13000		ug/L	27
021	RW-7	Aqueous	Naphthalene	8260B	950		ug/L	27
021	RW-7	Aqueous	Toluene	8260B	12000		ug/L	27
021	RW-7	Aqueous	Xylenes (total)	8260B	4000		ug/L	27
028	DUP-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	53000		ug/L	34
028	DUP-1	Aqueous	Benzene	8260B	5800		ug/L	34
028	DUP-1	Aqueous	Diisopropyl ether (IPE)	8260B	4200		ug/L	34
028	DUP-1	Aqueous	Ethylbenzene	8260B	570		ug/L	34
028	DUP-1	Aqueous	Methyl tertiary butyl ether	8260B	18000		ug/L	34
028	DUP-1	Aqueous	Naphthalene	8260B	420		ug/L	34
028	DUP-1	Aqueous	tert-butyl alcohol (TBA)	8260B	5500		ug/L	34
028	DUP-1	Aqueous	Toluene	8260B	9400		ug/L	34
028	DUP-1	Aqueous	Xylenes (total)	8260B	4500		ug/L	34
029	DUP-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	1900		ug/L	35
029	DUP-2	Aqueous	Benzene	8260B	210		ug/L	35
029	DUP-2	Aqueous	Diisopropyl ether (IPE)	8260B	51		ug/L	35
029	DUP-2	Aqueous	Ethylbenzene	8260B	120		ug/L	35
029	DUP-2	Aqueous	Methyl tertiary butyl ether	8260B	300		ug/L	35
029	DUP-2	Aqueous	Naphthalene	8260B	80		ug/L	35
029	DUP-2	Aqueous	Toluene	8260B	730		ug/L	35
029	DUP-2	Aqueous	Xylenes (total)	8260B	1200		ug/L	35

Executive Summary (Continued)

Lot Number: RG15020

Sample Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(93 detections)

Client: **ARM Environmental Services, Inc.**
Description: **MW-1**
Date Sampled: **07/13/2016 1110**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-001**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	200	07/16/2016 0504	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**47000**		**4000**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	ug/L	1
Benzene	**71-43-2**	**8260B**	**6800**		**200**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		200	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		200	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**3900**		**200**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**630**		**200**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**19000**		**200**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**960**		**200**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	ug/L	1
Toluene	**108-88-3**	**8260B**	**11000**		**200**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**5200**		**200**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-2**
Date Sampled: **07/13/2016 1040**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-002**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/16/2016 0252	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**160**		**20**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	**71-43-2**	**8260B**	**9.2**		**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**11**		**1.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**3.0**		**1.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**9.0**		**1.0**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	**75-65-0**	**8260B**	**22**		**20**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**4.2**		**1.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**22**		**1.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-3**
Date Sampled: **07/13/2016 1600**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-003**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/16/2016 0314	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-4**
Date Sampled: **07/12/2016 1550**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-004**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	200	07/16/2016 0526	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**25000**		**4000**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	ug/L	1
Benzene	**71-43-2**	**8260B**	**5800**		**200**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		200	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		200	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**1100**		**200**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**1600**		**200**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**4900**		**200**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**990**		**200**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	ug/L	1
Toluene	**108-88-3**	**8260B**	**15000**		**200**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**10000**		**200**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-5**
Date Sampled: **07/13/2016 0935**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-005**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/16/2016 0336	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-6**
Date Sampled: **07/13/2016 0955**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-006**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/16/2016 0358	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-7**
Date Sampled: **07/13/2016 1015**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-007**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/16/2016 0420	ECP		17662

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	**108-88-3**	**8260B**	**1.1**		**1.0**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-8**
Date Sampled: **07/12/2016 1625**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-008**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1140	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	**108-88-3**	**8260B**	**1.4**		**1.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1.0**		**1.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-9**
Date Sampled: **07/12/2016 1530**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-009**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1202	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-10**
Date Sampled: **07/13/2016 1330**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-010**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1224	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**12**		**1.0**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-11**
Date Sampled: **07/12/2016 1342**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-011**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	07/18/2016 1628	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**520**		**100**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	ug/L	1
Benzene	**71-43-2**	**8260B**	**190**		**5.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	ug/L	1
Ethanol	64-17-5	8260B	ND		500	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**30**		**5.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**19**		**5.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	ug/L	1
Toluene	**108-88-3**	**8260B**	**66**		**5.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**280**		**5.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-12**
Date Sampled: **07/12/2016 1140**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-012**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1246	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**77**		**20**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	**71-43-2**	**8260B**	**4.9**		**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**3.3**		**1.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**5.8**		**1.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-13**
Date Sampled: **07/12/2016 1405**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-013**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	07/18/2016 1650	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**1000**		**100**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	ug/L	1
Benzene	**71-43-2**	**8260B**	**260**		**5.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**160**		**5.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	ug/L	1
Ethanol	64-17-5	8260B	ND		500	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**76**		**5.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**310**		**5.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**33**		**5.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	ug/L	1
Toluene	**108-88-3**	**8260B**	**460**		**5.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**440**		**5.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-14**
Date Sampled: **07/12/2016 1110**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-014**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1308	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-15**
Date Sampled: **07/12/2016 1044**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-015**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1330	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**110**		**20**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	**71-43-2**	**8260B**	**50**		**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**14**		**1.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**6.4**		**1.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**80**		**1.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-16**
Date Sampled: **07/12/2016 1012**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-016**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1352	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-17**
Date Sampled: **07/12/2016 0950**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-017**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1415	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-19**
Date Sampled: **07/12/2016 0912**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-018**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1437	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **RW-4**
Date Sampled: **07/13/2016 1140**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-019**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	07/18/2016 1712	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**1900**		**100**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	ug/L	1
Benzene	**71-43-2**	**8260B**	**230**		**5.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**51**		**5.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	ug/L	1
Ethanol	64-17-5	8260B	ND		500	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**140**		**5.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**300**		**5.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**95**		**5.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	**75-65-0**	**8260B**	**160**		**100**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**830**		**5.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1300**		**5.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **RW-6**
Date Sampled: **07/13/2016 1620**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-020**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	07/18/2016 1735	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**560**		**100**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	ug/L	1
Benzene	**71-43-2**	**8260B**	**61**		**5.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**24**		**5.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	ug/L	1
Ethanol	64-17-5	8260B	ND		500	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**19**		**5.0**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**25**		**5.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**21**		**5.0**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	ug/L	1
Toluene	**108-88-3**	**8260B**	**170**		**5.0**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**150**		**5.0**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **RW-7**
Date Sampled: **07/13/2016 1645**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-021**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	200	07/18/2016 1757	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**53000**		**4000**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	ug/L	1
Benzene	**71-43-2**	**8260B**	**7300**		**200**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		200	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		200	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**1900**		**200**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**520**		**200**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**13000**		**200**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**950**		**200**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	ug/L	1
Toluene	**108-88-3**	**8260B**	**12000**		**200**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**4000**		**200**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-D1**
Date Sampled: **07/13/2016 1210**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-022**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1459	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-D2**
Date Sampled: **07/12/2016 1610**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-023**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1522	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **MW-D3**
Date Sampled: **07/12/2016 1202**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-024**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1544	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **SW-1**
Date Sampled: **07/11/2016 1515**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-025**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1606	JM1		17727

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **SW-2**
Date Sampled: **07/11/2016 1545**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-026**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1245	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **SW-3**
Date Sampled: **07/11/2016 1615**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-027**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1309	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5 0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **DUP-1**
Date Sampled: **07/13/2016 1115**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-028**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	100	07/18/2016 1714	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**53000**		**2000**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		1000	ug/L	1
Benzene	**71-43-2**	**8260B**	**5800**		**100**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		100	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		100	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**4200**		**100**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	ug/L	1
Ethanol	64-17-5	8260B	ND		10000	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**570**		**100**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**18000**		**100**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**420**		**100**	**ug/L**	**1**
tert-butyl alcohol (TBA)	**75-65-0**	**8260B**	**5500**		**2000**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**9400**		**100**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**4500**		**100**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **DUP-2**
Date Sampled: **07/13/2016 1145**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-029**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	10	07/18/2016 1738	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**1900**		**200**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		100	ug/L	1
Benzene	**71-43-2**	**8260B**	**210**		**10**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		50	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		10	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		10	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**51**		**10**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		200	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**120**		**10**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**300**		**10**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**80**		**10**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		200	ug/L	1
Toluene	**108-88-3**	**8260B**	**730**		**10**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1200**		**10**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **FIELD BLANK-1**
Date Sampled: **07/11/2016 1620**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-030**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1109	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		90	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **FIELD BLANK-2**
Date Sampled: **07/12/2016 1230**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-031**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1133	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **FIELD BLANK-3**
Date Sampled: **07/13/2016 1245**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-032**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1157	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **ARM Environmental Services, Inc.**
Description: **TRIP BLANK**
Date Sampled: **07/11/2016**
Date Received: **07/15/2016**

Laboratory ID: **RG15020-033**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	07/18/2016 1222	JM1		17728

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	ug/L	1
Ethanol	64-17-5	8260B	ND		100	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: RQ17662-001
Batch: 17662
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	ug/L	07/15/2016 2150
tert-Amyl methyl ether (TAME)	ND		1	10	ug/L	07/15/2016 2150
Benzene	ND		1	1.0	ug/L	07/15/2016 2150
tert-Butyl formate (TBF)	ND		1	5.0	ug/L	07/15/2016 2150
1,2-Dibromoethane (EDB)	ND		1	1.0	ug/L	07/15/2016 2150
1,2-Dichloroethane	ND		1	1.0	ug/L	07/15/2016 2150
Diisopropyl ether (IPE)	ND		1	1.0	ug/L	07/15/2016 2150
3,3-Dimethyl-1-butanol	ND		1	20	ug/L	07/15/2016 2150
Ethanol	ND		1	100	ug/L	07/15/2016 2150
Ethylbenzene	ND		1	1.0	ug/L	07/15/2016 2150
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	ug/L	07/15/2016 2150
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	ug/L	07/15/2016 2150
Naphthalene	ND		1	1.0	ug/L	07/15/2016 2150
tert-butyl alcohol (TBA)	ND		1	20	ug/L	07/15/2016 2150
Toluene	ND		1	1.0	ug/L	07/15/2016 2150
Xylenes (total)	ND		1	1.0	ug/L	07/15/2016 2150

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		103	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: RQ17662-002
Batch: 17662
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	850		1	85	70-130	07/15/2016 2051
tert-Amyl methyl ether (TAME)	50	46		1	91	70-130	07/15/2016 2051
Benzene	50	48		1	97	70-130	07/15/2016 2051
tert-Butyl formate (TBF)	250	220		1	89	70-130	07/15/2016 2051
1,2-Dibromoethane (EDB)	50	50		1	101	70-130	07/15/2016 2051
1,2-Dichloroethane	50	45		1	91	70-130	07/15/2016 2051
Diisopropyl ether (IPE)	50	44		1	88	70-130	07/15/2016 2051
3,3-Dimethyl-1-butanol	1000	860		1	86	70-130	07/15/2016 2051
Ethanol	5000	4300		1	86	60-140	07/15/2016 2051
Ethylbenzene	50	52		1	104	70-130	07/15/2016 2051
Ethyl-tert-butyl ether (ETBE)	50	47		1	94	70-130	07/15/2016 2051
Methyl tertiary butyl ether (MTBE)	50	45		1	90	70-130	07/15/2016 2051
Naphthalene	50	48		1	97	70-130	07/15/2016 2051
tert-butyl alcohol (TBA)	1000	920		1	92	70-130	07/15/2016 2051
Toluene	50	52		1	105	70-130	07/15/2016 2051
Xylenes (total)	100	100		1	102	70-130	07/15/2016 2051

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		92	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MS

Sample ID: RG15020-004MS
Batch: 17662
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	25000	200000	170000		200	74	70-130	07/16/2016 0549
tert-Amyl methyl ether (TAME)	ND	10000	9700		200	94	70-130	07/16/2016 0549
Benzene	5800	10000	16000		200	104	72-127	07/16/2016 0549
tert-Butyl formate (TBF)	ND	50000	44000		200	87	70-130	07/16/2016 0549
1,2-Dibromoethane (EDB)	ND	10000	10000		200	101	70-130	07/16/2016 0549
1,2-Dichloroethane	ND	10000	9700		200	97	59-143	07/16/2016 0549
Diisopropyl ether (IPE)	1100	10000	10000		200	92	70-130	07/16/2016 0549
3,3-Dimethyl-1-butanol	ND	200000	160000		200	81	70-130	07/16/2016 0549
Ethanol	ND	1000000	720000		200	72	70-130	07/16/2016 0549
Ethylbenzene	1600	10000	13000		200	114	79-132	07/16/2016 0549
Ethyl-tert-butyl ether (ETBE)	ND	10000	10000		200	101	70-130	07/16/2016 0549
Methyl tertiary butyl ether (MTBE)	4900	10000	15000		200	99	60-140	07/16/2016 0549
Naphthalene	990	10000	10000		200	92	62-136	07/16/2016 0549
tert-butyl alcohol (TBA)	ND	200000	180000		200	89	70-130	07/16/2016 0549
Toluene	15000	10000	25000		200	104	75-125	07/16/2016 0549
Xylenes (total)	10000	20000	32000		200	110	70-130	07/16/2016 0549

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MSD

Sample ID: RG15020-004MD
Batch: 17662
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	25000	200000	170000		200	70	5.0	70-130	20	07/16/2016 0611
tert-Amyl methyl ether (TAME)	ND	10000	9500		200	92	2.6	70-130	20	07/16/2016 0611
Benzene	5800	10000	16000		200	101	2.0	72-127	20	07/16/2016 0611
tert-Butyl formate (TBF)	ND	50000	42000		200	84	3.3	70-130	20	07/16/2016 0611
1,2-Dibromoethane (EDB)	ND	10000	10000		200	100	0.71	70-130	20	07/16/2016 0611
1,2-Dichloroethane	ND	10000	9500		200	95	1.5	59-143	20	07/16/2016 0611
Diisopropyl ether (IPE)	1100	10000	10000		200	88	4.1	70-130	20	07/16/2016 0611
3,3-Dimethyl-1-butanol	ND	200000	160000		200	79	3.7	70-130	20	07/16/2016 0611
Ethanol	ND	1000000	700000		200	70	2.8	70-130	20	07/16/2016 0611
Ethylbenzene	1600	10000	13000		200	114	0.066	79-132	20	07/16/2016 0611
Ethyl-tert-butyl ether (ETBE)	ND	10000	9700		200	97	3.6	70-130	20	07/16/2016 0611
Methyl tertiary butyl ether (MTBE)	4900	10000	14000		200	95	2.9	60-140	20	07/16/2016 0611
Naphthalene	990	10000	9900		200	89	2.5	62-136	20	07/16/2016 0611
tert-butyl alcohol (TBA)	ND	200000	160000		200	81	8.8	70-130	20	07/16/2016 0611
Toluene	15000	10000	26000		200	106	0.70	75-125	20	07/16/2016 0611
Xylenes (total)	10000	20000	32000		200	107	1.3	70-130	20	07/16/2016 0611

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: RQ17727-001
Batch: 17727
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	ug/L	07/18/2016 1022
tert-Amyl methyl ether (TAME)	ND		1	10	ug/L	07/18/2016 1022
Benzene	ND		1	1.0	ug/L	07/18/2016 1022
tert-Butyl formate (TBF)	ND		1	5.0	ug/L	07/18/2016 1022
1,2-Dibromoethane (EDB)	ND		1	1.0	ug/L	07/18/2016 1022
1,2-Dichloroethane	ND		1	1.0	ug/L	07/18/2016 1022
Diisopropyl ether (IPE)	ND		1	1.0	ug/L	07/18/2016 1022
3,3-Dimethyl-1-butanol	ND		1	20	ug/L	07/18/2016 1022
Ethanol	ND		1	100	ug/L	07/18/2016 1022
Ethylbenzene	ND		1	1.0	ug/L	07/18/2016 1022
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	ug/L	07/18/2016 1022
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	ug/L	07/18/2016 1022
Naphthalene	ND		1	1.0	ug/L	07/18/2016 1022
tert-butyl alcohol (TBA)	ND		1	20	ug/L	07/18/2016 1022
Toluene	ND		1	1.0	ug/L	07/18/2016 1022
Xylenes (total)	ND		1	1.0	ug/L	07/18/2016 1022

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: RQ17727-002
Batch: 17727
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	900		1	90	70-130	07/18/2016 0924
tert-Amyl methyl ether (TAME)	50	47		1	93	70-130	07/18/2016 0924
Benzene	50	47		1	94	70-130	07/18/2016 0924
tert-Butyl formate (TBF)	250	240		1	95	70-130	07/18/2016 0924
1,2-Dibromoethane (EDB)	50	50		1	100	70-130	07/18/2016 0924
1,2-Dichloroethane	50	45		1	91	70-130	07/18/2016 0924
Diisopropyl ether (IPE)	50	43		1	86	70-130	07/18/2016 0924
3,3-Dimethyl-1-butanol	1000	860		1	86	70-130	07/18/2016 0924
Ethanol	5000	4300		1	86	60-140	07/18/2016 0924
Ethylbenzene	50	51		1	102	70-130	07/18/2016 0924
Ethyl-tert-butyl ether (ETBE)	50	47		1	94	70-130	07/18/2016 0924
Methyl tertiary butyl ether (MTBE)	50	45		1	90	70-130	07/18/2016 0924
Naphthalene	50	49		1	98	70-130	07/18/2016 0924
tert-butyl alcohol (TBA)	1000	980		1	98	70-130	07/18/2016 0924
Toluene	50	51		1	102	70-130	07/18/2016 0924
Xylenes (total)	100	100		1	101	70-130	07/18/2016 0924

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		92	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MS

Sample ID: RG15020-021MS
Batch: 17727
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	53000	200000	200000		200	73	70-130	07/18/2016 1819
tert-Amyl methyl ether (TAME)	ND	10000	9400		200	89	70-130	07/18/2016 1819
Benzene	7300	10000	17000		200	98	72-127	07/18/2016 1819
tert-Butyl formate (TBF)	ND	50000	41000		200	82	70-130	07/18/2016 1819
1,2-Dibromoethane (EDB)	ND	10000	9700		200	97	70-130	07/18/2016 1819
1,2-Dichloroethane	ND	10000	9400		200	94	59-143	07/18/2016 1819
Diisopropyl ether (IPE)	1900	10000	11000		200	87	70-130	07/18/2016 1819
3,3-Dimethyl-1-butanol	ND	200000	160000		200	80	70-130	07/18/2016 1819
Ethanol	ND	1000000	750000		200	75	70-130	07/18/2016 1819
Ethylbenzene	520	10000	11000		200	108	79-132	07/18/2016 1819
Ethyl-tert-butyl ether (ETBE)	ND	10000	9400		200	93	70-130	07/18/2016 1819
Methyl tertiary butyl ether (MTBE)	13000	10000	22000		200	89	60-140	07/18/2016 1819
Naphthalene	950	10000	10000		200	91	62-136	07/18/2016 1819
tert-butyl alcohol (TBA)	ND	200000	180000		200	86	70-130	07/18/2016 1819
Toluene	12000	10000	22000		200	106	75-125	07/18/2016 1819
Xylenes (total)	4000	20000	25000		200	105	70-130	07/18/2016 1819

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MSD

Sample ID: RG15020-021MD
Batch: 17727
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	53000	200000	220000		200	85	11	70-130	20	07/18/2016 1841
tert-Amyl methyl ether (TAME)	ND	10000	9800		200	93	4.3	70-130	20	07/18/2016 1841
Benzene	7300	10000	17000		200	102	1.9	72-127	20	07/18/2016 1841
tert-Butyl formate (TBF)	ND	50000	44000		200	87	6.1	70-130	20	07/18/2016 1841
1,2-Dibromoethane (EDB)	ND	10000	10000		200	104	7.4	70-130	20	07/18/2016 1841
1,2-Dichloroethane	ND	10000	9800		200	98	3.9	59-143	20	07/18/2016 1841
Diisopropyl ether (IPE)	1900	10000	11000		200	91	3.0	70-130	20	07/18/2016 1841
3,3-Dimethyl-1-butanol	ND	200000	180000		200	88	9.3	70-130	20	07/18/2016 1841
Ethanol	ND	1000000	820000		200	82	8.7	70-130	20	07/18/2016 1841
Ethylbenzene	520	10000	12000		200	112	3.1	79-132	20	07/18/2016 1841
Ethyl-tert-butyl ether (ETBE)	ND	10000	9800		200	98	4.9	70-130	20	07/18/2016 1841
Methyl tertiary butyl ether (MTBE)	13000	10000	22000		200	94	2.4	60-140	20	07/18/2016 1841
Naphthalene	950	10000	11000		200	99	7.8	62-136	20	07/18/2016 1841
tert-butyl alcohol (TBA)	ND	200000	200000		200	96	11	70-130	20	07/18/2016 1841
Toluene	12000	10000	23000		200	112	3.0	75-125	20	07/18/2016 1841
Xylenes (total)	4000	20000	26000		200	110	3.4	70-130	20	07/18/2016 1841

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: RQ17728-001
Batch: 17728
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	ug/L	07/18/2016 1033
tert-Amyl methyl ether (TAME)	ND		1	10	ug/L	07/18/2016 1033
Benzene	ND		1	1.0	ug/L	07/18/2016 1033
tert-Butyl formate (TBF)	ND		1	5.0	ug/L	07/18/2016 1033
1,2-Dibromoethane (EDB)	ND		1	1.0	ug/L	07/18/2016 1033
1,2-Dichloroethane	ND		1	1.0	ug/L	07/18/2016 1033
Diisopropyl ether (IPE)	ND		1	1.0	ug/L	07/18/2016 1033
3,3-Dimethyl-1-butanol	ND		1	20	ug/L	07/18/2016 1033
Ethanol	ND		1	100	ug/L	07/18/2016 1033
Ethylbenzene	ND		1	1.0	ug/L	07/18/2016 1033
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	ug/L	07/18/2016 1033
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	ug/L	07/18/2016 1033
Naphthalene	ND		1	1.0	ug/L	07/18/2016 1033
tert-butyl alcohol (TBA)	ND		1	20	ug/L	07/18/2016 1033
Toluene	ND		1	1.0	ug/L	07/18/2016 1033
Xylenes (total)	ND		1	1.0	ug/L	07/18/2016 1033

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: RQ17728-002
Batch: 17728
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1200		1	124	70-130	07/18/2016 0933
tert-Amyl methyl ether (TAME)	50	59		1	119	70-130	07/18/2016 0933
Benzene	50	57		1	113	70-130	07/18/2016 0933
tert-Butyl formate (TBF)	250	300		1	121	70-130	07/18/2016 0933
1,2-Dibromoethane (EDB)	50	59		1	118	70-130	07/18/2016 0933
1,2-Dichloroethane	50	54		1	108	70-130	07/18/2016 0933
Diisopropyl ether (IPE)	50	59		1	118	70-130	07/18/2016 0933
3,3-Dimethyl-1-butanol	1000	1200		1	123	70-130	07/18/2016 0933
Ethanol	5000	6600		1	133	60-140	07/18/2016 0933
Ethylbenzene	50	57		1	115	70-130	07/18/2016 0933
Ethyl-tert-butyl ether (ETBE)	50	61		1	122	70-130	07/18/2016 0933
Methyl tertiary butyl ether (MTBE)	50	59		1	117	70-130	07/18/2016 0933
Naphthalene	50	59		1	118	70-130	07/18/2016 0933
tert-butyl alcohol (TBA)	1000	1300		1	126	70-130	07/18/2016 0933
Toluene	50	58		1	116	70-130	07/18/2016 0933
Xylenes (total)	100	120		1	118	70-130	07/18/2016 0933

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		90	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the PQL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Chain of Custody
and
Miscellaneous Documents

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

ARM ENVIRONMENTAL SERVICES, INC.
ASSESSMENT & REMEDIAL SERVICES

CHAIN OF CUSTODY RECORD

PAGE 1 OF 4

1210 3rd STREET SOUTH EXTENSION COLUMBIA, SOUTH CAROLINA 29209 PHONE: 803-783-3314

RG15020

Project #	Preservative															
15-403.9-16	1. Unpreserved 2. NaOH 3. H_2SO_4 4. HNO_3 5. HCl 6. 5035 Kit					3										
Project Name: Bountyland Quick Stop #6	Laboratory Utilized: Shealy Env. Services					5										
Sampler Name (print): Andrew Woodham	Sampler Signature:															
Sample ID / Description	Date	Time	G = Grab C = Composite	Matrix S, GW, DW, Oil, Other	BTEX+N+M+DCA+oxy by 8260B	EDB by 8011	PAHs by 8270D	Total Lead by 6010C	Dissolved Lead by 6010C	BTEX+N+M by 8260B	Grainsize / hydrometer				Remarks
MW-1	7-13-16	1110	G	GW	X										
MW-2	7-13-16	1040													
MW-3	7-13-16	1000													
MW-4	7-12-16	1550													
MW-5	7-13-16	0935													
MW-6	7-13-16	0955													
MW-7	7-13-16	1015													
MW-8	7-12-16	1625													
MW-9	7-12-16	1530													T=3.0°C
MW-10	7-13-16	1330													

Relinquished by / Sampler	Date	Time	Received by	Date	Time	Project Manager
	7-15-16	1331				Joseph Goings
Relinquished by	Date	Time	Received by	Date	Time	P.O. Number
Relinquished by	Date	Time	Received by	Date	Time	
			Larry Goodwin	7/15/16	1331	

SHEALY ENVIRONMENTAL SERVICES, INC.

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ARM ENVIRONMENTAL SERVICES, INC.
ASSESSMENT & REMEDIAL SERVICES

CHAIN OF CUSTODY RECORD

1210 1st STREET SOUTH EXTENSION COLUMBIA, SOUTH CAROLINA 29209 PHONE: 803-783-33

RG15020

Project #	Preservative: 1. Unpreserved 2. NaOH 3. H_2SO_4 4. HNO3 5. HCl 6. 5035 Kit															
15-403.9-16						3										
						5										
Project Name: Bountyland Quick Stop #6	Laboratory Utilized: Shealy Env. Services															
Sampler Name (print): Andrew Goodson	Sampler Signature:		G = Grab C = Composite	Matrix: S, GW, DW, DI, Other	BTEX+N+M+DCA+oxy by 8260B	EDB by 8011	PAHs by 8270D	Total Lead by 6010C	Dissolved Lead by 6010C	BTEX+N+M by 8260B	Grainsize / hydrometer				Remarks
Sample ID / Description	Date	Time														
MW-11	7-12-16	1342	G	GW												
MW-12	7-12-16	1140														
MW-13	7-12-16	1405														
MW-14	7-12-16	1110														
MW-15	7-12-16	1044														
MW-16	7-12-16	1012														
MW-17	7-12-16	0950														T=3.0°C
MW-19	7-12-16	0912														
RW-4	7-13-16	1140														
RW-6	7-13-16	1620	↓	↓	↓											

Relinquished by / Sampler	Date	Time	Received by	Date	Time	Project Manager
	7-15-16	1331				Joseph Goings
Relinquished by	Date	Time	Received by	Date	Time	P.O. Number
Relinquished by	Date	Time	Received by	Date	Time	
			Tracy Hamilton	7/15/16	1331	

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ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES

1210 1st STREET SOUTH EXTENSION COLUMBIA, SOUTH CAROLINA 29209 PHONE: 803-78.

CHAIN OF CUSTODY RECORD

PAGE 3 OF 4

2597

RG15020

Project #	Preservative 1. Unpreserved 4. HNO3 2. NaOH 5. HCl 3. H_2SO_4 6. 5035 Kit															
15-403.9-16					3											
					5											
Project Name: Bountyland Quick Stop #6	Laboratory Utilized: Shealy Env. Services															
Sampler Name (print): Andrea Woodham	Sampler Signature															
Sample ID / Description	Date	Time	G = Grab C = Composite	Matrix S, GW, DW, Di, Other	BTEX+N+M+DCA+oxy by 8260B	EDB by 8011	PAHs by 8270D	Total Lead by 6010C	Dissolved Lead by 6010C	BTEX+N+M by 8260B	Grainsize / hydrometer				Remarks	
RW-7	7-13-16	1645	G	GW	X											
MW-D1	7-13-16	1210	C	GW	X											
MW-D2	7-12-16	1610	C	GW	X											
MW-D3	7-12-16	1202	C	GW	X											
SW-1	7-11-16	1515	C	SW	X											
SW-2	7-11-16	1545	C	SW	X											T=3.0°C
SW-3	7-11-16	1615	C	SW	X											
DUP-1	7-13-16	1115	C	GW	X											
DUP-2	7-13-16	1145	C	GW	X											
Field Blank-1	7-11-16	1620	G	DI	X											

Relinquished by / Sampler	Date	Time	Received by	Date	Time	Project Manager
	7-15-16	1331				Joseph Goings
Relinquished by	Date	Time	Received by	Date	Time	P.O. Number
Relinquished by	Date	Time	Received by	Date	Time	
			Tracy Donkle	7/15/16	1331	

SHEALY ENVIRONMENTAL SERVICES, INC.

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES

CHAIN OF CUSTODY RECORD

PAGE 4 OF 4

1210 3RD STREET SOUTH EXTENSION COLUMBIA, SOUTH CAROLINA 29209 PHONE: 80 783-7587

RG15020

Project #	Preservative: 1. Unpreserved 4. HNO_3 5. HCl 6. 5035 kit 2. NaOH 3. H_2SO_4																		
15-403.9-16																			
Project Name: Bountyland Quick Stop #6	Laboratory Utilized: Shealy Env. Services																		
Sampler Name (print): Andrew Woodrow	Sampler Signature																		
Sample ID / Description	Date	Time	G = Grab C = Composite	Matrix: S, GW, DW, DI, Other	BTEX+N+M+DCA+oxy by 8260B	EDB by 8011	PAHs by 8270D	Total Lead by 6010C	Dissolved Lead by 6010C	BTEX+N+M by 8260B	Grainsize / hydrometer								Remarks
Field Blank -2	7-12-16	1230	G	DI	X														
Field Blank -3	7-13-16	1245	G	DI															
Trip Blank	7-11-16																		
																			T=3.0°C

Relinquished by / Sampler	Date	Time	Received by	Date	Time	Project Manager
	7-15-16	1331				Joseph Goings
Relinquished by	Date	Time	Received by	Date	Time	
						P.O. Number
Relinquished by	Date	Time	Received by	Date	Time	
			Tracy Dawkins	7/15/16	1331	

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

SHEALY ENVIRONMENTAL SERVICES, INC.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Receipt Checklist (SRC)

Client: ARM Cooler Inspected by/date: mcm/07/15/16 Lot #: R15020

Means of receipt: ☐ SESI ☑ Client ☐ UPS ☐ FedEx ☐ Other			
Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?
pH strip ID: ____ Cl strip ID: ____ Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt: 3.0/3.0 °C ___/___ °C ___/___ °C ___/___ °C Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0 °C Method of coolant: ☐ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
Yes ☐	No ☐	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).
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☑	No ☐		6. Were sample IDs listed on the COC?
Yes ☑	No ☐		7. Were sample IDs listed on all sample containers?
Yes ☑	No ☐		8. Was collection date & time listed on the COC?
Yes ☑	No ☐		9. Was collection date & time listed on all sample containers?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with the COC?
Yes ☑	No ☐		11. Were tests to be performed listed on the COC?
Yes ☑	No ☐		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		13. Was adequate sample volume available?
Yes ☐	No ☑		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		15. Were any samples containers missing/excess (circle one) samples not listed on COC?
Yes ☑	No ☐	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
Yes ☐	No ☑		22. Was the quote number used taken from the container label?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) ____ were received incorrectly preserved and were adjusted accordingly in sample receiving with ____ (H_2SO_4, HNO3, HCl, NaOH) using SR # ____.			
Sample(s) 03362 were received with bubbles >6 mm in diameter.			
Samples(s) ____ were received with TRC >0.2 mg/L (If #21 is No) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: ____.			
SC Drinking Water Project Sample(s) pH verified to be ≥ 2 by ____ Date: ____ Sample(s) ____ were not received at a pH of <2 and were adjusted accordingly using SR#			
Sample labels applied by: mcm Verified by: ____ Date: 7/15/16			

Comments: ____

APPENDIX C
NOT INCLUDED

APPENDIX D
NOT INCLUDED

APPENDIX E
WELL COMPLETION LOGS &
SCDHEC 1903 FORMS

APPENDIX F
NOT INCLUDED

APPENDIX G
DISPOSAL MANIFEST(S)

APPENDIX H
NOT INCLUDED

APPENDIX I
NOT INCLUDED

APPENDIX J
NOT INCLUDED

APPENDIX K
SCDHEC CONTRACTOR CHECKLIST

Contractor Checklist

For each report submitted to the UST Management Division, the contractor will be required to verify that all data elements for the required scope of work have been provided. For items not required for the scope of work, the N/A box should be checked. For items required and not completed or provided, the No box should be checked and a thorough description of the reason must be provided.

Item #	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	☒	☐	☐
2	Is UST Owner/Operator name, address, & phone number provided?	☒	☐	☐
3	Is name, address, & phone number of current property owner provided?	☒	☐	☐
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	☒	☐	☐
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?	☐	☐	☒
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	☐	☐	☒
7	Has the facility history been summarized?	☒	☐	☐
8	Has the regional geology and hydrogeology been described?	☒	☐	☐
9	Are the receptor survey results provided as required?	☐	☐	☒
10	Has current use of the site and adjacent land been described?	☒	☐	☐
11	Has the site-specific geology and hydrogeology been described?	☒	☐	☐
12	Has the primary soil type been described?	☒	☐	☐
13	Have field screening results been described?	☐	☐	☒
14	Has a description of the soil sample collection and preservation been detailed?	☐	☐	☒
15	Has the field screening methodology and procedure been detailed?	☐	☐	☒
16	Has the monitoring well installation and development dates been provided?	☐	☐	☒
17	Has the method of well development been detailed?	☐	☐	☒
18	Has justification been provided for the locations of the monitoring wells?	☐	☐	☒
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?	☐	☐	☒
20	Has the groundwater sampling methodology been detailed?	☒	☐	☐
21	Have the groundwater sampling dates and groundwater measurements been provided?	☒	☐	☐
22	Has the purging methodology been detailed?	☒	☐	☐
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete?	☒	☐	☐
24	If free-product is present, has the thickness been provided?	☒	☐	☐
25	Does the report include a brief discussion of the assessment done and the results?	☒	☐	☐
26	Does the report include a brief discussion of the aquifer evaluation and results?	☐	☐	☒
27	Does the report include a brief discussion of the fate & transport models used?	☐	☐	☒

Item #	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)	☐	☐	☒
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)	☐	☐	☒
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)	☐	☐	☒
31	Have recommendations for further action been provided and explained?	☒	☐	☐
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)	☐	☐	☒
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	☒	☐	☐
34	Has the current and historical laboratory data been provided in tabular format?	☒	☐	☐
35	Have the aquifer characteristics been provided and summarized on the appropriate form?	☐	☐	☒
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)	☐	☐	☒
37	Has the topographic map been provided with all required elements? (Figure 1)	☒	☐	☐
38	Has the site base map been provided with all required elements? (Figure 2)	☒	☐	☐
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)	☒	☐	☐
40	Has the site potentiometric map been provided? (Figure 5)	☒	☐	☐
41	Have the geologic cross-sections been provided? (Figure 6)	☐	☐	☒
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)	☐	☐	☒
43	Has the site survey been provided and include all necessary elements? (Appendix A)	☐	☐	☒
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	☒	☐	☐
45	Is the laboratory performing the analyses properly certified?	☒	☐	☐
46	Has the tax map been included with all necessary elements? (Appendix C)	☐	☐	☒
47	Have the soil boring/field screening logs been provided? (Appendix D)	☒	☐	☐
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)	☒	☐	☐
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)	☐	☐	☒
50	Have the disposal manifests been provided? (Appendix G)	☐	☒	☐
51	Has a copy of the local zoning regulations been provided? (Appendix H)	☐	☐	☒
52	Has all fate and transport modeling been provided? (Appendix I)	☐	☐	☒
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)	☐	☐	☒
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	☒	☐	☐

Explanation for missing and incomplete information?

The purge water and decontamination fluids were retained in a 55-gallon drum and transported to the ARM Environmental Services office to await disposal at a licensed disposal facility. Upon disposal, a manifest will be forwarded.

Bountyland Quick Stop 6
UST Permit #06711

	IGWA	Tier I	Tier II	AR	MR
MW-1	2/10/11	8/24/12	6/11/13	4/9/14	7/11/16
DTW	**FP**	**FP**	**FP**	**FP**	26.25
Benzene	(0.06')	(4.23')	(1.22')	(1.63')	**6800**
Toluene					**11000**
Ethylbenzene					630
Xylenes					5200
MTBE					**19000**
Naphthalene					**960**
DCA					**<200**
EDB					na
Lead					na
DIPE					**3900**
TAA					**47000**
TAME					**<2000**

MW-2		8/24/12	6/11/13	4/9/14	7/11/16
DTW		30.51	27.98	25.13	25.06
Benzene		**55**	**27**	**16**	**9**
Toluene		60	33	<1	4
Ethylbenzene		43	<5	<1	3
Xylenes		190	18	8	22
MTBE		2	<5	4	9
Naphthalene		<1	<5	<1	<1
DCA		<1	<5	<1	<1
EDB		<0.02	<0.02	na	na
Lead		<10	<10	na	na
DIPE		2	<5	2	11
TAA		30	<100	30	160
TAME		<10	<50	<10	<10

MW-3		8/24/12	6/11/13	4/9/14	7/11/16
DTW		35.59	32.91	31.36	32.22
Benzene		<1	<1	<1	<1
Toluene		<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1
Xylenes		<1	<1	<1	<1
MTBE		<1	<1	<1	<1
Naphthalene		<1	<1	<1	<1
DCA		<1	<1	<1	<1
EDB		<0.02	<0.02	na	na
Lead		<10	<10	na	na
DIPE		<1	<1	<1	<1
TAA		<20	<20	<20	<20
TAME		<10	<10	<10	<10

MW-4		8/24/12	6/11/13	4/9/14	7/11/16
DTW		34.71	32.15	30.58	30.94
Benzene		**6100**	**4200**	**8000**	**5800**
Toluene		**11000**	**9300**	**19000**	**15000**
Ethylbenzene		**1100**	**750**	**1800**	**1600**
Xylenes		5900	4300	**10000**	**10000**
MTBE		**7600**	**4800**	**13000**	**4900**
Naphthalene		**270**	**230**	**500**	**990**
DCA		<1	**<100**	**<200**	**<200**
EDB		<0.02	<0.02	na	na
Lead		<10	<10	na	na
DIPE		**1400**	**910**	**1900**	**1100**
TAA		**6600**	**12000**	**41000**	**25000**
TAME		**270**	**<1000**	**<2000**	**<2000**

MW-5			6/11/13	4/9/14	7/11/16
DTW			27.10	25.12	25.21
Benzene			3	<1	<1
Toluene			11	<1	<1
Ethylbenzene			1	<1	<1
Xylenes			5	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10



MW-6			6/11/13	4/9/14	7/11/16
DTW			27.09	24.43	24.71
Benzene			4	<1	<1
Toluene			16	<1	<1
Ethylbenzene			2	<1	<1
Xylenes			9	<1	<1
MTBE			1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			13	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-7			6/11/13	4/9/14	7/11/16
DTW			32.77	29.86	29.83
Benzene			1	<1	<1
Toluene			4	<1	1
Ethylbenzene			<1	<1	<1
Xylenes			2	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			**83**	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-8			6/11/13	4/9/14	7/11/16
DTW			28.99	26.02	26.30
Benzene			1	<1	<1
Toluene			6	<1	1
Ethylbenzene			<1	<1	<1
Xylenes			3	<1	1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			**18**	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-9			6/11/13	4/9/14	7/11/16
DTW			31.40	29.97	30.72
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			**23**	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-10			6/11/13	4/9/14	7/11/16
DTW			31.15	29.79	30.71
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			2	4	12
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-11			6/11/13	4/9/14	7/11/16
DTW			31.44	29.92	30.68
Benzene			**1600**	<1	**190**
Toluene			**2100**	<1	66
Ethylbenzene			140	<1	30
Xylenes			860	<1	280
MTBE			**60**	<1	<5
Naphthalene			**41**	<1	19
DCA			**<20**	<1	<5
EDB			<0.02	na	na
Lead			**15**	na	<5
DIPE			**190**	<1	<1
TAA			**910**	<20	**520**
TAME			<10	<10	<50

MW-12			6/11/13	4/9/14	7/11/16
DTW			31.95	30.35	30.99
Benzene			2	<1	<5
Toluene			5	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			3	<1	6
MTBE			2	<1	12
Naphthalene			<1	<1	3
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	77
TAME			<10	<10	<10

MW-13			6/11/13	4/9/14	7/11/16
DTW			31.34	29.84	30.71
Benzene			**1600**	**140**	**260**
Toluene			**4100**	270	460
Ethylbenzene			390	28	76
Xylenes			2200	220	440
MTBE			**1000**	**210**	**310**
Naphthalene			**120**	14	**33**
DCA			**<50**	<5	<5
EDB			<0.02	na	na
Lead			10.00	na	na
DIPE			**540**	94	**160**
TAA			**3300**	**460**	**1000**
TAME			**<500**	<50	<50

MW-14			6/11/13	4/9/14	7/11/16
DTW			30.69	28.91	29.33
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			**51**	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-15			6/11/13	4/9/14	7/11/16
DTW			29.55	28.03	28.81
Benzene			<1	<1	**50**
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	14
Xylenes			<1	<1	80
MTBE			<1	<1	<1
Naphthalene			<1	<1	6
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			14	na	na
DIPE			<1	<1	<1
TAA			<20	<20	110
TAME			<10	<10	<10

MW-16			6/11/13	4/9/14	7/11/16
DTW			25.56	24.34	25.37
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-17			6/11/13	4/9/14	7/11/16
DTW			21.38	20.36	21.71
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-18			6/11/13	4/9/14	7/11/16
DTW			19.92	19.08	well
Benzene			<1	<1	not
Toluene			<1	<1	located
Ethylbenzene			<1	<1	
Xylenes			<1	<1	
MTBE			<1	<1	
Naphthalene			<1	<1	
DCA			<1	<1	
EDB			<0.02	na	
Lead			<10	na	
DIPE			<1	<1	
TAA			<20	<20	
TAME			<10	<10	

MW-19			6/11/13	4/9/14	7/11/16
DTW			16.15	15.01	17.80
Benzene			<1	<1	<1
Toluene			<1	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			<1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

MW-D1			6/11/13	4/9/14	7/11/16
DTW			28.65	25.95	26.49
Benzene			**20**	<1	<1
Toluene			130	1	<1
Ethylbenzene			29	<1	<1
Xylenes			150	1	<1
MTBE			11	2	<1
Naphthalene			**43**	<1	<1
DCA			<5	<1	<1
EDB			<0.02	na	na
Lead			**150**	na	na
DIPE			<5	<1	<1
TAA			<100	<20	<20
TAME			<50	<10	<10

MW-D2			6/11/13	4/9/14	7/11/16
DTW			31.30	29.55	30.12
Benzene			**98**	<1	<1
Toluene			160	<1	<1
Ethylbenzene			16	<1	<1
Xylenes			71	<1	<1
MTBE			12	1	<1
Naphthalene			4	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			**54**	na	na
DIPE			10	1	<1
TAA			66	<20	<20
TAME			<10	<10	<10

MW-D3			6/11/13	4/9/14	7/11/16
DTW			30.60	29.31	30.02
Benzene			<1	<1	<1
Toluene			2	<1	<1
Ethylbenzene			<1	<1	<1
Xylenes			1	<1	<1
MTBE			<1	<1	<1
Naphthalene			<1	<1	<1
DCA			<1	<1	<1
EDB			<0.02	na	na
Lead			<10	na	na
DIPE			<1	<1	<1
TAA			<20	<20	<20
TAME			<10	<10	<10

RW-1			6/11/13	4/9/14	7/11/16
DTW			**FP**	**FP**	**FP**
Benzene			(0.29')	(2.59')	(1.36')
Toluene					
Ethylbenzene					
Xylenes					
MTBE					
Naphthalene					
DCA					
EDB					
Lead					
DIPE					
TAA					
TAME					

RW-2			6/11/13	4/9/14	7/11/16
DTW			**FP**	**FP**	well
Benzene			(0.48')	(5.06')	not
Toluene					accessible
Ethylbenzene					
Xylenes					
MTBE					
Naphthalene					
DCA					
EDB					
Lead					
DIPE					
TAA					
TAME					

RW-3			6/11/13	4/9/14	7/11/16
DTW			**FP**	**FP**	**FP**
Benzene			(2.91')	(5.53')	(0.42')
Toluene					
Ethylbenzene					
Xylenes					
MTBE					
Naphthalene					
DCA					
EDB					
Lead					
DIPE					
TAA					
TAME					

RW-4			6/11/13	4/9/14	7/11/16
DTW			28.43	**FP**	26.05
Benzene			**2700**	(0.10')	**230**
Toluene			**8200**		830
Ethylbenzene			**990**		140
Xylenes			5200		1300
MTBE			**560**		**300**
Naphthalene			**250**		**95**
DCA			**<100**		<5
EDB			<0.03		na
Lead			**1400**		na
DIPE			**190**		51
TAA			**2100**		**1900**
TAME			**<1000**		<50

RW-5				4/9/14	7/11/16
DTW				26.97	**FP**
Benzene				**1200**	(2.08')
Toluene				**2600**	
Ethylbenzene				320	
Xylenes				1700	
MTBE				**250**	
Naphthalene				**130**	
DCA				**<20**	
EDB				na	
Lead				na	
DIPE				120	
TAA				**3200**	
TAME				**<200**	

RW-6				4/9/14	7/11/16
DTW				**FP**	26.84
Benzene				(0.69')	**61**
Toluene					170
Ethylbenzene					19
Xylenes					150
MTBE					25
Naphthalene					21
DCA					<5
EDB					na
Lead					na
DIPE					24
TAA					**560**
TAME					<50

RW-7				4/9/14	7/11/16
DTW				27.61	27.67
Benzene				**3200**	**7300**
Toluene				**5700**	**12000**
Ethylbenzene				470	520
Xylenes				2600	4000
MTBE				**2800**	**13000**
Naphthalene				**150**	**950**
DCA				**<100**	**<200**
EDB				na	na
Lead				na	na
DIPE				**280**	**1900**
TAA				**7800**	**53000**
TAME				**<1000**	**<2000**

RW-8				4/9/14	7/11/16
DTW				**FP**	**FP**
Benzene				(0.16')	(1.08')
Toluene					
Ethylbenzene					
Xylenes					
MTBE					
Naphthalene					
DCA					
EDB					
Lead					
DIPE					
TAA					
TAME					

FP- Free-phase product
na- not analyzed
ns- not sampled
nm- not measured

dhec
Healthy People Healthy Communities



OCT 1 0 2016

MR GENE WALLER
BOUNTYLAND FOOD SERVICE INC
1510 BLUE RIDGE BLVD STE 202
SENECA SC 29672

Re: Recovery well repair and aggressive fluid and vapor recovery (AFVR) directive
Bountyland Quick Stop #6, 5034 SC-11 South, Westminster, SC
UST Permit #06711; CA #53378
Release reported December 1, 2011
Oconee County

Dear Mr. Waller:

On behalf of the South Carolina Department of Health and Environmental Control (DHEC), the Underground Storage Tank (UST) Management Division recognizes your commitment to continue work at this site using ARM Environmental Services, Inc. The next appropriate remedial activity is to repair recovery well RW-2 and continue aggressive fluid and vapor recovery (AFVR) to remove free-phase product (FPP). Please have your contractor repair the well vault and pad for RW-2, conduct one 96-hour AFVR event on recovery wells RW-1 and RW-5, and conduct one 96-hour event on RW-3 and RW-8. The recovery well repair and AFVR events must be conducted in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 3.1. A copy of QAPP Revision 3.1 is available at http://www.scdhec.gov/Environment/docs/DHEC%20UST%20QAPP_Rev-3.1(2).pdf.

Please notify the UST Management Division prior to commencing AFVR at the site. The stingers must be advanced to a target depth of 32 feet within the first 8 hours of each event. Thereafter, the stingers should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone. Off-gas treatment will be necessary.

Cost Agreement (CA) #53378 has been approved in the amount shown on the enclosed cost agreement form for the recovery well repair and AFVR events. Please note that all applicable South Carolina certification requirements apply to the repair and to report preparation. Further, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

A report and invoice are due within 90 days from the date of this letter. Your contractor may directly bill the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from DHEC is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by DHEC.

in order for the costs to be paid. DHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, DHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Management Division grants pre-approval for transportation of petroleum-contaminated, investigative-derived waste (IDW) from the referenced site to a permitted treatment/disposal facility. The transport and disposal must be conducted in accordance with QAPP Revision 3.1.

On all correspondence concerning this facility, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

JPP/jpp
06711.afvr5

enc: Approved cost agreement form

cc: ARM Environmental Services, Inc., 1210 1st Street South Extension, Columbia, SC 29209 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 53378

Facility: 06711 BOUNTY LAND QUICK STOP 6

PADGETJP

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		B1	PERSONNEL	1.0000	$423.000	423.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0.1200	$45,872.250	5,504.67
23 EFR						
		A4	96 HOUR EVENT	2.0000	$12,567.500	25,135.00
		C4	OFF GAS TREATMENT 96 HOUR	2.0000	$780.000	1,560.00
		D	SITE RECONNAISSANCE	1.0000	$203.250	203.25
		F1	EFFLUENT DISPOSAL	40,000.0000	$0.440	17,600.00
		G	AFVR EQUIPMENT MOB	2.0000	$391.500	783.00
25 WELL REPAIR						
		B1	REPAIR 2X2 MONITORING WELL PAD	1.0000	$50.000	50.00
		D1	REPLACE WELL VAULT	1.0000	$118.000	118.00
				Total Amount		51,376.92

ARM ENVIRONMENTAL SERVICES, INC.

ASSESSMENT & REMEDIAL SERVICES *armenv.com*

December 28, 2016,

Joel P. Padgett, P.G., Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Re: (2) 96-Hour Aggressive Fluid Vapor Recovery Events
Bountyland Quick Stop #6
5034 SC-11 South
Westminster, Oconee County, South Carolina
UST Permit #06711; CA #53378
ARM Project #25-403.10-16



Dear Mr. Padgett;

ARM Environmental Services, Inc. (ARM) has completed two (2) 96-hour Aggressive Fluid Vapor Recovery (AFVR) events at the above-referenced site located in Westminster, South Carolina. The pertinent information regarding the AFVRs and gauging events are presented on the following pages and in the appendices of this document.

The first 96-hour AFVR event was conducted on monitoring wells RW-1 and RW-5. The second 96-hour AFVR event was conducted on monitoring wells RW-3 and RW-8. Based on gauging of the fluid levels upon completion of the AFVR events, it appears that no free product was present above the groundwater in the referenced monitoring wells. It should be noted that RW-2's monitoring well pad and vault were replaced during this scope of work.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,
ARM Environmental Services, Inc.

Michele McLeod
Staff Scientist

Michael L. Faris, P.G.
Senior Geologist

cc: Gene Waller, Bountyland Food Service, Inc.
1510 Blue Ridge Boulevard Suite 202, Seneca, SC 29671

AFVR 1 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on December 5, 2016. Ambient air temperature was 50° - 60° F and the general weather conditions were rain early in the week then becoming clear and cool. The depths to product and water were measured and recorded for monitoring wells RW-1 and RW-5 prior to and subsequent to the event. Approximately 1.63 feet and 2.39 feet of free product were measured in recovery wells RW-1 and RW-5 prior to stinger placement into the wells, respectively. A Topographic Site Location Map is included as Figure 1 and a Site Base Map, depicting the location of each monitoring well and other site features, is included as Figure 2.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 12:00 on December 5, 2016 and ended at 12:00 on December 9, 2016. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 6,309 gallons of petroleum contact water and a trace/sheen of free product were removed from the referenced wells during the event.

AFVR 2 of 2

ARM personnel mobilized to the Bountyland Quick Stop #6 site on December 12, 2016. Ambient air temperature was 45° - 60° F and the general weather conditions were cool with periods of rain. The depths to product and water were measured and recorded for monitoring wells RW-3 and RW-8 prior to and subsequent to the event. Approximately 1.86 feet and 1.05 feet of free product were measured in monitoring wells RW-3 and RW-8 prior to stinger placement into the wells, respectively.

The AFVR was conducted by ARM utilizing a Travaini liquid ring vacuum pump system, capable of 325 cubic feet per minute (CFM) at 25 inches of mercury, with off-gas treatment through a vapor-phase granular activated carbon scrubber. Vacuuming began at 9:00 on December 12, 2016 and ended at 9:00 on December 16, 2016. At cessation of the 96-hour AFVR event, no appreciable thickness of free product was present in any of the gauged wells. The field notes summarizing the data collected during the event is included in Appendix A. Approximately 7,183 gallons of petroleum contact water and a trace/sheen of free product were removed from the referenced wells during the event.

Pollutant Mass Removal

Weights of 194.46 pounds (a volume of 31.57 gallons) and 134.72 pounds (a volume of 21.87 gallons) of petroleum as vapor (total gaseous non-methane organic emissions)

were removed during the 96-hour events based on the data collected during the AFVRs. A TVA-1000B Flame Ionization Detector (FID) was utilized to measure the volatile vapors expelled from the vacuum truck. During each event, several measurements recorded were greater than the 50,000 parts per million (ppm) range of the FID; therefore, the value of 50,000 ppm was utilized, though the actual values may have been higher. The equations, variables, and calculations used to determine the pollutant mass removals are included in Appendix B.

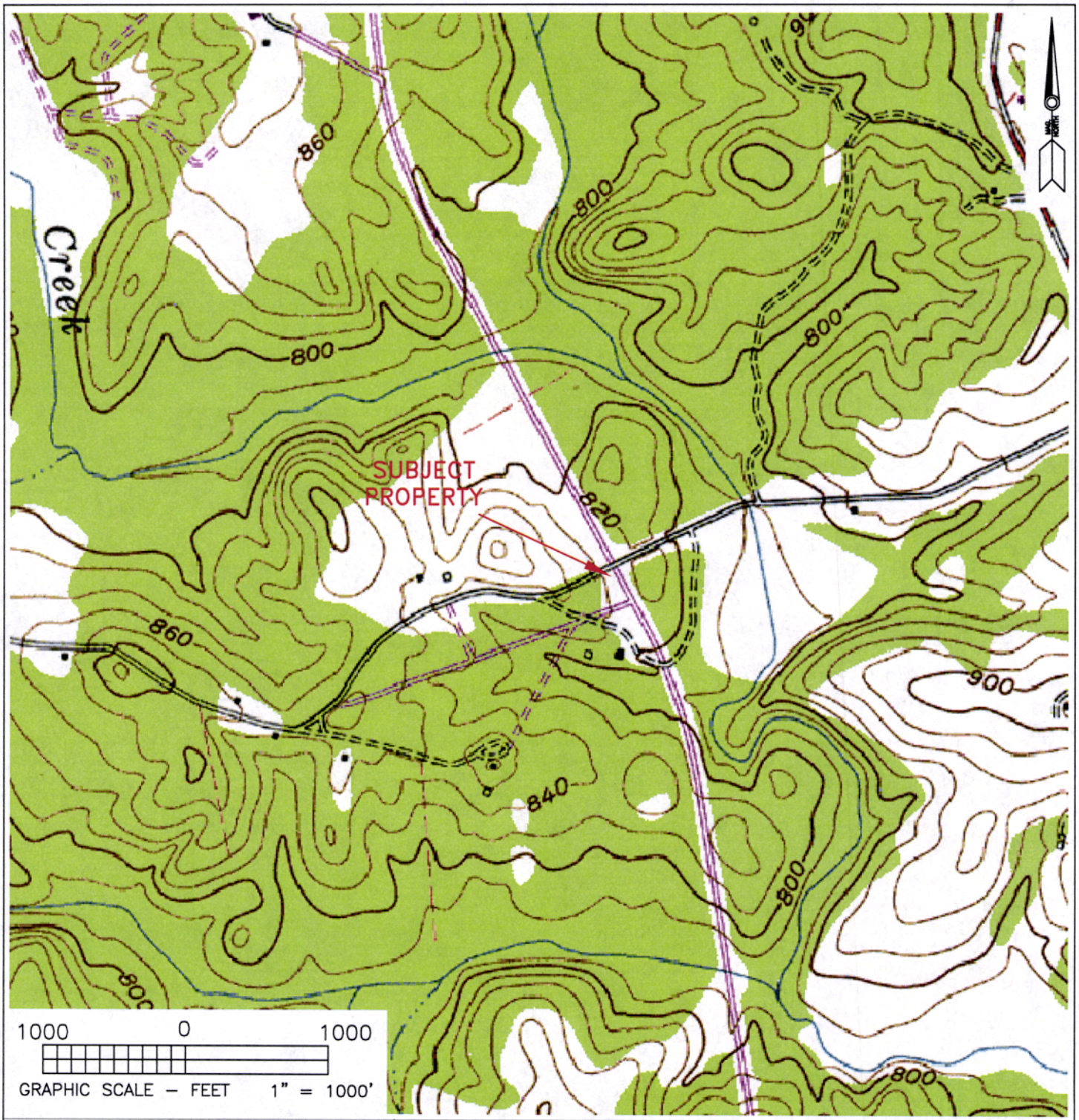
Disposal

Disposal manifests for the 13,492 gallons of petroleum contact water and a trace of free product generated during the events are included in Appendix C.

The quantity of waste fluids generated during the AFVR is determined either by weigh scales before and after offloading the tank at the disposal facility or by gauging the tank with a tank gauging stick (some disposal facilities do not use weigh tickets). When used, the gauging stick is labeled in 8th-inch increments and is designed to gauge the quantity of fluids in a tank. The tank stick is inserted to the bottom of the tank and the measurement is recorded on a field data sheet. The measurement is then compared to a tank chart specific to the vacuum truck tank and the volume is recorded. Weigh tickets and / or tank stick measurements are included in Appendix C.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Base Map



PROJECT:

96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #53378

DESCRIPTION:

SITE LOCATION MAP

FIGURE 1

DATE:

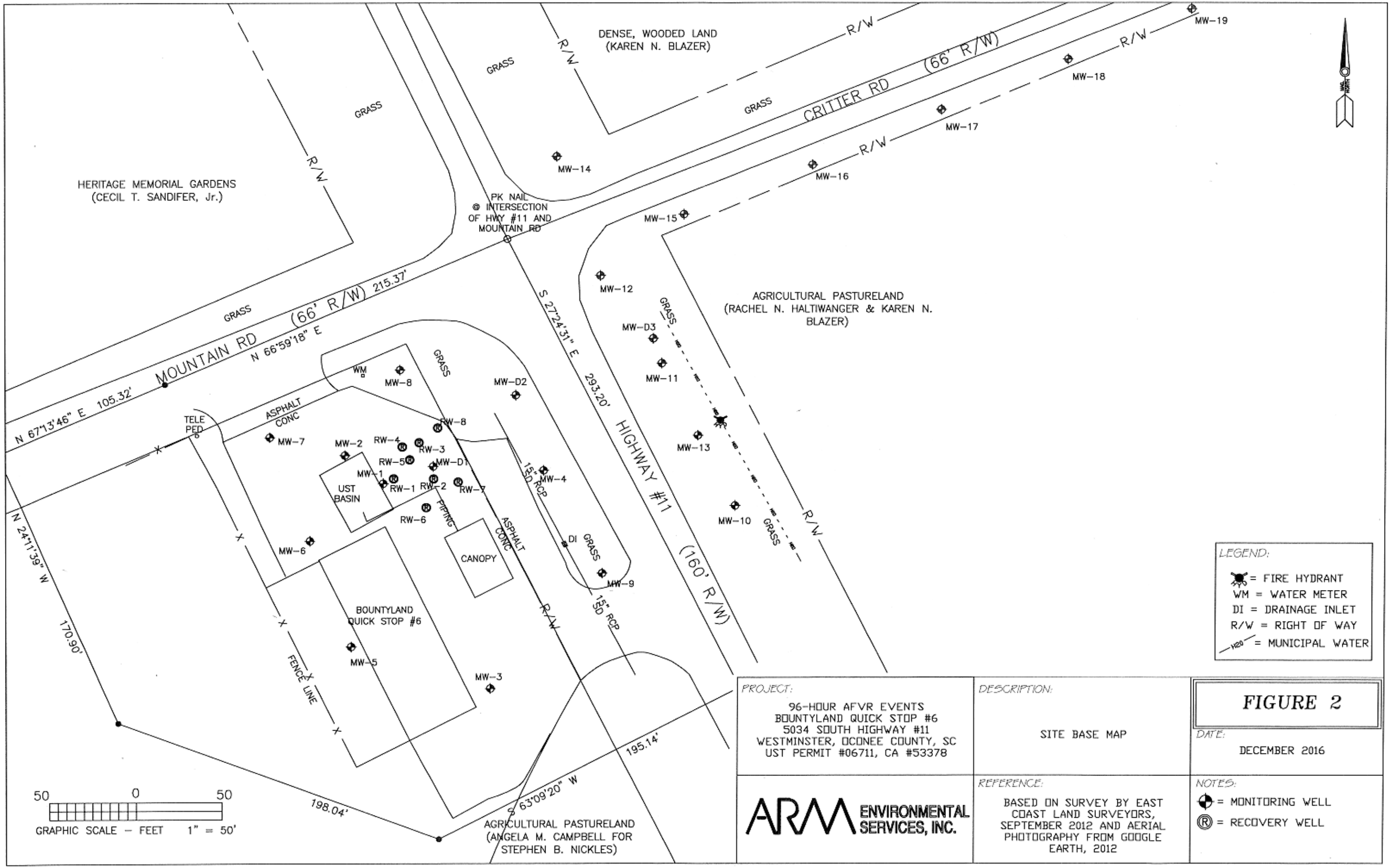
DECEMBER 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

U.S.G.S. TOPOGRAPHIC MAP
(7.5 MINUTE SERIES)
WESTMINSTER – 1963/1980
SOUTH CAROLINA QUADRANGLE

LEGEND:



PROJECT:
96-HOUR AFVR EVENTS
BOUNTYLAND QUICK STOP #6
5034 SOUTH HIGHWAY #11
WESTMINSTER, OCONEE COUNTY, SC
UST PERMIT #06711, CA #53378

DESCRIPTION:
SITE BASE MAP

FIGURE 2

DATE:
DECEMBER 2016

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:
BASED ON SURVEY BY EAST COAST LAND SURVEYORS, SEPTEMBER 2012 AND AERIAL PHOTOGRAPHY FROM GOOGLE EARTH, 2012

NOTES:
= MONITORING WELL
(R) = RECOVERY WELL

APPENDICES

A. Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets
B. AFVR Mass Removal Calculations
C. Disposal Manifest(s)

APPENDIX A

Aggressive Fluid/Vapor Recovery (AFVR) Data Sheets

ARM ENVIRONMENTAL SERVICES, INC.

AFVR – OVA Field Calibration Sheet

[Page 1 of 1]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South Westminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy, Jason, Murphy

(check one) Thermo TVA-1000B Flame Ionization Detector ✓ Rae Systems Mini Rae 3000 Photo Ionization Detector ____

Date	Time	Zero Air	100 PPM Isobutylene	500 PPM Methane	Post-Calibration Zero Air Reading	Post Calibration Gas Standard Reading
12-5-16	07:15	✓		✓	-3.10	521
12-5-16	14:30	✓		✓	-2.69	514
12-6-16	07:30	✓		✓	-2.38	506
12-6-16	14:30	✓		✓	-1.73	496
12-7-16	07:15	✓		✓	-3.30	522
12-7-16	14:15	✓		✓	-3.41	541
12-8-16	07:00	✓		✓	-4.03	508
12-8-16	14:30	✓		✓	-2.79	493
12-9-16	07:00	✓		✓	-1.98	495

25-403.10-16

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop#6 Location: 5034 SC Hwy 11 South, Westminster SC

AFVR Contractor: ARM Env. Svcs. Personnel: Billy, Jason, Murphy

Date: Dec 5-9-2016 Ambient Air Temperature and General Weather Condition: rain early in week, clear, cool, 50°-60°

Start Time 1: 12:00 Dec 5th Stop Time 1: 12:00 Dec 9th Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 6,309

Total volume of product removed during the 96-hour AFVR Event: trace/sheen

Product / Water Recovery Rate: 1.16 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-1	28.68	30.31	N.M	33.4	3,309 gallons	
RW-5	28.31	30.7	NM	33.82	3000 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes

	MW- RW-1	MW- RW-5	MW-	MW-	MW-	MW-	MW-
Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
12:00	20	20-21					
12:30	20	21					
13:00	20	21					
13:30	20	21					
14:00	20	21					
14:30	20	21					
15:00	20	21					
15:30	20	21					
16:00	20	21					
16:30	20	21					
17:00	20	21					
17:30	20	21					
18:00	20	21					
18:30	20	21					
19:00	20	21					
19:30	20	21					
20:00	20	21					
21:00	20	21					
22:00	20	21					
23:00	20	21					
24:00	20	21					

Monday 12-5

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

	Time	MW-RW-1 Vacuum at Targeted Well (in. Hg)	MW-RW-5 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
Tuesday 12-6	08:00	20	21					
	09:00	20	21					
	10:00	20	21					
	11:00	20	21					
	12:00	20	21					
	14:00	20	21					
	16:00	20	21					
	18:00	20	21					
	20:00	20	21					
	22:00	20	21					
	24:00	20	21					
Wednesday 12-7	08:00	20	21					
	10:00	20	21					
	12:00	20	21					
	14:00	20	21					
	16:00	20	21					
	18:00	20	21					
	20:00	20	21					
	22:00	20	21					
	24:00	20	21					

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes

		MW-RW-1	MW-RW-5	MW-	MW-	MW-	MW-	MW-
	Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Thursday 12-8	08:00	20	21					
	10:00	20	21					
	12:00	20	21					
	14:00	20	21					
	16:00	20	21					
	18:00	20	21					
	20:00	20	21					
	22:00	20	21					
	24:00	20	21					
Friday 12-9	08:00	20	21					
	10:00	20	21					
	12:00	20	21					

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-5		Stinger Placement: MW-		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
12:00	30.5		30.5					
12:30	30.5		30.5					
13:00	30.5		30.5					
13:30	30.5		30.5					
14:00	30.5		30.5					
14:30	30.5		30.5					
15:00	30.5		30.5					
15:30	30.5		30.5					
16:00	31.0		31.0					
16:30	31.0		31.0					
17:00	31.0		31.0					
17:30	31.0		31.0					
18:00	31.5		31.5					
18:30	31.5		31.5					
19:00	31.5		31.5					
19:30	31.5		31.5					
20:00	32.0		32.0					
21:00	32.0		32.0					
22:00	32.0		32.0					
23:00	32.0		32.0					
24:00	32.0		32.0					

Monday 12-5

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes

		Stinger Placement: ~~MW-~~ RW-1		Stinger Placement: ~~MW-~~ RW-5		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Tuesday 12-6	08:00	31.0		31.0					
	09:00	31.0		31.0					
	10:00	31.0		31.0					
	11:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	~~24:00~~								
	24:00	32.0		32.0					
Wednesday 12-7	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32:0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes

		Stinger Placement: MW- RW-1		Stinger Placement: MW- RW-1		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 12-8	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					
Friday 12-9	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					

Vacuum at Pump: 24-25

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

	MW- 8		MW- 4		MW-		MW-	
Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
12:00	29.0		34.02					
12:30	29.0	0	34.02	.0022				
13:00	29.03	0	34.03	0051				
13:30	29.05	.0007	34.03	.0080				
14:00	29.05	.0007	34.04	.0086				
14:30	29.06	.0007	34.05	.0110				
15:00	29.08	.0014	34.06	.0117				
15:30	29.09	.0029	34.06	.0125				
16:00	29.11	.0029	34.06	.0125				
16:30	29.13	.0029	34.06	.0147				
17:00	29.14	.0029	34.06	.0147				
17:30	29.16	.0022	34.06	.0147				
18:00	29.17	.0022	34.06	.0147				
18:30	29.17	.0022	34.06	.0147				
19:00	29.18	.0022	34.05	.0147				
19:30	29.19	.0022	34.05	.0147				
20:00	29.19	.0022	34.05	.0147				
21:00	29.2	.0022	34.05	.0147				
22:00	29.21	.0022	34.05	.0147				
23:00	29.22	.0022	34.05	.0147				
24:00	29.23	.0022	34.05	.0147				

Monday 10-5

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 12-6	08:00	29.25	0	34.04	0				
	09:00	29.26	0	34.04	0				
	10:00	29.28	0	34.04	0				
	11:00	29.29	0	34.04	0				
	12:00	29.3	0	34.05	0				
	14:00	29.3	0	34.05	0				
	16:00	29.32	.0007	34.05	0				
	18:00	29.35	.0014	34.05	.0014				
	20:00	29.36	.0014	34.06	.0022				
	22:00	29.38	.0014	34.06	.0022				
	24:00	29.38	.0014	34.06	.0022				
Wednesday 12-7	08:00	29.45	.0007	34.09	.0117				
	10:00	29.45	0	34.1	.0051				
	12:00	29.45	0	34.1	.0036				
	14:00	29.46	.0014	34.11	.0117				
	16:00	29.46	.0022	34.11	.0117				
	18:00	29.47	.0022	34.11	.0080				
	20:00	29.48	.0014	34.11	.0095				
	22:00	29.48	.0007	34.11	.0095				
	24:00	29.49	.0007	34.11	.0117				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 12-8	08:00	29.56	0	34.13	.0117				
	10:00	29.56	.0007	34.13	.0183				
	12:00	29.56	0	34.13	.0051				
	14:00	29.57	0	34.13	.0095				
	16:00	29.58	0	34.13	.0110				
	18:00	29.58	0	34.13	.0117				
	20:00	29.59	0	34.14	.0117				
	22:00	29.59	.0014	34.14	0147				
	24:00	29.6	.0014	34.14	.0117				
Friday 12-9	08:00	29.66	0	34.16	.0125				
	10:00	29.66	.0007	34.16	.0095				
	12:00	29.67	.0007	34.16	.0073				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 11 of 12]

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	% Reduction	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
12:00	241,000	114	99	602	21.6	84.1	
12:30	246,300	473	99	935	24.6	81.6	
13:00	244,500	813	99	1041	29.3	80.3	
13:30	251,300	1171	99	1145	38.6	78.5	
14:00	239,600	1669	99	1235	39.1	82.7	
14:30	246,200	2104	99	1130	38.9	84.5	
15:00	244,400	2448	99	1214	39.2	86.8	
15:30	241,300	2815	99	1242	39.9	88.4	
16:00	236,800	3106	99	1286	40.2	87.5	
16:30	239,100	3649	99	1181	41.5	88.5	
17:00	227,500	4158	99	1166	40.1	86.7	
17:30	224,300	4667	98	1042	40.6	87.1	
18:00	222,600	5139	98	1035	41.2	85.8	
18:30	231,500	5738	98	1186	40.8	85.7	
19:00	236,200	6245	98	1279	40.3	86.3	
19:30	240,000	6831	98	1222	39.7	88.5	
20:00	245,600	7349	98	1262	39.9	87.7	
21:00	237,200	8113	97	1025	39.1	86.9	
22:00	233,700	8758	97	1103	38.2	86.2	
23:00	241,400	9465	97	1049	36.4	85.6	
24:00	240,000	10,200	96	1011	36.1	84.9	
08:00	217,100	66	99	1033	30.6	87.4	
09:00	220,500	214	99	1114	31.3	88.1	
10:00	216,300	407	99	1039	33.8	85.5	
11:00	223,400	558	99	1062	36.4	84.6	
12:00	227,800	721	99	1041	37.1	86.9	
14:00	216,300	861	99	1003	37.5	87.5	
16:00	225,100	1149	99	1182	39.3	86.8	

Monday 10-5

Tuesday 10-6

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	% Reduction	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 12-6	18:00	227,200	1641	99	1094	41.2	84.6	
	20:00	223,500	2263	99	1244	40.8	87.1	
	22:00	224,000	2751	99	1025	41.7	85.6	
	24:00	231,400	3431	99	1136	39.5	86.4	
Wednesday 12-7	08:00	266,900	81	99	1169	37.4	85.5	
	10:00	275,100	306	99	1142	43.2	86.7	
	12:00	256,800	524	99	1111	44.6	79.3	
	14:00	273,200	813	99	1136	44.7	81.5	
	16:00	235,000	1227	99	1056	43.2	86.1	
	18:00	249,100	1741	99	928	40.8	86.5	
	20:00	246,600	2610	99	1022	41.5	87.7	
	22:00	233,500	3379	99	1153	40.7	88.2	
	24:00	240,100	5006	98	1214	40.3	86.6	
Thursday 12-8	08:00	189,300	63	99	1043	36.6	85.6	
	10:00	186,200	213	99	1088	37.4	73.5	
	12:00	166,700	506	99	1064	42.1	80.3	
	14:00	190,200	714	99	1061	42.6	82.4	
	16:00	159,300	1149	99	1117	36.1	85.3	
	18:00	161,500	1775	99	1042	36.8	82.1	
	20:00	155,300	2253	99	1166	37.1	86.6	
	22:00	138,200	2761	99	1220	34.7	84.1	
	24:00	131,700	3308	98	1082	41.8	85.8	
12-9 Friday	08:00	111,400	104	99	1241	24.3	86.6	
	10:00	96,500	434	99	1269	36.1	84.1	
	12:00	103,100	806	99	1130	37.5	85.8	

ARM ENVIRONMENTAL SERVICES, INC.

AFVR – OVA Field Calibration Sheet

[Page 1 of 1]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South Westminster, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy

(check one) Thermo TVA-1000B Flame Ionization Detector ✓ Rae Systems Mini Rae 3000 Photo Ionization Detector ____

Date	Time	Zero Air	100 PPM Isobutylene	500 PPM Methane	Post-Calibration Zero Air Reading	Post Calibration Gas Standard Reading
12-12-16	08:45	✓		✓	-3.30	498
12-12-16	14:30	✓		✓	-2.79	491
12-13-16	07:30	✓		✓	-4.11	496
12-13-16	14:30	✓		✓	-3.24	504
12-14-16	07:15	✓		✓	-2.06	521
12-14-16	14:15	✓		✓	-1.73	508
12-15-16	07:15	✓		✓	-3.58	489
12-15-16	14:15	✓		✓	-1.13	513
12-16-16	07:15	✓		✓	-2.44	522

25-403.10-16

ARM ENVIRONMENTAL SERVICES, INC.

96-hr. AFVR - Field Notes

[Page 1 of 12]

Site Name: Bountyland Quick Stop #6 Location: 5034 SC 11 South Westminister, S.C

AFVR Contractor: ARM Environmental Svcs. Personnel: Billy

Date: Dec 12-16-2016 Ambient Air Temperature and General Weather Condition: cool, periods of rain, 45°-60°

Start Time 1: 09:00 Dec 12 Stop Time 1: 09:00 Dec 16 Start Time 2: _____ Stop Time 2: _____

Total volume of water removed during the 96-hour AFVR Event: 7,183 gallons

Total volume of product removed during the 96-hour AFVR Event: trace/sheen

Product / Water Recovery Rate: 1.09 gallons per minute

Monitoring Well	Depth to product prior to stinger placement (ft. below TOC)	Depth to water prior to stinger placement (ft. below TOC)	Depth to product at cessation of vacuuming (ft. below TOC)	Depth to water at cessation of vacuuming (ft. below TOC)	Estimated volume of water removed during this event	Relevant Observations
RW-3	29.35	31.21	NM	33.57	3144 gallons	
RW-8	29.46	30.51	NM	33.57	4,039 gallons	

N/M – Not Measurable (not detected)

96-hr. Aggressive Fluid/Vapor Recovery Notes

Monday 12-16

Time	~~MW-~~ RW-3 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-8 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
09:00	15	17					
09:30	15	17					
10:00	15	17					
10:30	15	17					
11:00	15	17					
11:30	15	17					
12:00	15	17					
12:30	15	17					
13:00	15	17					
13:30	15	17					
14:00	15	17					
14:30	15	17					
15:00	15	17					
15:30	15	17					
16:00	15	17					
16:30	15	17					
17:00	15	17					
18:00	15	17					
19:00	15	17					
20:00	15	17					
21:00	15	17					
22:00	15	17					
23:00	15	17					
24:00	15	17					

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 3 of 12]

	~~MW-~~ RW-3	~~MW-~~ RW-8	MW-	MW-	MW-	MW-	MW-
Time	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)	Vacuum at Targeted Well (in. Hg)
Tuesday 12-13							
08:00	15	17					
09:00	15	17					
11:00	15	17					
13:00	15	17					
15:00	15	17					
17:00	15	17					
19:00	15	17					
21:00	15	17					
23:00	15	17					
24:00	15	17					
Wednesday 12-14							
08:00	15	17					
10:00	15	17					
12:00	15	17					
14:00	15	17					
16:00	15	17					
18:00	15	17					
20:00	15	17					
22:00	15	17					
24:00	15	17					

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 4 of 12]

	Time	~~MW-~~ RW-3 Vacuum at Targeted Well (in. Hg)	~~MW-~~ RW-8 Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)	MW- Vacuum at Targeted Well (in. Hg)
Thursday 12-15	08:00	15	17					
	10:00	15	17					
	12:00	15	17					
	14:00	15	17					
	16:00	15	17					
	18:00	15	17					
	20:00	15	17					
	22:00	15	17					
	24:00	15	17					
Friday 12-16	08:00	15	17					
	09:00	15	17					

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 5 of 12]

	Stinger Placement: ~~MW-~~ RW-3		Stinger Placement: ~~MW-~~ RW-8		Stinger Placement: MW-		Stinger Placement: MW-	
Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
09:00	29.5		29.5					
09:30	29.5		29.5					
10:00	29.5		29.5					
10:30	30.0		30.0					
11:00	30.0		30.0					
11:30	30.5		30.5					
12:00	30.5		30.5					
12:30	30.5		30.5					
13:00	31.0		31.0					
13:30	31.0		31.0					
14:00	31.0		31.0					
14:30	31.0		31.0					
15:00	31.5		31.5					
15:30	31.5		31.5					
16:00	31.5		31.5					
16:30	31.5		31.5					
17:00	32.0		32.0					
18:00	32.0		32.0					
19:00	32.0		32.0					
20:00	32.0		32.0					
21:00	32.0		32.0					
22:00	32.0		32.0					
23:00	32.0		32.0					
24:00	32.0		32.0					

Monday 12-13

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 6 of 12]

		Stinger Placement: MW- RW-3		Stinger Placement: MW- RW-8		Stinger Placement: MW-		Stinger Placement: MW-	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
12-13 Tuesday	08:00	31.0		31.0					
	09:00	31.0		31.0					
	11:00	32.0		32.0					
	13:00	32.0		32.0					
	15:00	32.0		32.0					
	17:00	32.0		32.0					
	19:00	32.0		32.0					
	21:00	32.0		32.0					
	23:00	32.0		32.0					
	24:00	32.0		32.0					
12-14 Wednesday	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes

		Stinger Placement: MW- RW-3		*Stinger Placement: MW- RW-8*		*Stinger Placement: MW-*		*Stinger Placement: MW-*	
	Time	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes	Stinger Depth	Notes
Thursday 12-15	08:00	32.0		32.0					
	10:00	32.0		32.0					
	12:00	32.0		32.0					
	14:00	32.0		32.0					
	16:00	32.0		32.0					
	18:00	32.0		32.0					
	20:00	32.0		32.0					
	22:00	32.0		32.0					
	24:00	32.0		32.0					
Friday 12-16									
	08:00	32.0		32.0					
	09:00	32.0		32.0					

Vacuum at Pump: 23

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 8 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

Monday 12-12

Time	MW- 8		MW- 4		MW-		MW-	
	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
09:00	29.43		34.15					
09:30	29.43	0	34.15	0				
10:00	29.45	0	34.15	0				
10:30	29.46	0	34.15	.0029				
11:00	29.49	0	34.15	.0036				
11:30	29.51	0	34.15	.0073				
12:00	29.53	0	34.15	.0095				
12:30	29.55	0	34.15	.0102				
13:00	29.55	0	34.15	.0102				
13:30	29.56	0	34.15	.0102				
14:00	29.58	0	34.15	.0117				
14:30	29.6	.0007	34.15	.0147				
15:00	29.6	.0007	34.15	.0154				
15:30	29.62	.0007	34.15	.0154				
16:00	29.63	0	34.15	.0176				
16:30	29.65	0	34.15	.0176				
17:00	29.66	0	34.15	.0183				
18:00	29.67	0	34.15	.0183				
19:00	29.68	0	34.15	.0169				
20:00	29.69	0	34.15	.0169				
21:00	29.7	0	34.16	.0183				
22:00	29.71	0	34.16	.0183				
23:00	29.71	.0007	34.16	.0176				
24:00	29.72	.0007	34.16	.0176				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 9 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Tuesday 12-13	08:00	29.76	0	34.19	.0169				
	09:00	29.77	0	34.19	.0117				
	11:00	29.76	.0007	34.19	.0102				
	13:00	29.78	0	34.2	.0117				
	15:00	29.79	.0007	34.2	.0117				
	17:00	29.8	0	34.2	.0117				
	19:00	29.8	0	34.21	.0117				
	21:00	29.82	0	34.21	.0117				
	23:00	29.83	0	34.22	.0117				
	24:00	29.84	0	34.22	.0117				
Wednesday 12-14	08:00	29.91	.0014	34.25	.0169				
	10:00	29.91	.0014	34.25	.0183				
	12:00	29.93	.0007	34.25	.0220				
	14:00	29.93	.0007	34.25	.0220				
	16:00	29.93	.0007	34.25	.0220				
	18:00	29.93	.0007	34.26	.0220				
	20:00	29.94	.0014	34.26	.0220				
	22:00	29.94	.0014	34.26	.0220				
	24:00	29.95	.0014	34.26	.0220				

96-hr. Aggressive Fluid/Vapor Recovery Notes
[Page 10 of 12]

vacuum conversion: (Inches of water X 0.07355 = inches of mercury)

		MW- 8		MW- 4		MW-		MW-	
	Time	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)	Water Level	Vacuum Influence at Well (in. Hg)
Thursday 12-15	08:00	30.06	0	34.27	.0183				
	10:00	30.07	.0029	34.27	.0183				
	12:00	30.07	.0014	34.27	.0095				
	14:00	30.07	.0014	34.28	.0117				
	16:00	30.08	.0014	34.29	.0117				
	18:00	30.09	.0014	34.29	.0147				
	20:00	30.10	.0029	34.29	.0147				
	22:00	30.11	.0029	34.29	.0169				
	24:00	30.11	.0029	34.29	.0176				
Friday 12-16	08:00	30.18	.0007	34.3	.0147				
	09:00	30.18	.0014	34.3	.0147				

96-hr. Aggressive Fluid/Vapor Recovery Notes

Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	% Reduction	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
09:00	flameout	38	99	1331	47.2	83.5	
09:30	38,400	66	99	1563	46.6	89.6	
10:00	33,700	114	99	1881	45.1	88.4	
10:30	36,500	179	99	1731	45.8	87.5	
11:00	39,100	303	99	2135	46.3	88.1	
11:30	32,300	371	99	1803	40.1	86.3	
12:00	38,800	481	99	1676	44.4	84.6	
12:30	25,100	656	99	1783	44.1	85.1	
13:00	19,600	739	97	1591	43.3	81.6	
13:30	22,600	1014	96	1623	45.2	85.0	
14:00	20,100	1215	94	1673	47.1	84.5	
14:30	20,400	1551	93	1555	46.5	85.8	
15:00	17,400	1883	90	1738	46.8	84.1	
15:30	16,800	2123	88	1562	46.7	86.3	
16:00	20,000	2558	88	1558	45.5	88.1	
16:30	18,100	2736	85	1506	43.6	88.4	
17:00	16,700	2813	84	1635	42.8	88.5	
18:00	15,900	2907	82	1713	42.0	88.3	
19:00	21,600	3114	86	1640	41.3	89.7	
20:00	20,800	3231	85	1669	41.1	84.1	
21:00	18,600	3349	82	1583	41.4	85.6	
22:00	19,300	3481	82	1776	40.6	83.3	
23:00	21,000	3606	83	1635	41.0	84.2	
24:00	18,700	3724	81	1824	41.2	82.4	
08:00	18,000	24	99	2079	36.5	83.9	
09:00	19,600	54	99	2005	36.5	85.3	
11:00	17,300	83	99	1863	36.7	82.7	
13:00	20,500	124	99	1749	36.8	82.1	

Monday 12-12

Tuesday 12-13

96-hr. Aggressive Fluid/Vapor Recovery Notes

	Time	FID *at stack* (ppm)	FID *off-gas* (ppm)	% Reduction	Velocity (ft. / min.)	Temp. (°C)	Relative Humidity (%)	Other
Tuesday 12-13	15:00	19,100	193	99	1973	37.4	83.1	
	17:00	21,200	324	99	1784	37.7	82.6	
	19:00	22,000	458	98	1712	38.3	83.9	
	21:00	20,600	613	98	1687	38.1	81.4	
	23:00	18,300	859	96	1625	38.0	81.1	
	24:00	19,700	1031	95	1578	37.6	80.1	
Wednesday 12-14	08:00	22,400	45	99	1667	36.4	80.4	
	10:00	20,600	81	99	1581	36.5	80.7	
	12:00	21,300	113	99	1731	36.8	81.0	
	14:00	18,500	249	99	1775	36.4	81.1	
	16:00	22,400	406	99	1832	36.6	82.6	
	18:00	24,000	524	98	1851	37.0	80.3	
	20:00	20,300	816	96	1769	37.7	81.4	
	22:00	18,600	946	95	1654	37.6	79.2	
	24:00	17,500	1175	94	1639	37.4	78.7	
Thursday 12-15	08:00	25,600	38	99	1831	34.2	83.2	
	10:00	22,100	93	99	1775	36.9	80.6	
	12:00	24,000	173	99	1663	37.5	81.9	
	14:00	20,600	302	99	1778	39.1	82.4	
	16:00	22,100	463	98	1864	39.3	86.1	
	18:00	24,800	624	98	1641	38.6	83.2	
	20:00	21,600	913	96	1773	36.2	81.7	
	22:00	22,700	1114	96	1904	35.5	82.2	
	24:00	21,800	1370	94	1876	34.3	81.9	
Friday	08:00	22,700	69	99	1775	29.1	82.3	
	09:00	21,200	104	99	1803	31.0	83.6	

APPENDIX B

AFVR Mass Removal Calculations

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c:m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c:m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
12/5/2016	12:00	21.6	84.1	0.014	0.021	10.03	0.022	530.6	12.78
	12:30	24.6	81.6	0.016	0.025	15.58	0.022	536.0	19.58
	13:00	29.3	80.3	0.021	0.032	17.35	0.022	544.4	21.30
	13:30	38.6	78.5	0.035	0.053	19.08	0.022	561.2	22.24
	14:00	39.1	82.7	0.038	0.057	20.58	0.022	562.1	23.84
	14:30	38.9	84.5	0.038	0.058	18.83	0.022	561.7	21.82
	15:00	39.2	86.8	0.040	0.060	20.23	0.022	562.2	23.35
	15:30	39.9	88.4	0.043	0.064	20.70	0.022	563.5	23.75
	16:00	40.2	87.5	0.043	0.064	21.43	0.022	564.0	24.56
	16:30	41.5	88.5	0.047	0.070	19.68	0.022	566.4	22.33
	17:00	40.1	86.7	0.042	0.063	19.43	0.022	563.9	22.30
	17:30	40.6	87.1	0.044	0.065	17.37	0.022	564.8	19.85
	18:00	41.2	85.8	0.044	0.066	17.25	0.022	565.8	19.66
	18:30	40.8	85.7	0.043	0.065	19.77	0.022	565.1	22.59
	19:00	40.3	86.3	0.042	0.064	21.32	0.022	564.2	24.43
	19:30	39.7	88.5	0.042	0.063	20.37	0.022	563.1	23.40
	20:00	39.9	87.7	0.042	0.063	21.03	0.022	563.5	24.15
	21:00	39.1	86.9	0.040	0.060	17.08	0.022	562.1	19.73
	22:00	38.2	86.2	0.038	0.057	18.38	0.022	560.4	21.37
	23:00	36.4	85.6	0.034	0.051	17.48	0.022	557.2	20.56
12/6/2016	0:00	36.1	84.9	0.033	0.050	16.85	0.022	556.7	19.86
	8:00	30.6	87.4	0.024	0.038	17.22	0.022	546.8	20.93
	9:00	31.3	88.1	0.026	0.040	18.57	0.022	548.0	22.47
	10:00	33.8	85.5	0.029	0.044	17.32	0.022	552.5	20.69
	11:00	36.4	84.6	0.033	0.051	17.70	0.022	557.2	20.83
	12:00	37.1	86.9	0.036	0.054	17.35	0.022	558.5	20.30
	14:00	37.5	87.5	0.037	0.056	16.72	0.022	559.2	19.50
	16:00	39.3	86.8	0.040	0.061	19.70	0.022	562.4	22.72
	18:00	41.2	84.6	0.044	0.066	18.23	0.022	565.8	20.80
	20:00	40.8	87.1	0.044	0.066	20.73	0.022	565.1	23.67
	22:00	41.7	85.6	0.046	0.068	17.08	0.022	566.7	19.40
12/7/2016	0:00	39.5	86.4	0.041	0.061	18.93	0.022	562.8	21.82

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
	8:00	37.4	85.5	0.036	0.054	19.48	0.022	559.0	22.77
	10:00	43.2	86.7	0.050	0.075	19.03	0.022	569.4	21.36
	12:00	44.6	79.3	0.049	0.073	18.52	0.022	572.0	20.72
	14:00	44.7	81.5	0.051	0.076	18.93	0.022	572.1	21.12
	16:00	43.2	86.1	0.050	0.074	17.60	0.022	569.4	19.76
	18:00	40.8	86.5	0.044	0.066	15.47	0.022	565.1	17.66
	20:00	41.5	87.7	0.046	0.069	17.03	0.022	566.4	19.34
	22:00	40.7	88.2	0.044	0.067	19.22	0.022	564.9	21.93
12/8/2016	0:00	40.3	86.6	0.043	0.064	20.23	0.022	564.2	23.18
	8:00	36.6	85.6	0.034	0.052	17.38	0.022	557.6	20.42
	10:00	37.4	73.5	0.030	0.046	18.13	0.022	559.0	21.36
	12:00	42.1	80.3	0.044	0.065	17.73	0.022	567.5	20.18
	14:00	42.6	82.4	0.046	0.069	17.68	0.022	568.4	20.01
	16:00	36.1	85.3	0.033	0.050	18.62	0.022	556.7	21.94
	18:00	36.8	82.1	0.033	0.050	17.37	0.022	557.9	20.42
	20:00	37.1	86.6	0.035	0.054	19.43	0.022	558.5	22.74
	22:00	34.7	84.1	0.030	0.046	20.33	0.022	554.1	24.18
12/9/2016	0:00	41.8	85.8	0.046	0.069	18.03	0.022	566.9	20.46
	8:00	24.3	86.6	0.017	0.026	20.68	0.022	535.4	25.99
	10:00	36.1	84.1	0.032	0.049	21.15	0.022	556.7	24.94
	12:00	37.5	85.8	0.036	0.054	18.83	0.022	559.2	21.99

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
12/5/2016	12:00	0	12.78	50000	50000	24948	- - -	- - -	0.00
	12:30	30	19.58	50000	50000	24948	0.00156	1.83	0.91
	13:00	30	21.30	50000	50000	24948	0.00156	1.99	1.00
	13:30	30	22.24	50000	50000	24948	0.00156	2.08	1.04
	14:00	30	23.84	50000	50000	24948	0.00156	2.23	1.11
	14:30	30	21.82	50000	50000	24948	0.00156	2.04	1.02
	15:00	30	23.35	50000	50000	24948	0.00156	2.18	1.09
	15:30	30	23.75	50000	50000	24948	0.00156	2.22	1.11
	16:00	30	24.56	50000	50000	24948	0.00156	2.29	1.15
	16:30	30	22.33	50000	50000	24948	0.00156	2.09	1.04
	17:00	30	22.30	50000	50000	24948	0.00156	2.08	1.04
	17:30	30	19.85	50000	50000	24948	0.00156	1.85	0.93
	18:00	30	19.66	50000	50000	24948	0.00156	1.84	0.92
	18:30	30	22.59	50000	50000	24948	0.00156	2.11	1.06
	19:00	30	24.43	50000	50000	24948	0.00156	2.28	1.14
	19:30	30	23.40	50000	50000	24948	0.00156	2.19	1.09
	20:00	30	24.15	50000	50000	24948	0.00156	2.26	1.13
	21:00	60	19.73	50000	50000	24948	0.00156	1.84	1.84
	22:00	60	21.37	50000	50000	24948	0.00156	2.00	2.00
	23:00	60	20.56	50000	50000	24948	0.00156	1.92	1.92
12/6/2016	0:00	60	19.86	50000	50000	24948	0.00156	1.86	1.86
	8:00	480	20.93	50000	50000	24948	0.00156	1.96	15.64
	9:00	60	22.47	50000	50000	24948	0.00156	2.10	2.10
	10:00	60	20.69	50000	50000	24948	0.00156	1.93	1.93
	11:00	60	20.83	50000	50000	24948	0.00156	1.95	1.95
	12:00	60	20.30	50000	50000	24948	0.00156	1.90	1.90
	14:00	120	19.50	50000	50000	24948	0.00156	1.82	3.64
	16:00	120	22.72	50000	50000	24948	0.00156	2.12	4.25
	18:00	120	20.80	50000	50000	24948	0.00156	1.94	3.89
	20:00	120	23.67	50000	50000	24948	0.00156	2.21	4.42
	22:00	120	19.40	50000	50000	24948	0.00156	1.81	3.63
12/7/2016	0:00	120	21.82	50000	50000	24948	0.00156	2.04	4.08

Site: Bountyland Quick Stop #6 - Event 1 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
	8:00	480	22.77	50000	50000	24948	0.00156	2.13	17.02
	10:00	120	21.36	50000	50000	24948	0.00156	2.00	3.99
	12:00	120	20.72	50000	50000	24948	0.00156	1.94	3.87
	14:00	120	21.12	50000	50000	24948	0.00156	1.97	3.95
	16:00	120	19.76	50000	50000	24948	0.00156	1.85	3.69
	18:00	120	17.66	50000	50000	24948	0.00156	1.65	3.30
	20:00	120	19.34	50000	50000	24948	0.00156	1.81	3.61
	22:00	120	21.93	50000	50000	24948	0.00156	2.05	4.10
12/8/2016	0:00	120	23.18	50000	50000	24948	0.00156	2.17	4.33
	8:00	480	20.42	50000	50000	24948	0.00156	1.91	15.27
	10:00	120	21.36	50000	50000	24948	0.00156	2.00	3.99
	12:00	120	20.18	50000	50000	24948	0.00156	1.89	3.77
	14:00	120	20.01	50000	50000	24948	0.00156	1.87	3.74
	16:00	120	21.94	50000	50000	24948	0.00156	2.05	4.10
	18:00	120	20.42	50000	50000	24948	0.00156	1.91	3.82
	20:00	120	24.18	50000	50000	24948	0.00156	2.26	4.52
	22:00	120	20.46	50000	50000	24948	0.00156	1.91	3.82
12/9/2016	0:00	120	25.99	50000	50000	24948	0.00156	2.43	4.86
	8:00	480	24.94	50000	50000	24948	0.00156	2.33	18.65
	10:00	120	21.99	50000	50000	24948	0.00156	2.06	4.11
	12:00	120	21.99	50000	50000	24948	0.00156	2.06	4.11

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-1 & RW-5 **194.46**

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

EQUATIONS & VARIABLES

Q_{std} = Flow at Dry Standard Cubic Feet Per Minute (DSCFM)

Q_{std} = (60 sec/min) (1-B_{ws}) (V) (A) (528° R / T_s)

B_{wsw} = water vapor % by weight at discharge stack, from high temperature Psychrometric Chart

B_{ws} = water vapor % by volume at discharge stack

= (B_{wsw} / 18 lb-mole H_2O) / [1/28.84 lb-mole dry air) + (B_{wsw} / 18 lb-mole H_2O)]

V = velocity in ft/sec at discharge stack

A = cross sectional area in ft^2 of discharge stack

T_s = stack temperature in R° (dry bulb temp.)

R° = (C° + 273.15) x 9/5

PMR = Pollutant Mass Removal in lb of Total Gaseous Nonmethane Organic (TGNMO) emissions

PMR = PMR_c (# of minutes / 60)

PMR_c = Pollutant Mass Removal rate in lb/hr of Total Gaseous Nonmethane Organic (TGNMO) emissions

= C_c (Q_{std}) (60 min/hr)

C_c = $C_{c:m}$ (62.43 x 10^{-9} lb-m^3/mg-ft^3)

$C_{c:m}$ = mg/dsm^3 - mass concentration of TGNMO emissions

= PPM_c (M_c / K_4)

PPM_c = PPM_v - volumetric concentration of TGNMO emissions as carbon, dry basis, at standard temperature and pressure

= (PPM_{meas}) (K) = PPM_v

PPM_{meas} = concentration in parts per million from organic vapor meter (OVM) at discharge stack

K = number of carbons in OVM calibration gas; methane - K=1, propane - K=3, isobutylene - K=4, hexane - K=6

K_4 = 24.07 $dsm^3/10^6$ mg-mole - mass to volume conversion factor at standard temperature and pressure

M_c = 12.01 mg/mg-mole, molecular weight of carbon

C_c = lb/dcsf - mass concentration of TGNMO emissions sa carbon, dry basis, at standard temperature and pressure

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
12/12/2016	9:00	47.2	83.5	0.061	0.088	22.18	0.022	576.6	24.22
	9:30	46.6	89.6	0.063	0.092	26.05	0.022	575.6	28.38
	10:00	45.1	88.4	0.057	0.084	31.35	0.022	572.9	34.62
	10:30	45.8	87.5	0.059	0.086	28.85	0.022	574.1	31.71
	11:00	46.3	88.1	0.061	0.089	35.58	0.022	575.0	38.93
	11:30	40.1	86.3	0.042	0.063	30.05	0.022	563.9	34.49
	12:00	44.4	84.6	0.052	0.078	27.93	0.022	571.6	31.13
	12:30	44.1	85.1	0.052	0.077	29.72	0.022	571.1	33.18
	13:00	43.3	81.6	0.047	0.071	26.52	0.022	569.6	29.88
	13:30	45.2	85.0	0.055	0.081	27.05	0.022	573.0	29.95
	14:00	47.1	84.5	0.061	0.089	27.88	0.022	576.5	30.43
	14:30	46.5	85.8	0.060	0.088	25.92	0.022	575.4	28.38
	15:00	46.8	84.1	0.060	0.087	28.97	0.022	575.9	31.71
	15:30	46.7	86.3	0.061	0.089	26.03	0.022	575.7	28.45
	16:00	45.5	88.1	0.058	0.085	25.97	0.022	573.6	28.59
	16:30	43.6	88.4	0.053	0.078	25.10	0.022	570.2	28.04
	17:00	42.8	88.5	0.050	0.075	27.25	0.022	568.7	30.62
	18:00	42.0	88.3	0.048	0.071	28.55	0.022	567.3	32.28
	19:00	41.3	89.7	0.047	0.070	27.33	0.022	566.0	31.02
	20:00	41.1	84.1	0.043	0.065	27.82	0.022	565.7	31.76
	21:00	41.4	85.6	0.045	0.067	26.38	0.022	566.2	30.03
	22:00	40.6	83.3	0.042	0.062	29.60	0.022	564.8	33.94
	23:00	41.0	84.2	0.043	0.065	27.25	0.022	565.5	31.13
12/13/2016	0:00	41.2	82.4	0.043	0.064	30.40	0.022	565.8	34.74
	8:00	36.5	83.9	0.033	0.050	34.65	0.022	557.4	40.77
	9:00	36.5	85.3	0.034	0.051	33.42	0.022	557.4	39.28
	11:00	36.7	82.7	0.033	0.050	31.05	0.022	557.7	36.52
	13:00	36.8	82.1	0.033	0.050	29.15	0.022	557.9	34.27
	15:00	37.4	83.1	0.035	0.052	32.88	0.022	559.0	38.50
	17:00	37.7	82.6	0.035	0.053	29.73	0.022	559.5	34.75
	19:00	38.3	83.9	0.037	0.056	28.53	0.022	560.6	33.20
	21:00	38.1	81.4	0.035	0.053	28.12	0.022	560.3	32.81

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Flow at Dry Standard Cubic Feet Per Minute

Date	Time	Temp	Relative Humidity	B_{wsw}	B_{ws}	V	A	T_s	Q_{std}
		(°C)	(%)	(%)	(%)	(ft/sec)	(ft^2)	(°R)	(dscfm)
	23:00	38.0	81.1	0.035	0.053	27.08	0.022	560.1	31.63
12/14/2016	0:00	37.6	80.1	0.034	0.051	26.30	0.022	559.4	30.81
	8:00	36.4	80.4	0.031	0.048	27.78	0.022	557.2	32.78
	10:00	36.5	80.7	0.032	0.048	26.35	0.022	557.4	31.07
	12:00	36.8	81.0	0.032	0.049	28.85	0.022	557.9	33.95
	14:00	36.4	81.1	0.032	0.048	29.58	0.022	557.2	34.89
	16:00	36.6	82.6	0.033	0.050	30.53	0.022	557.6	35.93
	18:00	37.0	80.3	0.033	0.050	30.85	0.022	558.3	36.27
	20:00	37.7	81.4	0.034	0.052	29.48	0.022	559.5	34.49
	22:00	37.6	79.2	0.033	0.051	27.57	0.022	559.4	32.32
12/15/2016	0:00	37.4	78.7	0.033	0.050	27.32	0.022	559.0	32.07
	8:00	34.2	83.2	0.029	0.044	30.52	0.022	553.2	36.42
	10:00	36.9	80.6	0.033	0.049	29.58	0.022	558.1	34.80
	12:00	37.5	81.9	0.034	0.052	27.72	0.022	559.2	32.45
	14:00	39.1	82.4	0.038	0.057	29.63	0.022	562.1	34.34
	16:00	39.3	86.1	0.040	0.060	31.07	0.022	562.4	35.85
	18:00	38.6	83.2	0.037	0.056	27.35	0.022	561.2	31.77
	20:00	36.2	81.7	0.032	0.048	29.55	0.022	556.8	34.88
	22:00	35.5	82.2	0.031	0.047	31.73	0.022	555.6	37.60
12/16/2016	0:00	34.3	81.9	0.028	0.044	31.27	0.022	553.4	37.32
	8:00	29.1	82.3	0.021	0.033	29.58	0.022	544.1	36.33
	9:00	31.0	83.6	0.024	0.037	30.05	0.022	547.5	36.51

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
12/12/2016	9:00	0	24.22	50000	50000	24948	- - -	- - -	0.00
	9:30	30	28.38	38400	38400	19160	0.00120	2.04	1.02
	10:00	30	34.62	33700	33700	16815	0.00105	2.18	1.09
	10:30	30	31.71	36500	36500	18212	0.00114	2.16	1.08
	11:00	30	38.93	39100	39100	19509	0.00122	2.85	1.42
	11:30	30	34.49	32300	32300	16116	0.00101	2.08	1.04
	12:00	30	31.13	38800	38800	19360	0.00121	2.26	1.13
	12:30	30	33.18	25100	25100	12524	0.00078	1.56	0.78
	13:00	30	29.88	19600	19600	9780	0.00061	1.09	0.55
	13:30	30	29.95	22600	22600	11277	0.00070	1.27	0.63
	14:00	30	30.43	20100	20100	10029	0.00063	1.14	0.57
	14:30	30	28.38	20400	20400	10179	0.00064	1.08	0.54
	15:00	30	31.71	17400	17400	8682	0.00054	1.03	0.52
	15:30	30	28.45	16800	16800	8383	0.00052	0.89	0.45
	16:00	30	28.59	20000	20000	9979	0.00062	1.07	0.53
	16:30	30	28.04	18100	18100	9031	0.00056	0.95	0.47
	17:00	30	30.62	16700	16700	8333	0.00052	0.96	0.48
	18:00	60	32.28	15900	15900	7933	0.00050	0.96	0.96
	19:00	60	31.02	21600	21600	10778	0.00067	1.25	1.25
	20:00	60	31.76	20800	20800	10378	0.00065	1.23	1.23
	21:00	60	30.03	18600	18600	9281	0.00058	1.04	1.04
	22:00	60	33.94	19300	19300	9630	0.00060	1.22	1.22
	23:00	60	31.13	21000	21000	10478	0.00065	1.22	1.22
12/13/2016	0:00	60	34.74	18700	18700	9331	0.00058	1.21	1.21
	8:00	480	40.77	18000	18000	8981	0.00056	1.37	10.97
	9:00	60	39.28	19600	19600	9780	0.00061	1.44	1.44
	11:00	120	36.52	17300	17300	8632	0.00054	1.18	2.36
	13:00	120	34.27	20500	20500	10229	0.00064	1.31	2.63
	15:00	120	38.50	19100	19100	9530	0.00059	1.37	2.75
	17:00	120	34.75	21200	21200	10578	0.00066	1.38	2.75
	19:00	120	33.20	22000	22000	10977	0.00069	1.36	2.73
	21:00	120	32.81	20600	20600	10279	0.00064	1.26	2.53

Site: Bountyland Quick Stop #6 - Event 2 of 2
UST Permit # 06711

CALCULATIONS - Pollutant Mass Removal in pounds

Date	Time	Elapsed Time	Q_{std}	PPM_{meas}	PPM_c	$C_{c:m}$	C_c	PMRc	PMR
		(min)	(dscfm)	(ppm)	(ppm)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb)
	23:00	120	31.63	18300	18300	9131	0.00057	1.08	2.16
12/14/2016	0:00	60	30.81	19700	19700	9830	0.00061	1.13	1.13
	8:00	480	32.78	22400	22400	11177	0.00070	1.37	10.98
	10:00	120	31.07	20600	20600	10279	0.00064	1.20	2.39
	12:00	120	33.95	21300	21300	10628	0.00066	1.35	2.70
	14:00	120	34.89	18500	18500	9231	0.00058	1.21	2.41
	16:00	120	35.93	22400	22400	11177	0.00070	1.50	3.01
	18:00	120	36.27	24000	24000	11975	0.00075	1.63	3.25
	20:00	120	34.49	20300	20300	10129	0.00063	1.31	2.62
	22:00	120	32.32	18600	18600	9281	0.00058	1.12	2.25
12/15/2016	0:00	120	32.07	17500	17500	8732	0.00055	1.05	2.10
	8:00	480	36.42	25600	25600	12773	0.00080	1.74	13.94
	10:00	120	34.80	22100	22100	11027	0.00069	1.44	2.87
	12:00	120	32.45	24000	24000	11975	0.00075	1.46	2.91
	14:00	120	34.34	20600	20600	10279	0.00064	1.32	2.64
	16:00	120	35.85	22100	22100	11027	0.00069	1.48	2.96
	18:00	120	31.77	24800	24800	12374	0.00077	1.47	2.95
	20:00	120	34.88	21600	21600	10778	0.00067	1.41	2.82
	22:00	120	37.60	22700	22700	11326	0.00071	1.60	3.19
12/16/2016	0:00	120	37.32	21800	21800	10877	0.00068	1.52	3.04
	8:00	480	36.33	22700	22700	11326	0.00071	1.54	12.33
	9:00	60	36.51	21200	21200	10578	0.00066	1.45	1.45

Total Gaseous Nonmethane Organic emissions removed in pounds from RW-3 & RW-8 **134.72**

APPENDIX C

Disposal Manifest(s)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1882

2. Page 1 of

3. Generator's Name and Mailing Address
Bountyland Quick Stop #6
5034 SC 11 South
Westminister, S.C

25-403.10-16

4. Generator's Phone ( )

5. Transporter 1 Company Name
ARM Environmental SVC's.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main Street
Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	4,005 ~~360~~	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above
profile 21342

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop #6
Signature: Billy Pittenger
Date: Month 12 Day 8 Year 16

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Bonfilio
Signature:
Date: Month 12 Day 8 Year 16

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Steven Lukan
Signature:
Date: Month 12 Day 8 Year 16

NON-HAZARDOUS WASTE

F-14 © 2002 LABELMASTER® (800) 621-5808 www.labelmaster.com
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PRINTED WITH SOY INK

Rev. 3/95

63633

SCALE TICKET

12/06/2016 12:26P
Progressive %286
RcPD I.D. number 9
Gross [redacted]
Tare(#) [redacted]
* Preset weight
Net [redacted]

got my copy!

Scale Company: VLS

Weighed By: Jermaine A.

Carrier: ARM

Customer: _____

PO/BOL/Manifest 1882

Tractor Number: VT-3

Trailer Number: N/A

Driver Signature: [signature]

WHITE - Driver YELLOW - Driver CARD - Scale

63635

SCALE TICKET

12/08/2016 01:[illegible]PM
Progressive [illegible]
Rcd I.D. [illegible]
Inbound weight [illegible]

Scale Company: ULS

Weighed By: [signature]

Carrier: ARM

Customer: Bounty Land

PO/BOL/Manifest 1882

Tractor Number: VT3

Trailer Number: _____

Driver Signature: [signature]

WHITE - Driver YELLOW - Driver CARD - Scale

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1883

2. Page 1 of

3. Generator's Name and Mailing Address Bounty land quick Stop #6
5034 SC Hwy 11 South
Westminster, S.C

25-403.10-16

4. Generator's Phone ( )

5. Transporter 1 Company Name VLS Recovery ARM Env.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
VLS Recovery
305 South Main Street
Moulding, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	2304	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above
Profile 21342

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop #6
Signature: Billy Pittenger
Date: Month 12 Day 9 Year 16

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pittenger
Signature: Billy Pittenger
Date: Month 12 Day 9 Year 16

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: David Watkins
Signature:
Date: Month 12 Day 9 Year 16

NON-HAZARDOUS WASTE

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PRINTED ON RECYCLED PAPER USING SOYBEAN INK
PRINTED WITH SOY INK

Rev. 3/95

63682

SCALE TICKET

12/09/2016 12:[illegible]PM
Progressive [illegible]
RcD I.D. 809
Inbound weight [illegible] lb

12/09/2016 12:[illegible]PM
Progressive [illegible]
RcD I.D. 809
Gross [illegible] lb
Tare [illegible] lb
Net [illegible] lb

Scale Company: VLS

Weighed By: Jermaine A.

Carrier: ARM Env.

Customer: _____

PO/BOL/Manifest 1883

Tractor Number: #2

Trailer Number: _____

Driver Signature: Billy Pettenger

WHITE - Driver YELLOW - Driver CARD - Scale

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1884

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC 11, South, Westminster, S.C

25-403.10-16

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM Environmental Svcs.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main, Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER	1	TT	3,990	Gal
c.				
d.				

G. Additional Descriptions for Materials Listed Above: Profile 21342 RW-3, RW-8

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop #6 | Signature: Billy Pittenger | Date: Month 12 Day 15 Year 16

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Billy Pittenger | Signature: Billy Pittenger | Date: Month 12 Day 19 Year 16

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Daniel Whitmire | Signature | Date: Month 12 Day 19 Year 16

60801

SCALE TICKET

12/19/2016
Progressive
RcD I.D.
Inbound Weight

12/19/2016
Progressive
RcD I.D.
Gross
Tare
Net

Scale Company: ULS

Weighed By: [signature]

Carrier: ABM

Customer: ABM

PO/BOL/Manifest 1884

Tractor Number: 3

Trailer Number: _____

Driver Signature: Billy Pittenger

WHITE - Driver YELLOW - Driver CARD - Scale

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 1885

2. Page 1 of

3. Generator's Name and Mailing Address: Bountyland Quick Stop #6, 5034 SC 11 South, Westminister, S.C

25-403.10-16

4. Generator's Phone ( )

5. Transporter 1 Company Name: ARM Environmental Svcs

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: VLS Recovery, 305 South Main, Mauldin, S.C

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL				
b. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER				
c.			3193	
d.				

G. Additional Descriptions for Materials Listed Above: Profile 21342 RW-3 RW-8

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

ARM ENVIRONMENTAL SERVICES, INC.
P.O. BOX 50285
COLUMBIA, SC 29250

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

GENERATOR

Printed/Typed Name: Billy Pittenger Agent for Bountyland Quick Stop #6 | Signature: Billy Pittenger | Date: Month 12 Day 15 Year 16

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Bonfilio | Signature | Date: Month 12 Day 15 Year 16

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name | Signature | Date: Month 12 Day 15 Year 16

F-14 © 2002 LABELMASTER® (800) 621-5808 www.labelmaster.com PRINTED ON RECYCLED PAPER PRINTED WITH

Rev. 3/95

63179

SCALE TICKET

12/15/2016 01:06PM
Progressive 0593
RcD I.D. C
Inbound weight 64680 lb

Scale Company: VLS
Weighed By: Jack Cantrell
Carrier: Ag Environ.
Customer: Bounty/and QuickStop #6
PO/BOL/Manifest 1885
Tractor Number: VT-3
Trailer Number: —
Driver Signature:

WHITE - Driver YELLOW - Driver CARD - Scale

63181

SCALE TICKET

12/15/2016 02:04PM
Progressive 5597
RcD I.D. 4141
Inbound weight 30280 lb

Scale Company: VLS
Weighed By: Jermaine A.
Carrier: ARM
Customer: Bandyland QS #6
PO/BOL/Manifest 1885
Tractor Number: VT-3
Trailer Number:
Driver Signature:

WHITE - Driver YELLOW - Driver CARD - Scale

petra-tech
ENVIRONMENTAL, LLC
ENGINEERS & CONSULTANTS

April 10, 2017



South Carolina Department of Health and Environmental Control
Underground Storage Tank Management Division
2600 Bull Street
Columbia, South Carolina 29201-1708



Attention: Mr. Lee Monts
Corrective Action Section

Subject: **Contractor Selection Form**
Bountyland Quick Stop 6
5034 S. Highway 11
Westminster, Oconee County, South Carolina
SCDHEC UST Permit #06711

Dear Mr. Monts:

Please find attached the original signed Owner/Operator Lead Information Sheet selecting Environmental Laboratories, Inc. (DHEC Certification #420) as the new Contractor of Choice for UST Permit #06711.

If you have any questions, please contact us at (864) 631-2490 or info@petratechenv.com.

Sincerely,

Petra-Tech Environmental

Trever Z. Slack, P.G.
Principal Hydrogeologist/Owner

2435 E. North Street, Suite 1108-202, Greenville, SC 29615 | Phone (864) 436-6322 | Fax (888) 838-9034
www.petratechenv.com

Bountyland Quick Stop 6
5034S Highway 11
Westminster, SC

UNDERGROUND STORAGE TANK (UST) OWNER/OPERATOR LEAD INFORMATION SHEET

1. CONTRACTOR OF CHOICE

As the UST Owner/Operator of the UST Permit # 06711, I would like to use the contractor or person(s)* listed below and request that they represent me for:

- ☐ IGWA
- ☐ All future assessment scopes. **

Name of Contractor/Person(s) Environmental Laboratories

Address 15 Sulphur Springs Rd
Greenville SC 29617

Telephone Number 864-370-0637 Certification # 420

Note: After September 20, 1997, rehabilitation activities must be performed by a SC Certified Site Rehabilitation Contractor.

*indicate if the person listed is your own employee

** if you would like the contractor to perform all future assessment activities at this and/or other UST sites that have confirmed releases, please provide a list of all sites on your letterhead and provide the information requested in items 2 and 3 below within the context of the letter.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above? ____ Yes __X__ No (please initial)

Financial Relationship: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

Familial Relationship: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great grandchild, step grandparent, step great grandparent, step grandchild, step great grandchild, or fiancée.

3. PAYMENT

The first $25,000.00 in eligible site rehabilitation costs will be applied against the applicable SUPERB deductible, upon submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment.

For eligible costs exceeding the $25,000.00 deductible, you can pay the contractor and, upon the submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment, be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (check one)

____ For eligible costs exceeding the deductible, I request that payment be made to me after I have paid the contractor.

__X__ For eligible costs exceeding the deductible, I request that payment be made directly to the contractor.

(Note: all costs must receive prior financial approval from the Department regardless of payment option.)

Underground Storage Tank Owner/Operator Signature [signature] CFO

Printed Name H. EUGENE WALKER

Date Signed 4/7/17

D H E C

Underground Storage Tank Management Division
Field Data Information Sheet – Monitoring Well Gauging

Site Information

Date: 3/16/18	Site ID #: 06711	Site Name: Bountyland Quick Stop #6
County: Dorchester	Project Manager: ~~Adam Looper~~	Field Personnel: Ed Mendenhall

Well Gauging Information

Well ID:	Total Well Depth (ft.)	Screened Interval (ft.)	Depth to Free Product (ft.)	Depth to Ground water (ft.)	Free Product Thickness (ft.)	Confirmed with Bailer?	Photos Taken ?	Well Pad OK?	Bolts in Well Cover?	Water in Well Vault?
RW-1	40'	20'-40'	30.26'	31.06'	0.80'	NO	NO	yes	NO	yes
RW-3	40'	20'-40'	30.20'	30.34	0.14'	NO	NO	yes	NO	NO
RW-6	40'	20'-40'	30.06'	32.07'	2.01'	yes	NO	yes	NO	NO
RW-8	40'	20'-40'	29.69'	32.89'	3.20'	yes	yes	NO	yes	NO

UST 45 Week DOCKETING

Notes: RW-6 is labeled as RW-5 on map. Orig ID tags in both wells.

Signature: J Mendenhall

-UST Field Data Information Sheet – Monitoring Well Gauging

-Purpose of the form is to record information gathered during a monitoring well gauging event
-DHEC UST Project Managers and Field Staff
-Item-by-item instructions for completing the form:
    Fill in all Site Information boxes
    Record Well Gauging Information for all necessary wells
    Record any applicable notes
    Sign the form
-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304


Mountain Rd
S-135

dhec
Healthy People. Healthy Communities.

UST 46 Fee DOCKETING

BOUNTYLAND FOOD SERVICE INC
5038 S HWY 11
WESTMINSTER SC 29693

MAR 2 9 2018

Re: **Aggressive Fluid and Vapor Recovery Directive**
Bountyland Quick Stop 6, 5034 S Hwy 11, Westminster, SC
UST Permit #06711; CA #56675
Release reported December 1, 2011
AFVR report received January 3, 2017
Greenville County

To Whom It May Concern:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) recognizes your commitment to continue work at this site using Environmental Laboratories, Inc. as your contractor.

In accordance with Section 280.64 of the South Carolina Underground Storage Tank Control Regulations, an Aggressive Fluid and Vapor Recovery (AFVR) event may proceed immediately upon receipt of this letter as outlined in this directive and the UST Quality Assurance Program Plan (QAPP) Revision 3.1. **Please be aware that the AFVR Procedures have been updated.** Two 96-hour events should be performed. The first event should utilize wells RW-1, RW-2, and RW-6. The second event should utilize wells RW-3, RW-4, and RW-8. The stingers shall be lowered at six inch intervals starting at the water table interface to a target depth of 36 feet in the wells. Please advance to the target depth within the first eight (8) hours of the event. Thereafter, the stinger should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone. Off-gas treatment will be necessary. A copy of the DHEC QAPP Revision 3.1 for the Underground Storage Tank Division is available at http://www.scdhec.gov/environment/PermitCentral/ApplicationForms/#UST.

As soon as the beginning date of the event has been scheduled, please contact Adam Looper at Looperam@dhec.sc.gov.

The AFVR Report should be submitted within 90 days from the date of this correspondence. Please note that all applicable South Carolina certification requirements apply to the services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval is obtained from the UST Management Division. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be preapproved by DHEC for the cost to be paid. DHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in

accordance with established criteria. Further, DHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

On all correspondence concerning this site, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0631, by fax at (803) 898-0673, or by e-mail at Looperam@dhec.sc.gov.

Sincerely,

Adam Looper

Adam Looper, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Environmental Laboratories, Inc., P.O. Box 1729, Travelers Rest, SC 29690 (w/enc.)
Technical file (w/enc.)

Approved Cost Agreement 56675

Facility: 06711 BOUNTYLAND QUICK STOP 6
LOOPERAM
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
19 RPT/PROJECT MNGT & COORDINATIO					
		PRT REPORT PREPARATION	0.1200	$40,881.250	4,905.75
23 EFR					
		A4 96 HOUR EVENT	2.0000	$12,567.500	25,135.00
		C4 OFF GAS TREATMENT 96 HOUR	2.0000	$780.000	1,560.00
		D SITE RECONNAISSANCE	1.0000	$203.250	203.25
		F1 EFFLUENT DISPOSAL	30,000.0000	$0.440	13,200.00
		G AFVR EQUIPMENT MOB	2.0000	$391.500	783.00
				Total Amount	45,787.00

Document Receipt Information

☒ **Hard Copy** ☒ **CD** ☐ **Email**

Date Received 7-10-18

Permit Number 06711

Project Manager Adam Looper

Name of Contractor Petra-Tech

UST Certification Number _____

Docket Number 47Tech

Scanned _____

AFI2/NMP'E

REPORT OF LONG-TERM AFVR/MMPE EVENTS

Bountyland Quick Stop 6
SCDHEC UST Permit #06711
5034 S. Highway 11
Westminster, South Carolina
Oconee County

Cost Agreement #56675

PTE Job No. J18-582-A

July 6, 2018

petra-tech
ENVIRONMENTAL, LLC
ENGINEERS & CONSULTANTS

SCDHEC Certified UST Contractor No. 436

Petra-Tech Environmental
2435 East North Street
Suite 1108-202
Greenville, SC 29615

www.petratechenv.com

July 6, 2018

South Carolina Department of Health and Environmental Control
Bureau of Underground Storage Tank Management
2600 Bull Street
Columbia, South Carolina 29201-1708

Attention: Mr. Adam Looper
Hydrogeologist

Subject: **Report of Long-Term AFVR/MMPE Events**
Bountyland Quick Stop 6
5034 S. Highway 11
Westminster, Oconee County, South Carolina
SCDHEC UST Permit #06711; CA#56675
PTE Job No. J18-582-A

Dear Mr. Looper:

Pursuant to the South Carolina Department of Health and Environmental Control's directive letter (cost agreement #56675), Petra-Tech Environmental, LLC submits herein the results of two 96-hour long-term AFVR/MMPE events performed at the Bountyland Quick Stop 6 site. This report is being submitted on behalf of Bountyland Food Service Inc. and Environmental Laboratories, Inc.

Please do not hesitate to contact us at 864.631.2490 if you have any questions concerning this submittal.

Sincerely,

Petra-Tech Environmental

Trever Z. Slack, P.G.
Principal Hydrogeologist
Registered, South Carolina #2565



1.0 PROJECT INFORMATION

The subject property is located at 5034 South Highway 11 in Westminster, Oconee County, South Carolina (**Figure 1**) and currently operates as a retail petroleum fueling station and convenience store. According to the South Carolina Department of Health and Environmental Control Online Underground Storage Tank Registry database, four underground storage tanks (one 10,000-gallon regular gasoline, one 10,000-gallon super/premium gasoline, one 10,000-gallon diesel, and one 10,000-gallon kerosene) are currently in use at the site. A release was reported at the site in December 2011 and a network of twenty-two groundwater monitoring wells (06711-MW01 through 06711-MW19 and 06711-MW-D1 through 06711-MW-DW3) and eight recovery wells (06711-RW01 through 06711-RW08) have been installed during previous environmental assessments.

The South Carolina Department of Health and Environmental Control issued an Aggressive Fluid Vapor Recovery directive letter on March 29, 2018 for the subject site requiring the completion of two 96-hour long term AFVR / MMPE events – with one extraction event utilizing wells 06711-RW01, 06711-RW02, and 06711-RW06; and the other extraction event utilizing wells 06711-RW03, 06711-RW04, and 06711-RW08. The results of the long-term AFVR / MMPE events are included herein.

2.0 LONG-TERM AFVR / MMPE EVENT SUMMARY – 06711-RW01, 06711-RW02, & 06711-RW06

A 96-hour long-term AFVR / MMPE event was completed at the subject site between Wednesday, June 20, 2018 and Sunday, June 24, 2018. The 96-hour event was conducted on recovery wells 06711-RW01, 06711-RW02, and 06711-RW06 (**Figure 2**). A geologist was on-site for initial event setup, and periodic observation and monitoring of the event throughout the week, and a field technician remained on-site for monitoring and data collection. The long-term AFVR / MMPE event was performed using a Vermeer Ring-O-Matic 850 Super Deep Vacuum Unit equipped with a 28 horsepower diesel engine and Masport HXL15V vacuum pump with 27-inches of mercury and 350 cubic feet per minute vacuum capabilities.

Prior to initiating the event, Petra-Tech Environmental staff gauged the wells using a Solinst® Interface Meter. 1.23-feet of free-phase petroleum product was detected in recovery well 06711-RW01 and 2.50-feet of free-phase petroleum product was detected in recovery well 06711-RW02 prior to the AFVR event. Free-phase petroleum product was not detected in recovery well 06711-RW06 prior to the AFVR event. The long-term AFVR / MMPE event was initiated at 1430 on Wednesday, June 20, 2018 and concluded at 1430 on Sunday, June 24, 2018. The general weather conditions observed during this period of time were variable; with daily high temperatures ranging from 89º to 93º Fahrenheit and low temperatures ranging from 69º to 73º Fahrenheit. 0.07-inches of rainfall was recorded on June 21, 2018; 0.15-inches of rainfall was recorded on June 22, 2018; and 0.01-inches of rainfall was recorded on June 23, 2018.

Throughout the duration of the event, a continuous vacuum ranging from 22.0 to 27.0 inches of mercury was applied to recovery wells 06711-RW01, 06711-RW02, and 06711-RW06. The extraction stinger was lowered at 6-inch intervals in the wells from the free-phase product / water table interface to a target depth of 36 feet below ground surface within the first 8-hours of the event. Stinger depths were varied thereafter to maximize free-phase petroleum product and vapor recovery based on conditions observed in the field. Vacuum and field measurements recorded throughout the event are summarized in **Attachment A**. The vacuum in addition to depth-to-water was also measured in adjacent wells 06711-RW08 and 06711-MW01 using magnahelic gauges and an interface probe to evaluate the vacuum's radius of influence. Radius of influence gauging data observed during the event is summarized in **Attachment A**.

Due to the close proximity of the site to places of public business, volatile air emissions were treated on-site utilizing a granulated activated carbon (GAC) unit. Influent and effluent vapor concentrations were measured throughout the event using a MiniRAE® Lite 3000 Photo Ionization Detector (PID). Air emissions pre-treatment and post-treatment concentrations are summarized in **Attachment A**.

3.0 LONG-TERM AFVR / MMPE EVENT SUMMARY – 06711-RW03, 06711-RW04, & 06711-RW08

A 96-hour long-term AFVR / MMPE event was completed at the subject site between Sunday, June 24, 2018 and Thursday, June 28, 2018. The 96-hour event was conducted on recovery wells 06711-RW03, 06711-RW04, and 06711-RW08 (**Figure 2**). A geologist was on-site for initial event setup, and periodic observation and monitoring of the event throughout the week, and a field technician remained on-site for monitoring and data collection. The long-term AFVR / MMPE event was performed using a Vermeer Ring-O-Matic 850 Super Deep Vacuum Unit equipped with a 28 horsepower diesel engine and Masport HXL15V vacuum pump with 27-inches of mercury and 350 cubic feet per minute vacuum capabilities.

Prior to initiating the event, Petra-Tech Environmental staff gauged the wells using a Solinst® Interface Meter. 1.16-feet of free-phase petroleum product was detected in recovery well 06711-RW03 and 2.43-feet of free-phase petroleum product was detected in recovery well 06711-RW08 prior to the AFVR event. Free-phase petroleum product was not detected in recovery well 06711-RW04. The long-term AFVR / MMPE event was initiated at 1500 on Sunday, June 24, 2018 and concluded at 1500 on Thursday, June 28, 2018. The general weather conditions observed during this period of time were variable; with daily high temperatures ranging from 79º to 93º Fahrenheit and low temperatures ranging from 68º to 71º Fahrenheit. 0.15-inches of rainfall was recorded on June 25, 2018; 1.42-inches of rainfall was recorded on June 26, 2018; 0.61-inches of rainfall was recorded on June 27, 2018; and 0.19-inches of rainfall was recorded on June 28, 2018.

Throughout the duration of the event, a continuous vacuum ranging from 24.0 to 28.0 inches of mercury was applied to recovery wells 06711-RW03, 06711-RW04, and 06711-RW08. The extraction stinger was lowered at 6-inch intervals in the wells from the free-phase product / water table interface to a target depth of 36 feet below ground surface within the first 8-hours of the event. Stinger depths were varied thereafter to maximize free-phase petroleum product and vapor recovery based on conditions observed in the field. Vacuum and field measurements recorded throughout the event are summarized in **Attachment B**. The vacuum along with depth-to-water was also measured in adjacent wells 06711-RW07 and 06711-MW08 using magnahelic gauges and an interface probe to evaluate the radius of influence. Radius of influence gauging data observed during the event is summarized in **Attachment B**.

Due to the close proximity of the site to places of public business, volatile air emissions were treated on-site utilizing a granulated activated carbon (GAC) unit. Influent and effluent vapor concentrations were measured throughout the event using a MiniRAE® Lite 3000 Photo Ionization Detector (PID). Air emissions pre-treatment and post-treatment concentrations are summarized in **Attachment B**.

4.0 RESULTS & RECOMMENDATIONS

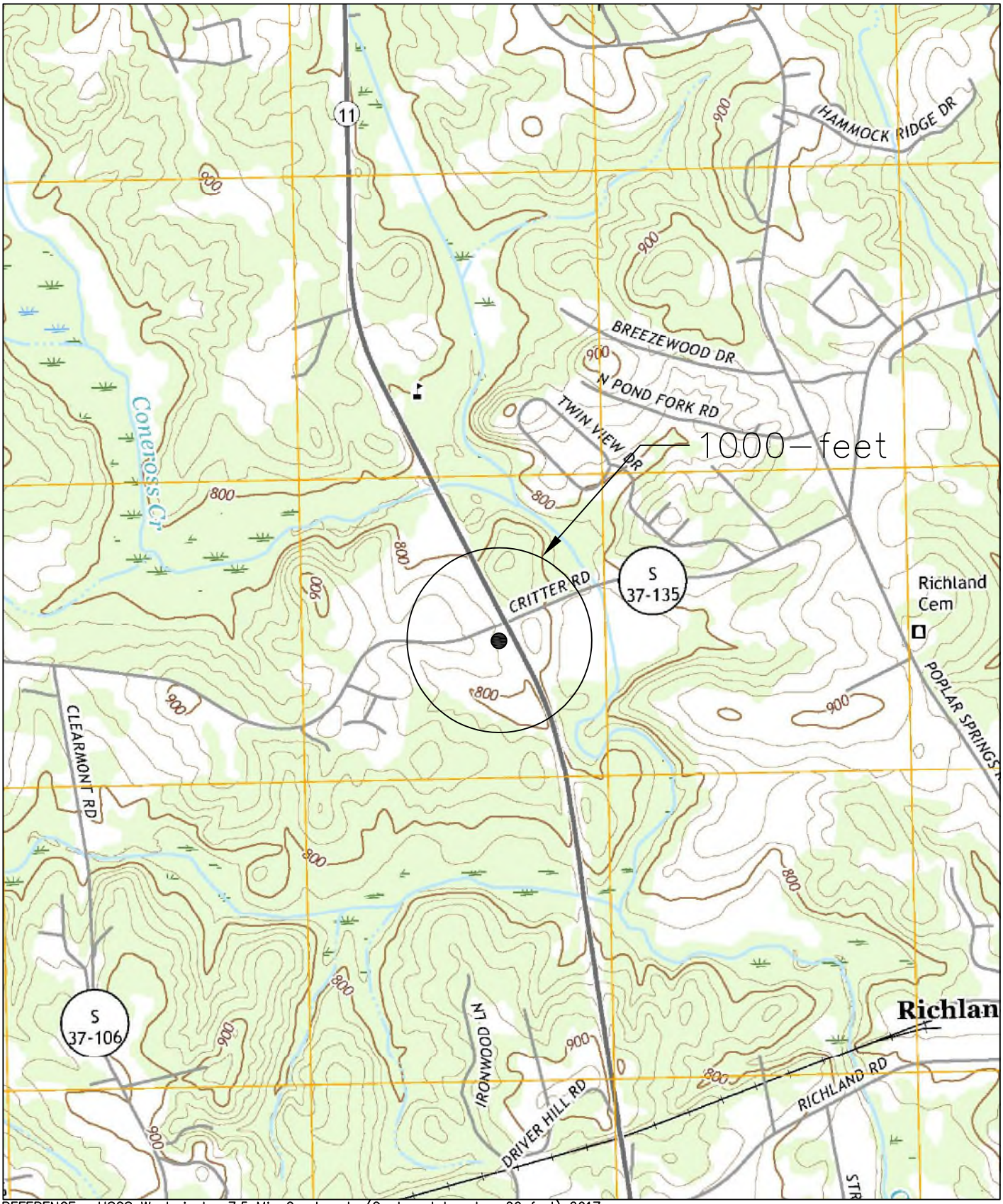
A total volume of approximately 6,186 gallons of petroleum impacted liquid was recovered from the site during the 96-hour event conducted on recovery wells 06711-RW01, 06711-RW02, and 06711-RW06. Of this amount, approximately 45 gallons was gauged as separated phase petroleum product. A total volume of approximately 6,598 gallons of petroleum impacted liquid was recovered from the site during the 96-hour

event conducted on recovery wells 06711-RW03, 06711-RW04, and 06711-RW08. Of this amount, approximately 15 gallons was gauged as separated phase petroleum product. Waste transportation and disposal records for the petroleum impacted groundwater recovered during the events are provided in **Attachment C**.

A total of approximately 131.8 pounds of gasoline vapor which is equivalent to approximately 21.09 gallons of gasoline were calculated to have been recovered during the 96-hour long term AFVR / MMPE event on recovery wells 06711-RW01, 06711-RW02, and 06711-RW06; and a total of approximately 80.3 pounds of gasoline vapor which is equivalent to approximately 12.85 gallons of gasoline were calculated to have been recovered during the 96-hour long term AFVR/MMPE event on recovery wells 06711-RW03, 06711-RW04, and 06711-RW08. The emissions calculations for the event are provided as **Attachments A and B**.

Based on the results of the current scope of work, the 96-Hour Aggressive Fluid Vapor Recovery events were effective in removing petroleum product as both free-phase and vapor phase; and serve as a critical remedial measure in the removal of free-product at the site. Petra-Tech Environmental recommends the completion of a comprehensive groundwater sampling event to evaluate current groundwater analytical data for the site. Based on a review of the groundwater analytical data and equilibrated free-product thickness measurements; additional recovery wells may be necessary to the east/northeast of recovery well 06711-RW08 and should be followed by a series of additional 96-hour AFVR events at the site to continue free-phase petroleum product removal.

FIGURES



REFERENCE: USGS Westminster 7.5 Min Quadrangle (Contour Interval = 20 feet) 2017

2000 1000 0 2000

APPROXIMATE SCALE IN FEET

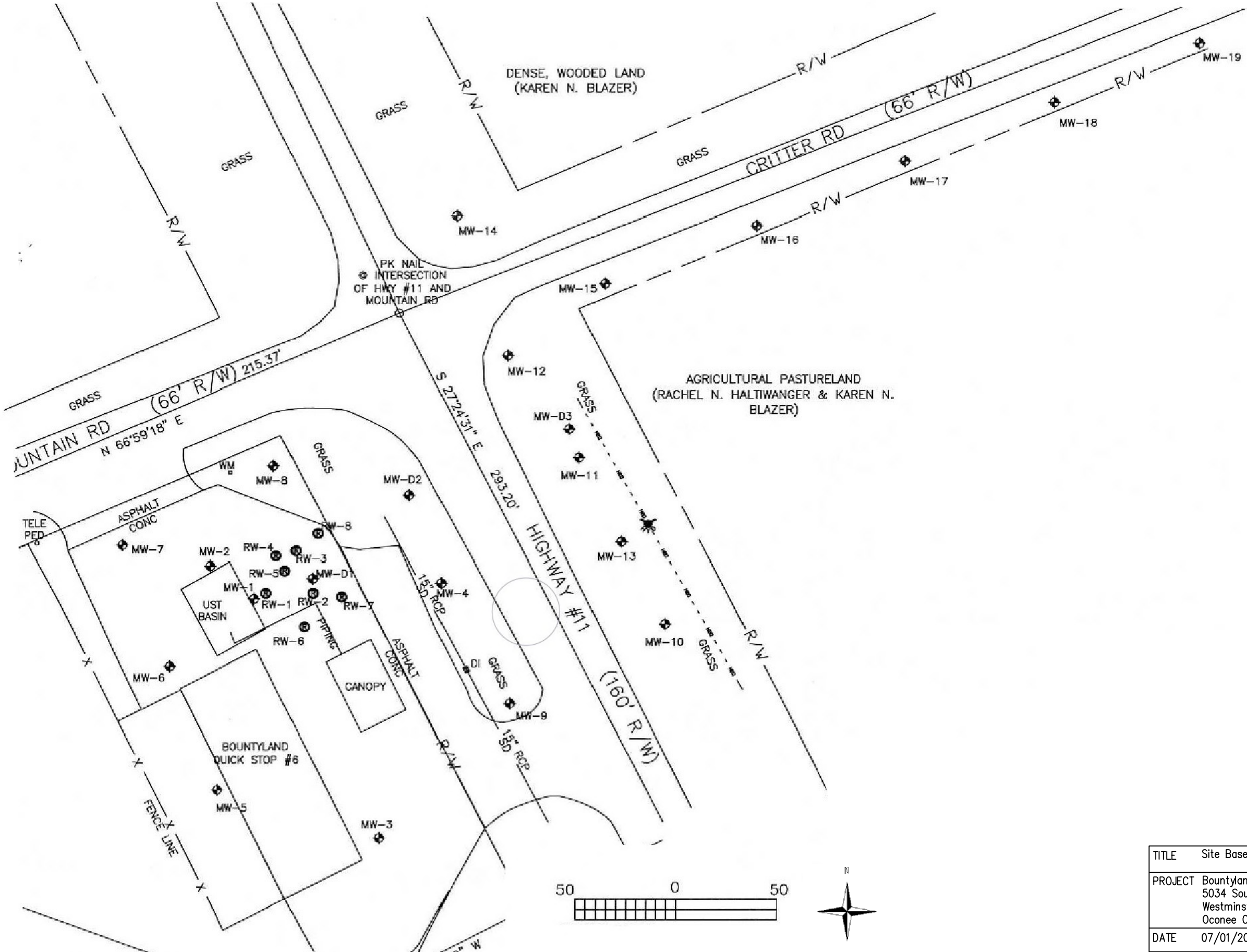
● Approximate Site Location

N

Title	Topographic Site Location Map
Project	Bountyland Quick Stop 6 (UST Permit #06711) 5034 South Highway 11 Westminster, South Carolina Oconee County
Date	07/01/2018
Job No.	J18-582-A

petra-tech ENVIRONMENTAL, LLC ENGINEERS & CONSULTANTS

Figure No. 1



TITLE	Site Base Map
PROJECT	Bountyland Quick Stop 6 (UST Permit #06711) 5034 South Highway 11 Westminster, South Carolina Oconee County
DATE	07/01/2018
JOB NO.	J17-582-A

petra-tech ENVIRONMENTAL, LLC
ENGINEERS & CONSULTANTS

Figure No. 2

BOUNTYLAND QUICK STOP 6 – UST PERMIT #06711
LONG-TERM AFVR/MMPE EVENT

ATTACHMENT A

AFVR / MMPE Field Measurements & Emissions Calculations

Bountyland Quick Stop 6 - UST Permit #06711

06711-RW01, 06711-RW02, & 06711-RW06

		Extraction Wells						Radius of Influence Monitoring						Emissions Field Measurements								Emission Calculations								
		06711-RW01		06711-RW02		06711-RW06		06711-RW08			06711-MW01			System Vacuum	Effluent Velocity	Pipe Diameter	Effluent Temp.	Relative Humidity	Vapor Conc. Pre-Treatment	Vapor Conc. Post Treatment	Elapsed Time	Q_{std}	PPM_d	PPM_c	K	C_{cm}	C_c	PMR_c	PMR_g	PMR_g
Date	Time	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Vacuum (in. H2O)	DTP (ft BTOC)	DTW (ft BTOC)	Vacuum (in. HG)	DTP (ft BTOC)	DTW (ft BTOC)	(in. HG)	(ft/min)	(in)	(F)	(%)	(ppm)	(ppm)	(hours)	(DSCFM)				(mg/dsm3)	(lb/dscf)	(lb/hr)	(lb/hr)	(gal/hr)
6/20/2018	1430	30.0	17.0	31.0	17.0	29.0	16.0	0.5	28.48	29.53	0.0	28.53	28.80	22.0	1,549	2	138.5	52.0	5,000.0	10.1	0.0	23.78	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.1144	1.2897	0.2064
	1500	30.0	19.0	31.0	19.0	29.0	19.0	1.0	28.49	29.68	1.0	28.52	28.96	23.0	1,621	2	148.1	49.6	5,000.0	12.3	0.5	24.50	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.1478	1.3284	0.2125
	1530	30.0	19.0	31.0	19.0	30.0	19.0	1.0	28.61	29.92	1.0	28.42	29.38	24.0	1,936	2	152.6	47.1	5,000.0	16.8	1.0	29.04	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.3608	1.5748	0.2520
	1600	30.0	19.0	31.0	19.0	30.0	19.0	1.0	28.86	31.84	1.0	28.41	30.16	24.0	1,451	2	156.1	53.8	5,000.0	14.1	1.5	21.64	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.0141	1.1736	0.1878
	1630	30.5	19.0	31.0	19.0	30.5	19.0	1.0	28.86	31.85	2.0	28.65	30.47	25.0	1,782	2	157.2	49.2	4,327.0	9.8	2.0	26.53	5,424.00	21,695.99	4	10,825.46	6.76E-04	1.0759	1.2451	0.1992
	1700	31.0	19.0	31.0	20.0	31.0	20.0	1.5	28.89	31.87	2.0	29.37	30.68	24.0	1,647	2	156.0	48.7	4,116.0	3.7	2.5	24.57	5,159.50	20,638.02	4	10,297.57	6.43E-04	0.9477	1.0968	0.1755
	1730	31.5	18.5	31.5	20.0	31.5	20.0	1.5	28.92	31.89	3.0	29.61	30.92	25.0	1,813	2	156.3	46.1	3,847.0	12.4	3.0	27.03	4,822.31	19,289.22	4	9,624.58	6.01E-04	0.9746	1.1279	0.1805
	1800	32.0	19.0	32.0	20.5	32.0	20.0	1.5	28.97	31.96	3.0	29.84	31.47	25.0	1,921	2	156.5	44.3	4,297.0	18.1	3.5	28.63	5,386.39	21,545.57	4	10,750.41	6.71E-04	1.1531	1.3344	0.2135
	1830	32.5	19.0	32.5	20.5	32.5	20.0	1.0	28.96	31.96	3.0	29.99	31.68	24.0	1,807	2	157.8	41.6	3,849.0	9.6	4.0	26.88	4,824.81	19,299.25	4	9,629.58	6.01E-04	0.9695	1.1220	0.1795
	1900	33.0	18.5	33.0	20.5	33.0	20.0	1.0	28.99	31.97	3.0	30.06	31.99	25.0	1,705	2	158.0	39.7	3,761.0	18.0	4.5	25.35	4,714.50	18,858.01	4	9,409.42	5.87E-04	0.8936	1.0341	0.1655
	1930	33.5	19.0	33.5	20.5	33.5	20.5	1.0	28.99	31.98	3.0	30.09	32.00	24.0	1,709	2	158.0	36.1	5,000.0	16.1	5.0	25.41	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.1907	1.3780	0.2205
	2000	34.0	19.0	34.0	20.5	34.0	20.5	1.0	29.01	31.98	3.0	30.11	32.01	23.0	1,835	2	158.0	37.4	5,000.0	12.0	5.5	27.29	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.2785	1.4796	0.2367
	2030	34.5	19.0	34.5	21.0	34.5	20.0	1.5	29.07	32.07	3.0	30.19	32.14	24.0	1,741	2	159.3	39.7	4,721.0	14.7	6.0	25.83	5,917.89	23,671.54	4	11,811.19	7.37E-04	1.1429	1.3227	0.2116
	2100	35.0	19.0	35.0	21.0	35.0	20.0	1.5	29.09	32.11	3.0	30.25	32.26	24.0	1,602	2	158.2	36.8	3,846.0	9.6	6.5	23.81	4,821.05	19,284.21	4	9,622.08	6.01E-04	0.8583	0.9933	0.1589
	2130	35.0	19.0	35.0	21.0	35.0	20.0	1.5	29.13	32.15	3.0	30.61	32.84	24.0	1,796	2	157.6	30.1	4,251.0	7.2	7.0	26.72	5,328.73	21,314.92	4	10,635.32	6.64E-04	1.0646	1.2321	0.1971
	2200	35.5	19.0	35.5	21.0	35.5	20.0	1.5	29.18	32.38	3.0	30.77	32.97	24.0	1,647	2	158.9	32.8	3,811.0	10.4	7.5	24.45	4,777.18	19,108.72	4	9,534.51	5.95E-04	0.8734	1.0108	0.1617
	2230	36.0	19.0	36.0	21.0	36.0	21.0	1.5	29.14	32.41	3.0	31.16	33.05	25.0	1,461	2	159.3	39.1	3,967.0	16.1	8.0	21.68	4,972.73	19,890.92	4	9,924.80	6.20E-04	0.8059	0.9327	0.1492
	2300	36.0	20.0	36.0	21.0	36.0	20.5	1.5	29.24	32.47	3.0	31.39	33.17	25.0	1,382	2	158.2	36.5	3,845.0	13.2	8.5	20.54	4,819.80	19,279.20	4	9,619.57	6.01E-04	0.7402	0.8567	0.1371
	2330	36.0	20.0	36.0	21.0	36.0	20.5	1.5	29.27	32.61	3.0	31.84	33.48	25.0	1,680	2	156.2	37.1	3,761.0	8.4	9.0	25.05	4,714.50	18,858.01	4	9,409.42	5.87E-04	0.8830	1.0220	0.1635
	2400	36.0	20.0	36.0	21.0	36.0	20.5	1.5	29.28	32.65	3.0	32.07	33.61	26.0	1,759	2	158.5	34.3	3,924.0	7.6	9.5	26.13	4,918.83	19,675.31	4	9,817.22	6.13E-04	0.9611	1.1122	0.1780
No readings recorded between 2400 and 0800																														
6/21/2018	0800	33.5	19.0	33.5	18.0	33.5	19.0	1.0	29.76	32.71	2.0	32.39	33.80	27.0	1,921	2	147.6	62.8	5,000.0	16.8	17.5	29.05	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.3614	1.5755	0.2521
	0900	33.5	18.0	33.5	18.5	33.5	19.0	1.5	29.84	32.76	2.0	32.61	33.84	26.0	1,741	2	152.3	47.9	4,961.0	12.5	18.5	26.13	6,218.73	24,874.93	4	12,411.63	7.75E-04	1.2148	1.4059	0.2249
	1000	33.5	18.0	33.5	21.0	33.5	19.5	1.5	29.36	32.81	3.0	32.82	34.21	23.0	1,581	2	202.6	36.8	5,000.0	26.9	19.5	21.93	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.0274	1.1890	0.1902
	1100	33.5	18.0	33.5	21.0	33.5	19.0	1.5	29.89	32.84	3.0	32.96	34.26	24.0	1,481	2	207.8	35.1	5,000.0	19.4	20.5	20.38	6,267.62	25,070.48	4	12,509.20	7.81E-04	0.9549	1.1051	0.1768
	1200	33.5	19.0	33.5	20.0	33.5	19.0	1.5	29.90	32.89	3.0	33.00	34.32	25.0	1,486	2	217.2	32.8	5,000.0	12.7	21.5	20.16	6,267.62	25,070.48	4	12,509.20	7.81E-04	0.9449	1.0935	0.1750
	1300	33.5	19.0	33.5	20.0	33.5	19.0	1.5	29.93	32.91	3.0	33.01	34.36	25.0	1,682	2	206.1	36.8	3,479.0	13.1	22.5	23.20	4,361.01	17,444.04	4	8,703.90	5.43E-04	0.7565	0.8756	0.1401
	1400	33.5	19.0	33.5	20.0	33.5	19.0	1.5	29.96	32.93	3.0	33.04	34.88	25.0	1,450	2	209.8	21.4	4,617.0	19.8	23.5	19.89	5,787.52	23,150.08	4	11,550.99	7.21E-04	0.8607	0.9961	0.1594
	1500	33.5	15.0	33.5	20.0	33.5	19.0	1.5	30.00	33.02	4.0	33.01	34.11	23.0	2,327	2	195.4	19.9	5,000.0	4.0	24.5	32.63	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.5288	1.7693	0.2831
	1600	33.5	19.0	33.5	16.0	33.5	15.0	0.5	30.00	32.99	3.0	31.96	33.09	23.0	1,649	2	126.8	53.8	3,956.0	16.4	25.5	25.82	4,958.94	19,835.76	4	9,897.28	6.18E-04	0.9574	1.1080	0.1773
	1700	33.5	19.0	33.5	20.0	33.5	20.0	0.5	29.98	32.92	6.0	32.75	33.96	23.0	2,079	2	164.6	54.7	3,251.0	29.5	26.5	30.59	4,075.21	16,300.82	4	8,133.48	5.08E-04	0.9319	1.0785	0.1726
	1800	33.5	17.0	33.5	20.0	33.5	17.0	0.5	30.06	33.97	2.0	33.10	34.26	23.0	1,861	2	146.3	61.8	4,835.0	43.6	27.5	28.21	6,060.79	24,243.15	4	12,096.40	7.55E-04	1.2781	1.4791	0.2367
	1900	33.5	17.0	33.5	20.0	33.5	17.0	0.5	30.00	33.46	2.0	33.00	34.20	23.0	1,932	2	132.2	62.9	4,935.0	67.1	28.5	29.98	6,186.14	24,744.56	4	12,346.58	7.71E-04	1.3865	1.6046	0.2567
	2000	33.5	17.0	33.5	20.0	33.5	17.0	0.5	31.00	33.11	2.0	33.21	34.22	23.0	1,852	2	166.8	34.2	4,628.0	74.1	29.5	27.15	5,801.31	23,205.23	4	11,578.51	7.23E-04	1.1776	1.3628	0.2181
	2100	33.5	17.0	33.5	21.0	33.5	17.0	0.5	30.16	33.20	2.0	33.21	34.42	23.0	1,854	2	156.5	55.0	4,612.0	61.6	30.5	27.64	5,781.25	23,125.01	4	11,538.48	7.20E-04	1.1944	1.3823	0.2212
	2200	33.5	17.0	33.5	21.0	33.5	17.0	0.5	30.21	33.25	2.0	33.22	34.44	23.0	2,079	2	161.4	40.7	4,872.0	67.3	31.5	30.74	6,107.17	24,428.67	4	12,188.96	7.61E-04	1.4037	1.6245	0.2599
	2300	33.5	17.0	33.5	21.0	33.5	17.0	0.5	30.36	33.30	2.0	33.24	34.46	23.0	2,132	2	170.6	43.8	3,958.0	69.2	32.5	31.07	4,961.45	19,845.79	4	9,902.28	6.18E-04	1.1524	1.3337	0.2134
	2400	33.5	17.0	33.5	21.0	33.5	17.0	0.5	30.48	33.36	2.0	33.24	34.49	23.0	2,322	2	160.3	42.4	4,215.0	52.3	33.5	34.40	5,283.60	21,134.41	4	10,545.25	6.58E-04	1.3588	1.5725	0.2516
No readings recorded between 2400 and 0800																														

Date	Time	06711-RW01 Stinger Depth (feet)	06711-RW01 Vacuum (in. HG)	06711-RW02 Stinger Depth (feet)	06711-RW02 Vacuum (in. HG)	06711-RW06 Stinger Depth (feet)	06711-RW06 Vacuum (in. HG)	06711-RW08 Vacuum (in. H2O)	06711-RW08 DTP (ft BTOC)	06711-RW08 DTW (ft BTOC)	06711-MW01 Vacuum (in. H2O)	06711-MW01 DTP (ft BTOC)	06711-MW01 DTW (ft BTOC)	System Vacuum (in. HG)	Effluent Velocity (ft/min)	Pipe Diameter (in)	Effluent Temp. (F)	Relative Humidity (%)	Vapor Conc. Pre-Treatment (ppm)	Vapor Conc. Post Treatment (ppm)	Elapsed Time (hours)	Q_{std} (DSCFM)	PPM_d	PPM_c	K	C_{cm} (mg/dsm3)	C_c (lb/dscf)	PMR_c (lb/hr)	PMR_g (lb/hr)	PMR_g (gal/hr)
6/22/2018	0800	33.5	18.0	33.5	21.0	33.5	21.0	0.5	30.47	33.34	2.0	33.25	34.51	25.0	1,968	2	184.2	41.6	3,127.0	33.1	41.5	28.07	3,919.77	15,679.08	4	7,823.25	4.88E-04	0.8227	0.9521	0.1523
	1000	33.0	19.0	33.0	21.0	33.0	21.0	0.5	30.48	33.34	3.0	33.25	34.52	23.0	1,761	2	172.8	40.6	5,000.0	24.8	43.5	25.57	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.1983	1.3868	0.2219
	1200	34.0	19.0	34.0	20.5	34.0	19.0	1.5	30.49	33.35	3.0	33.27	34.50	23.0	2,015	2	176.8	42.7	5,000.0	18.7	45.5	29.08	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.3625	1.5768	0.2523
	1400	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.49	33.35	3.0	33.27	34.50	23.0	2,326	2	170.4	43.4	5,000.0	20.2	47.5	33.91	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.5888	1.8387	0.2942
	1600	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.47	33.33	3.0	33.24	34.47	23.0	2,232	2	169.6	42.8	5,000.0	21.4	49.5	32.58	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.5265	1.7666	0.2827
	1800	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.44	33.30	3.0	33.22	34.45	23.0	2,238	2	164.4	43.4	5,000.0	22.6	51.5	32.94	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.5433	1.7861	0.2858
	2000	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.44	33.30	3.0	33.22	34.45	23.0	2,241	2	167.0	44.6	3,256.0	23.4	53.5	32.84	4,081.47	16,325.89	4	8,145.99	5.09E-04	1.0022	1.1598	0.1856
	2200	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.46	33.28	3.0	33.20	34.44	23.0	2,236	2	168.4	46.3	4,986.0	22.8	55.5	32.70	6,250.07	25,000.28	4	12,474.17	7.79E-04	1.5278	1.7682	0.2829
	2400	34.5	19.0	34.5	21.0	34.5	18.0	1.5	30.45	33.24	3.0	33.16	34.42	23.0	2,246	2	170.3	45.2	4,687.0	22.4	57.5	32.75	5,875.27	23,501.06	4	11,726.12	7.32E-04	1.4383	1.6646	0.2663
No readings recorded between 2400 and 0800																														
6/23/2018	0800	34.5	17.0	34.5	20.0	34.5	18.0	0.5	30.40	33.48	5.0	33.24	34.42	23.0	2,342	2	160.4	46.4	3,694.0	24.6	65.5	34.69	4,630.52	18,522.07	4	9,241.80	5.77E-04	1.2009	1.3898	0.2224
	1000	34.5	17.0	34.5	20.0	34.5	18.0	0.5	30.40	33.46	5.0	33.28	34.41	23.0	2,406	2	162.0	47.2	5,000.0	24.8	67.5	35.55	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.6656	1.9276	0.3084
	1200	34.5	18.5	34.5	21.5	34.5	17.0	1.5	30.42	33.60	3.0	33.47	34.51	23.0	2,614	2	168.0	45.6	4,726.0	26.7	69.5	38.25	5,924.15	23,696.61	4	11,823.69	7.38E-04	1.6941	1.9606	0.3137
	1400	34.5	18.5	34.5	21.5	34.5	17.0	1.5	30.49	33.77	3.0	33.61	34.72	23.0	2,983	2	172.9	43.7	4,172.0	23.1	71.5	43.31	5,229.70	20,918.81	4	10,437.68	6.52E-04	1.6934	1.9598	0.3136
	1600	34.5	18.5	34.5	21.5	34.5	17.0	1.5	30.51	33.29	3.0	33.80	34.97	23.0	2,712	2	176.8	50.1	3,861.0	22.8	73.5	39.14	4,839.86	19,359.42	4	9,659.60	6.03E-04	1.4161	1.6388	0.2622
	1800	34.5	18.5	34.5	21.5	34.5	17.0	1.5	30.57	33.81	3.0	33.95	35.08	23.0	2,317	2	171.2	48.2	4,967.0	24.7	75.5	33.73	6,226.25	24,905.01	4	12,426.64	7.76E-04	1.5702	1.8172	0.2907
	2000	35.0	18.5	35.0	21.0	35.0	18.0	1.5	30.54	33.82	3.0	33.97	35.09	23.0	2,146	2	167.1	46.1	5,000.0	23.6	77.5	31.45	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.4735	1.7053	0.2728
	2200	35.0	18.0	35.0	21.0	35.0	17.0	1.5	30.59	33.84	2.0	33.98	35.12	23.0	1,937	2	173.8	44.8	5,000.0	27.1	79.5	28.08	6,267.62	25,070.48	4	12,509.20	7.81E-04	1.3160	1.5230	0.2437
	2400	35.0	18.0	35.0	21.5	35.0	18.0	1.5	30.60	33.86	2.0	33.99	35.11	23.0	1,846	2	169.5	42.9	3,827.0	19.8	81.5	26.95	4,797.24	19,188.94	4	9,574.54	5.98E-04	0.9665	1.1185	0.1790
No readings recorded between 2400 and 0800																														
6/24/2018	0800	35.5	18.0	35.5	20.0	35.5	18.0	1.5	30.61	33.87	3.0	34.02	35.21	23.0	1,852	2	176.3	45.3	4,965.0	15.2	89.5	26.75	6,223.75	24,894.98	4	12,421.63	7.75E-04	1.2445	1.4403	0.2304
	1000	35.5	18.5	35.5	20.0	35.5	18.0	1.5	30.60	33.89	3.0	34.01	35.26	23.0	2,634	2	165.2	49.6	3,647.0	18.4	91.5	38.72	4,571.60	18,286.41	4	9,124.21	5.70E-04	1.3232	1.5313	0.2450
	1200	35.5	18.0	35.5	21.0	35.5	18.0	1.5	30.60	33.90	3.0	34.06	35.24	22.0	2,153	2	158.3	45.2	2,594.0	13.6	93.5	32.00	3,251.64	13,006.56	4	6,489.77	4.05E-04	0.7779	0.9002	0.1440
	1400	36.0	18.0	36.0	20.5	36.0	18.0	1.5	30.62	33.90	3.0	34.09	35.26	22.0	2,534	2	163.7	52.1	3,648.0	11.2	95.5	37.34	4,572.85	18,291.42	4	9,126.71	5.70E-04	1.2764	1.4772	0.2363
	1430	36.0	18.0	36.0	20.5	36.0	18.0	1.5	30.65	33.91	3.0	34.15	35.29	22.0	2,113	2	152.8	40.2	4,973.0	12.5	96.0	31.69	6,233.77	24,935.10	4	12,441.65	7.77E-04	1.4767	1.7090	0.2734
											Average Values				1,952	2	165.4	43.5	4412.9	22.4	--	28.70	5,531.63	22,126.53	4.00	11040.29	0.000689	1.1868	1.3735	0.2198
														B_{ws}	0.202	B_{wsw}	0.122													

Total Pounds of Carbon (emissions) 113.9361

Total Pounds of Gasoline (as emissions) 131.8587

Total Gallons of Gasoline (as emissions) 21.0974

NOTES:

inches of Hg - inches of mercury

ppm - parts per million

Q_{std} - flow at DSCFM

DSCFM - Dry Standard Cubic Feet per Minute

PPM_d - "dry" concentration

PPM_c - volumetric concentration of VOC emissions as carbon, dry basis, at STP

K - number of carbons in calibration gas

C_{cm} - mass concentration of VOC emissions as carbon

PMR_c - pollutant mass removal of VOCs as carbon

PMR_g - pollutant mass removal of VOCs as gasoline

B_{wsw} - lb of water per lb of dry air

B_{ws} - water vapor % by volume

Extraction Well Information					
Extraction Well ID	**Time**	**Depth to Free-Product (feet BTOC)**	**Depth to Water (feet BTOC)**	**Total Well Depth (feet BTOC)**	**Target Stinger Depth (feet BTOC)**
06711-RW01	Initial	28.53	29.76	40	36
	Post	--	33.91		
06711-RW02	Initial	28.58	31.08	40	36
	Post	--	34.11		
06711-RW06	Initial	--	29.03	40	36
	Post	--	34.90		

BOUNTYLAND QUICK STOP 6 – UST PERMIT #06711
LONG-TERM AFVR/MMPE EVENT

ATTACHMENT B

AFVR / MMPE Field Measurements & Emissions Calculations

Bountyland Quick Stop 6 - UST Permit #06711

06711-RW03, 06711-RW04, & 06711-RW08

		Extraction Wells						Radius of Influence Monitoring						Emissions Field Measurements								Emission Calculations								
		06711-RW03		06711-RW04		06711-RW08		06711-RW07			06711-MW08			System Vacuum	Effluent Velocity	Pipe Diameter	Effluent Temp.	Relative Humidity	Vapor Conc. Pre-Treatment	Vapor Conc. Post Treatment	Elapsed Time	Q_{std}	PPM_d	PPM_c	K	C_{cm}	C_c	PMR_c	PMR_g	PMR_g
Date	Time	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Vacuum (in. H2O)	DTP (ft BTOC)	DTW (ft BTOC)	Vacuum (in. H2O)	DTP (ft BTOC)	DTW (ft BTOC)	(in. HG)	(ft/min)	(in)	(F)	(%)	(ppm)	(ppm)	(hours)	(DSCFM)				(mg/dsm3)	(lb/dscf)	(lb/hr)	(lb/hr)	(gal/hr)
	1500	31.0	16.0	31.0	20.0	31.0	14.5	0.0	-	33.31	0.0	-	28.63	24.0	2,313	2	155.4	39.6	1,261.0	14.9	0.0	35.18	1,551.67	6,206.69	4	3,096.90	1.93E-04	0.4082	0.4724	0.0756
	1530	31.0	16.0	31.0	20.0	31.0	15.0	1.0	-	33.16	0.0	-	28.64	25.0	2,011	2	156.8	46.8	5,000.0	13.9	0.5	30.52	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.4039	1.6247	0.2600
	1600	31.5	16.0	31.5	20.0	31.5	14.5	1.0	-	33.01	0.0	-	28.70	26.0	1,987	2	159.7	37.2	5,000.0	18.6	1.0	30.02	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.3806	1.5978	0.2557
	1630	31.5	16.0	31.5	20.0	31.5	15.0	1.0	-	33.00	0.0	-	28.71	26.0	1,652	2	162.8	36.1	5,000.0	17.1	1.5	24.83	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.1422	1.3218	0.2115
	1700	32.0	16.0	32.0	20.0	32.0	15.0	1.5	-	32.99	0.0	-	28.75	26.0	2,061	2	169.1	35.8	2,961.0	12.8	2.0	30.67	3,643.54	14,574.16	4	7,271.94	4.54E-04	0.8354	0.9668	0.1547
	1730	32.0	16.0	32.0	20.0	32.0	15.5	1.5	-	32.98	0.5	-	28.77	25.0	1,952	2	165.6	36.9	3,817.0	9.6	2.5	29.21	4,696.86	18,787.43	4	9,374.20	5.85E-04	1.0256	1.1870	0.1899
	1800	32.5	17.0	32.5	20.0	32.5	15.5	2.0	-	32.97	0.5	-	28.79	25.0	2,112	2	163.2	39.2	1,911.0	1.3	3.0	31.73	2,351.50	9,406.02	4	4,693.24	2.93E-04	0.5577	0.6455	0.1033
	1830	33.0	17.0	33.0	21.0	33.0	15.5	3.0	-	32.94	0.5	-	28.81	25.0	2,114	2	165.1	36.1	2,006.0	13.7	3.5	31.66	2,468.40	9,873.61	4	4,926.55	3.08E-04	0.5842	0.6761	0.1082
	1900	33.5	17.0	33.5	21.0	33.5	15.5	3.0	-	32.93	0.5	-	28.82	25.0	2,012	2	168.6	30.8	5,000.0	16.1	4.0	29.96	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.3782	1.5950	0.2552
6/24/2018	1930	34.0	17.0	34.0	21.0	34.0	15.5	3.0		32.91	0.5	-	28.82	25.0	2,000	2	172.1	32.7	2,216.0	15.0	4.5	29.62	2,726.81	10,907.24	4	5,442.29	3.40E-04	0.6038	0.6988	0.1118
	2000	34.0	17.0	34.0	21.0	34.0	15.5	3.0	-	32.91	1.0	-	28.83	26.0	2,311	2	168.2	26.1	2,961.0	19.9	5.0	34.44	3,643.54	14,574.16	4	7,271.94	4.54E-04	0.9381	1.0856	0.1737
	2030	34.5	17.0	34.5	23.0	34.5	15.5	3.0	-	32.97	1.0	-	28.84	26.0	2,113	2	173.8	30.8	2,457.0	16.8	5.5	31.21	3,023.36	12,093.45	4	6,034.17	3.77E-04	0.7054	0.8164	0.1306
	2100	34.5	17.0	34.5	22.0	34.5	16.0	3.0	-	32.99	1.0	-	28.85	25.0	2,684	2	175.2	36.9	2,177.0	14.7	6.0	39.56	2,678.82	10,715.28	4	5,346.51	3.34E-04	0.7922	0.9168	0.1467
	2130	35.0	17.0	35.0	22.0	35.0	16.0	3.0	-	32.90	1.0	-	28.85	25.0	2,711	2	174.9	32.1	2,384.0	17.8	6.5	39.97	2,933.54	11,734.14	4	5,854.88	3.66E-04	0.8766	1.0145	0.1623
	2200	35.0	17.0	35.0	21.0	35.0	16.0	3.5	-	32.87	1.0	-	28.85	25.0	2,543	2	170.6	36.8	2,961.0	9.6	7.0	37.75	3,643.54	14,574.16	4	7,271.94	4.54E-04	1.0283	1.1901	0.1904
	2230	35.5	17.0	35.5	21.0	35.5	16.0	3.5	-	32.81	1.0	-	28.86	25.0	2,961	2	178.9	40.9	2,180.0	12.1	7.5	43.39	2,682.51	10,730.05	4	5,353.88	3.34E-04	0.8701	1.0069	0.1611
	2300	36.0	16.5	36.0	22.0	36.0	16.0	3.5	-	32.84	1.0	-	28.86	25.0	2,777	2	175.6	38.2	2,011.0	13.4	8.0	40.90	2,474.56	9,898.22	4	4,938.83	3.08E-04	0.7567	0.8757	0.1401
	2330	36.0	17.0	36.0	21.0	36.0	16.0	3.5	-	32.84	1.0	-	28.85	25.0	2,453	2	174.3	35.1	2,039.0	18.6	8.5	36.20	2,509.01	10,036.04	4	5,007.60	3.13E-04	0.6791	0.7859	0.1257
	2400	36.0	17.0	36.0	21.0	36.0	16.0	3.5	-	32.91	1.0	-	28.85	25.0	2,718	2	170.1	37.3	2,697.0	12.6	9.0	40.38	3,318.69	13,274.74	4	6,623.58	4.14E-04	1.0019	1.1595	0.1855
No readings recorded between 2400 and 0800																														
	0800	34.0	17.0	34.0	21.0	34.0	16.0	4.0	-	33.01	1.0	-	28.92	25.0	2,684	2	169.7	39.4	5,000.0	21.6	17.0	39.90	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.8353	2.1240	0.3398
	0900	34.0	17.0	34.0	21.0	34.0	16.0	3.5	-	33.02	1.0	-	28.94	25.0	2,450	2	170.6	36.8	5,000.0	16.8	18.0	36.37	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.6729	1.9361	0.3098
	1000	34.0	19.0	34.0	22.0	34.0	20.0	3.5	-	33.05	1.0	-	28.99	25.0	2,377	2	172.4	39.6	5,000.0	14.9	19.0	35.19	6,152.55	24,610.20	4	12,279.54	7.67E-04	1.6185	1.8730	0.2997
	1100	34.0	20.0	34.0	22.0	34.0	19.0	3.5	-	33.07	1.0	-	29.05	25.0	1,977	2	176.8	42.7	4,217.0	12.8	20.0	29.06	5,189.06	20,756.24	4	10,356.56	6.47E-04	1.1275	1.3048	0.2088
	1200	34.0	19.0	34.0	21.0	34.0	19.0	2.0	-	33.09	1.0	-	29.08	26.0	1,271	2	164.1	36.8	399.5	11.2	21.0	19.06	491.59	1,966.36	4	981.14	6.13E-05	0.0701	0.0811	0.0130
	1300	34.0	19.0	34.0	22.0	34.0	15.5	2.0	-	33.10	0.5	-	29.13	26.0	1,846	2	169.8	29.1	683.1	9.6	22.0	27.44	840.56	3,362.25	4	1,677.63	1.05E-04	0.1724	0.1996	0.0319
	1400	34.0	19.0	34.0	21.0	34.0	17.0	2.0	-	33.10	0.5	-	29.14	26.0	2,011	2	173.8	32.4	1,061.0	19.1	23.0	29.70	1,305.57	5,222.28	4	2,605.72	1.63E-04	0.2899	0.3355	0.0537
	1500	34.0	19.0	34.0	21.0	34.0	18.0	2.0	-	33.10	0.5	-	29.15	26.0	2,459	2	179.6	37.1	897.0	17.8	24.0	35.99	1,103.77	4,415.07	4	2,202.95	1.38E-04	0.2970	0.3437	0.0550
6/25/2018	1600	34.0	19.0	34.0	21.5	34.0	17.5	2.0	-	33.10	0.5	-	29.17	26.0	2,211	2	180.1	39.8	1,459.0	25.6	25.0	32.34	1,795.31	7,181.26	4	3,583.17	2.24E-04	0.4340	0.5023	0.0804
	1700	34.0	19.0	34.0	21.0	34.0	18.0	2.0	-	33.10	0.5	-	29.17	26.0	2,014	2	184.6	41.6	1,241.0	16.9	26.0	29.25	1,527.06	6,108.25	4	3,047.78	1.90E-04	0.3339	0.3864	0.0618
	1800	34.0	19.0	34.0	21.0	34.0	17.0	2.0	-	33.10	0.5	-	29.18	27.0	2,000	2	176.8	49.8	1,068.0	11.1	27.0	29.40	1,314.18	5,256.74	4	2,622.91	1.64E-04	0.2889	0.3343	0.0535
	1900	34.0	18.0	34.0	20.5	34.0	18.0	2.0	-	33.17	0.5	-	29.19	28.0	2,011	2	174.8	68.7	1,897.0	15.1	28.0	29.66	2,334.28	9,337.11	4	4,658.86	2.91E-04	0.5175	0.5989	0.0958
	2000	34.0	18.0	34.0	20.0	34.0	18.0	2.0	-	33.19	0.5	-	29.22	28.0	2,468	2	162.1	64.5	987.0	3.8	29.0	37.14	1,214.51	4,858.05	4	2,423.98	1.51E-04	0.3372	0.3902	0.0624
	2100	34.0	18.0	34.0	21.0	34.0	18.0	2.0	-	33.22	0.5	-	29.24	28.0	2,138	2	158.9	52.1	1,146.0	6.9	30.0	32.34	1,410.16	5,640.66	4	2,814.47	1.76E-04	0.3409	0.3946	0.0631
	2200	34.0	17.5	34.0	21.5	34.0	18.0	2.0	-	33.27	0.5	-	29.25	28.0	2,477	2	158.6	49.6	1,387.0	13.8	31.0	37.48	1,706.72	6,826.87	4	3,406.34	2.13E-04	0.4783	0.5535	0.0886
	2300	34.0	17.0	34.0	22.0	34.0	18.0	2.0	-	33.29	0.5	-	29.26	28.0	2,009	2	161.2	47.8	1,001.0	21.6	32.0	30.28	1,231.74	4,926.96	4	2,458.36	1.53E-04	0.2788	0.3226	0.0516
	2400	34.0	18.0	34.0	22.0	34.0	18.0	2.0	-	33.36	0.5	-	29.26	28.0	1,986	2	160.5	45.6	846.0	19.7	33.0	29.96	1,041.01	4,164.05	4	2,077.70	1.30E-04	0.2332	0.2699	0.0432
No readings recorded between 2400 and 0800																														

Date	Time	06711-RW03 Stinger Depth (feet)	06711-RW03 Vacuum (in. HG)	06711-RW04 Stinger Depth (feet)	06711-RW04 Vacuum (in. HG)	06711-RW08 Stinger Depth (feet)	06711-RW08 Vacuum (in. HG)	06711-RW07 Vacuum (in. H2O)	06711-RW07 DTP (ft BTOC)	06711-RW07 DTW (ft BTOC)	06711-MW08 Vacuum (in. H2O)	06711-MW08 DTP (ft BTOC)	06711-MW08 DTW (ft BTOC)	System Vacuum (in. HG)	Effluent Velocity (ft/min)	Pipe Diameter (in)	Effluent Temp. (F)	Relative Humidity (%)	Vapor Conc. Pre-Treatment (ppm)	Vapor Conc. Post Treatment (ppm)	Elapsed Time (hours)	Q_{std} (DSCFM)	PPM_d	PPM_c	K	C_{cm} (mg/dsm3)	C_c (lb/dscf)	PMR_c (lb/hr)	PMR_g (lb/hr)	PMR_g (gal/hr)
6/26/2018	0800	34.0	17.0	34.0	21.5	34.0	15.5	2.5	-	33.32	0.5	-	29.28	25.0	3,728	2	172.1	24.1	2,477.0	41.7	41.0	55.21	3,047.97	12,191.89	4	6,083.28	3.80E-04	1.2581	1.4560	0.2330
	1000	31.0	16.0	31.0	19.0	31.0	15.0	2.0	-	33.32	0.5	-	29.28	26.0	3,472	2	173.6	30.8	4,015.0	49.6	43.0	51.30	4,940.50	19,761.99	4	9,860.47	6.16E-04	1.8947	2.1928	0.3508
	1200	31.0	17.0	31.0	20.0	31.0	17.0	3.0	-	33.31	0.5	-	29.29	25.0	3,268	2	179.2	36.2	5,000.0	89.1	45.0	47.86	6,152.55	24,610.20	4	12,279.54	7.67E-04	2.2014	2.5477	0.4076
	1400	31.5	19.5	31.5	22.5	31.5	16.5	3.0	-	33.30	0.5	-	29.29	26.0	4,654	2	175.1	40.5	1,177.0	195.6	47.0	68.60	1,448.31	5,793.24	4	2,890.60	1.80E-04	0.7428	0.8596	0.1375
	1600	31.5	19.0	31.5	22.5	31.5	16.0	3.0	-	33.23	0.5	-	29.29	26.0	1,844	2	147.3	31.8	973.5	192.1	49.0	28.42	1,197.90	4,791.61	4	2,390.83	1.49E-04	0.2546	0.2946	0.0471
	1800	31.5	17.0	31.5	22.5	31.5	16.0	3.0	-	33.26	0.5	-	29.35	26.0	1,832	2	142.7	32.4	843.4	96.4	51.0	28.46	1,037.81	4,151.25	4	2,071.31	1.29E-04	0.2208	0.2555	0.0409
	2000	31.5	18.0	31.5	23.0	31.5	16.0	3.0	-	33.28	0.5	-	29.36	26.0	1,180	2	143.4	33.5	777.2	82.2	53.0	18.31	956.35	3,825.41	4	1,908.73	1.19E-04	0.1309	0.1515	0.0242
	2200	31.5	18.0	31.5	23.0	31.5	16.0	3.0	-	33.29	0.5	-	29.36	26.0	2,617	2	156.1	33.9	797.0	77.2	55.0	39.76	980.72	3,922.87	4	1,957.36	1.22E-04	0.2915	0.3374	0.0540
	2400	31.5	18.0	31.5	23.0	31.5	16.0	3.0	-	33.29	0.5	-	29.36	26.0	2,778	2	158.2	37.8	841.0	97.6	57.0	42.07	1,034.86	4,139.44	4	2,065.42	1.29E-04	0.3255	0.3767	0.0603
No readings recorded between 2400 and 0800																														
6/27/2018	0800	31.5	17.0	31.5	22.5	31.5	16.0	2.5	-	33.09	0.5	-	29.37	26.0	2,961	2	147.1	39.6	746.0	84.7	65.0	45.66	917.96	3,671.84	4	1,832.11	1.14E-04	0.3133	0.3626	0.0580
	1000	32.0	17.0	32.0	22.0	32.0	16.0	2.5	-	33.10	0.5	-	29.39	26.0	2,567	2	152.8	40.8	849.0	61.6	67.0	39.21	1,044.70	4,178.81	4	2,085.07	1.30E-04	0.3063	0.3544	0.0567
	1200	33.0	19.5	33.0	22.0	33.0	16.5	2.0	-	33.06	0.5	-	29.42	25.0	5,012	2	172.2	37.2	709.6	25.7	69.0	74.22	873.17	3,492.68	4	1,742.71	1.09E-04	0.4845	0.5607	0.0897
	1400	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	33.01	0.5	-	29.43	25.0	3,849	2	176.1	32.8	647.0	24.6	71.0	56.64	796.14	3,184.56	4	1,588.97	9.92E-05	0.3371	0.3902	0.0624
	1600	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	33.01	0.5	-	29.42	25.0	3,742	2	175.3	33.7	712.0	24.1	73.0	55.14	876.12	3,504.49	4	1,748.61	1.09E-04	0.3612	0.4180	0.0669
	1800	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	32.99	0.5	-	29.40	25.0	3,841	2	174.9	33.4	706.0	25.4	75.0	56.63	868.74	3,474.96	4	1,733.87	1.08E-04	0.3678	0.4257	0.0681
	2000	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	32.96	0.5	-	29.29	25.0	3,946	2	175.8	33.6	704.0	26.2	77.0	58.10	866.28	3,465.12	4	1,728.96	1.08E-04	0.3763	0.4355	0.0697
	2200	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	32.95	0.5	-	29.28	25.0	3,876	2	176.0	33.5	708.0	24.3	79.0	57.05	871.20	3,484.80	4	1,738.78	1.09E-04	0.3716	0.4300	0.0688
	2400	33.5	19.5	33.5	22.0	33.5	16.5	1.5	-	32.93	0.5	-	29.26	25.0	3,821	2	173.3	33.1	720.0	26.4	81.0	56.48	885.97	3,543.87	4	1,768.25	1.10E-04	0.3741	0.4330	0.0693
No readings recorded between 2400 and 0800																														
6/28/2018	0800	33.5	19.0	33.5	22.0	33.5	16.5	1.5	-	32.91	0.5	-	29.24	25.0	4,257	2	175.2	39.5	327.0	13.5	89.0	62.74	402.38	1,609.51	4	803.08	5.01E-05	0.1887	0.2184	0.0349
	1000	34.0	19.0	34.0	22.0	34.0	16.0	2.0	-	32.90	0.5	-	29.22	25.0	3,694	2	171.6	35.2	698.0	19.2	91.0	54.75	858.90	3,435.58	4	1,714.22	1.07E-04	0.3516	0.4069	0.0651
	1200	34.0	19.5	34.0	22.0	34.0	16.0	2.0	-	32.90	0.5	-	29.23	25.0	3,972	2	165.2	36.0	892.0	11.2	93.0	59.47	1,097.61	4,390.46	4	2,190.67	1.37E-04	0.4880	0.5648	0.0904
	1400	34.5	19.5	34.5	22.0	34.5	16.0	1.5	-	32.91	0.5	-	29.23	25.0	3,625	2	178.0	39.4	953.0	15.5	95.0	53.19	1,172.68	4,690.70	4	2,340.48	1.46E-04	0.4663	0.5397	0.0863
	1500	34.5	19.0	34.5	21.0	34.5	16.0	1.5	-	32.91	0.5	-	29.22	25.0	3,861	2	179.5	35.7	658.0	13.4	96.0	56.52	809.68	3,238.70	4	1,615.99	1.01E-04	0.3421	0.3959	0.0633
Average Values															2,683	2	168.4	38.0	1970.5	31.3	--	39.89	2,424.72	9,698.86	4.00	4839.36	0.000302	0.7231	0.8369	0.1339
														B_{ws}	0.187	B_{wsw}	0.113													

Total Pounds of Carbon (emissions) 69.4183

Total Pounds of Gasoline (as emissions) 80.3380

Total Gallons of Gasoline (as emissions) 12.8541

NOTES:

inches of Hg - inches of mercury

ppm - parts per million

Q_{std} - flow at DSCFM

DSCFM - Dry Standard Cubic Feet per Minute

PPM_d - "dry" concentration

PPM_c - volumetric concentration of VOC emissions as carbon, dry basis, at STP

K - number of carbons in calibration gas

C_{cm} - mass concentration of VOC emissions as carbon

PMR_c - pollutant mass removal of VOCs as carbon

PMR_g - pollutant mass removal of VOCs as gasoline

B_{wsw} - lb of water per lb of dry air

B_{ws} - water vapor % by volume

Extraction Well Information					
Extraction Well ID	**Time**	**Depth to Free-Product (feet BTOC)**	**Depth to Water (feet BTOC)**	**Total Well Depth (feet BTOC)**	**Target Stinger Depth (feet BTOC)**
06711-RW03	Initial	29.52	30.68	40	36
	Post	--	33.28		
06711-RW04	Initial	--	30.87	40	36
	Post	--	34.21		
06711-RW08	Initial	28.65	31.08	40	36
	Post	--	32.97		

BOUNTYLAND QUICK STOP 6 – UST PERMIT #06711
LONG-TERM AFVR/MMPE EVENT

ATTACHMENT C

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

PETRA TECH ENV.
2435 E. NORTH ST. SUITE 1106-202
GREENVILLE, SC

Generator's Phone:

Generator's Site Address (if different than mailing address)

Bountyland Quickstop
5034 S HWY 11
WEST MINISTER, SC

6. Transporter 1 Company Name — U.S. EPA ID Number

T K TANK SERVICES, INC

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

T K TANK SERVICES INC.
425 BOULEVARD RD.
SUMTER, SC

Facility's Phone: 803-418-5314

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	nonhazardous petroleum contaminated water/product	T-1	VAC Truk	3279 ~~3000~~	90
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Trevor Z. Sink / Agent. — Signature — Month: 6 — Day: 22 — Year: 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit:

Transporter Signature (for exports only): — Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Willie Fortune — Signature: Willie Fortune — Month: 6 — Day: 22 — Year: 18

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Casey Wells Newman — Signature: Casey Wells Newman — Month: 6 — Day: 22 — Year: 2018

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

39742916

TICKET NUMBER

CERTIFIED AUTOMATED TRUCK SCALE

CAT SCALE COMPANY
P.O. BOX 630
WALCOTT, IA 52773
(563) 284-6263
www.catscale.com

THE CAT SCALE GUARANTEE

The CAT Scale Company guarantees that our scales will give an accurate weight. What makes us different from other scale companies is that we back up our guarantee with cash.©

WEIGH FASTER WITH OUR APP. FIND OUT MORE AT WEIGHMYTRUCK.COM

WEIGH WHAT WE SAY OR WE PAY®

If you get an overweight fine from the state **AFTER** one of our CAT Scales showed a legal weight, we will immediately check our scale and we will:

(1) Reimburse you for the cost of the overweight fine if our scale is wrong, **OR**
(2) A representative of CAT Scale Company will appear in court **WITH** the driver as an expert witness if we believe our scale was correct.

IF YOU SHOULD GET AN OVERWEIGHT FINE, YOU SHOULD DO THE FOLLOWING TO GET THE PROBLEM RESOLVED:

1) Post bond and request a court date.
2) Call CAT Scale Company direct 24 hours a day at 1-877-CAT-SCALE, ext. 7 (Toll Free) or visit www.catscaleguarantee.com for instructions.
3) **IMMEDIATELY** send a copy of the citation, CAT Scale Ticket, your name, company, address, and phone number to CAT Scale Company Attn: Guarantee Department.

* The four weights shown below are separate weights. The GROSS WEIGHT is the CERTIFIED WEIGHT and was weighed on a full length platform scale. All weights are guaranteed by CAT Scale.

DATE: 6-22-18

14:48

SCALE: 1326

39742916 **LOCATION:** LOVES COUNTRY STORES
I26 EXIT 76 SC219
NEWBERRY SC

PUBLIC WEIGHMASTER'S CERTIFICATE OF WEIGHT & MEASURE

STEER AXLE	12400 lb
DRIVE AXLE	47520 lb
TRAILER AXLE	00 lb
* GROSS WEIGHT	59920 lb

This is to certify that the following described merchandise was weighed, counted, or measured by a public or deputy weighmaster, and when properly signed and sealed shall be prima facia evidence of the accuracy of the weight shown as prescribed by law.

IMPRINT SEAL HERE (IF APPLICABLE)

DRIVER IN TRUCK UNLESS CHECKED HERE: ____

LIVESTOCK, PRODUCE, PROPERTY, COMMODITY, OR ARTICLE WEIGHED FREIGHT ALL KINDS

COMPANY TK TANK TRACTOR # TK1 TRAILER # 0

WEIGH NUMBER
2916

FEE $11.50

WEIGHMASTER OR WEIGHER SIGNATURE DEANNA HEBDON

TICKET # OF FULL $ WEIGH (IF REWEIGH)

CUSTOMER COPY

© CAT Scale® Reg 3063 11/17

F-1

CERTIFIED WEIGHT

HARKINS MOVING & STORAGE, INC.

885 S. Guignard Drive, Sumter, SC 29150

(803) 775-2700

Customers Name R Tank

Address _____

Commodity _____

Carrier _____

Lbs Gross _____

Lbs. Tare _____ 3258016

Lbs Net _____

Driver ON ___ OFF ✓

Fee _____ Weigher _____

CERTIFICATE OF DISPOSAL

T K TANK SERVICES, INC.

Certifies to all that

3,279 GALLONS

Of Nonhazardous, Petroleum Contaminated Water / Product

Have been disposed of in accordance with EPA regulations on petroleum contaminated water.

This product was generated at

BOUNTYLAND QUICKSTOP

6/22/2018

DATE

SIGNATURE

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

PETRA TECH ENV.
2435 E. NORTH ST. SUITE 1108-202
GREENVILLE, SC

Generator's Phone:

Generator's Site Address (if different than mailing address)

5034 S HWY. 11
WEST MINISTER, SC

6. Transporter 1 Company Name — U.S. EPA ID Number

T K TANK SERVICES INC

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

T K TANK SERVICES INC.
425 BOULEVARD RD.
SUMTER, SC

Facility's Phone: 803-418-5314

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	nonhazardous petroleum contaminated water/product			3,901	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: * Petra-Tech Env / Trav Glover (Agent) — Signature — Month: 6 — Day: 25 — Year: 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. — Port of entry/exit:

Transporter Signature (for exports only): — Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Gibby McNeil — Signature — Month: 6 — Day: 25 — Year: 18

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Casey Keels Newman — Signature: Casey B Newman — Month: 6 — Day: 26 — Year: 18

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

PETRA TECH ENV.
2435 E. NORTH ST. SUITE 1108-202
GREENVILLE, SC

Generator's Phone:

Generator's Site Address (if different than mailing address)

5034 S HWY. 11
WEST MINISTER, SC

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	nonhazardous petroleum contaminated water/product	T-1	VAC Truck	3,334 ~~3000~~	Gal	
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Trever Shuck / Petra Tech for (Agent) — Signature — Month 6 Day 27 Year 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Willie Fortune — Signature: Willie Fortune — Month 6 Day 27 Year 18

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Casey Newman — Signature: Casey Newman — Month 6 Day 27 Year 18

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

CERTIFIED WEIGHT

HARKINS MOVING & STORAGE, INC.

885 S. Guignard Drive, Sumter, SC 29150

(803) 775-2700

F-T

Customers Name TK Tank

Address _____

Commodity _____

Carrier _____

Lbs. Gross _____ 2:35 PM 6/27/2018 60380 lb G

Lbs. Tare _____

Lbs. Net _____

Driver ON ✓ OFF ____

Fee _____ Weigher Donna McNeill

=

CERTIFIED WEIGHT

HARKINS MOVING & STORAGE, INC.

885 S. Guignard Drive, Sumter, SC 29150

(803) 775-2700

Customers Name TK Tank

Address _____

Commodity _____

Carrier _____

Lbs. Gross _____ 4:40 PM 6/25/2018 65160 lb G

Lbs. Tare _____

Lbs. Net _____

Driver ON ____ OFF ✓

Fee _____ Weigher Donna McNeill

F-1

CERTIFIED WEIGHT

HARKINS MOVING & STORAGE, INC.

885 S. Guignard Drive, Sumter, SC 29150

(803) 775-2700

Customers Name TK Tank

Address _____

Commodity _____

Carrier _____

Lbs. Gross _____

Lbs. Tare _____ 8:25 AM 5/30/2018 32580 lb G

Lbs. Net _____

Driver ON ____ OFF ✓

Fee _____ Weigher Donna McMillan

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

PETRA TECH ENV.
2435 E. NORTH ST SUITE 1109-202
GREENVILLE, SC

Generator's Phone:

Generator's Site Address (if different than mailing address)

5034 S HWY. 11
WEST MINISTER, SC

6. Transporter 1 Company Name — U.S. EPA ID Number

T K TANK SERVICES INC.

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

T K TANK SERVICES INC.
425 BOULEVARD RD.
SUMTER, SC

Facility's Phone: 803-418-5314

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	nonhazardous petroleum contaminated water/product	T-1	VAC Truck	3344 2000	Gal
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name — Signature — Month Day Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Willie FarTune — Signature: Willie Fortune — Month 6 Day 29 Year 18

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Casey Newman — Signature: Casey Newman — Month 6 Day 29 Year 18

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

T-T

CERTIFIED WEIGHT

HARKINS MOVING & STORAGE, INC.

885 S. Guignard Drive, Sumter, SC 29150

(803) 775-2700

Customers Name TK Tank

Address _____

Commodity _____

Carrier _____

Lbs. Gross _____

Lbs. Tare _____ 10:45 AM 6/29/2018 51460 lb G

Lbs. Net _____

Driver ON ____ OFF ✓

Fee _____ Weigher Donna McKenzie

CERTIFICATE OF DISPOSAL

T K TANK SERVICES, INC.

Certifies to all that

9,505 GALLONS

Of Nonhazardous, Petroleum Contaminated Water / Product

Have been disposed of in accordance with EPA regulations on petroleum contaminated water.

This product was generated at

BOUNTYLAND QUICKSTOP

6/29/2018

DATE

SIGNATURE

dhec
Healthy People. Healthy Communities

AUG 1 4 2018



BOUNTYLAND FOOD SERVICE INC
5038 S HWY 11
WESTMINSTER SC 29693

Re: **Aggressive Fluid and Vapor Recovery Directive**
Bountyland Quick Stop 6, 5034 S Hwy 11, Westminster, SC
UST Permit #06711; CA #57630
Release reported December 1, 2011
AFVR report received July 10, 2018
Oconee County

To Whom It May Concern:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) recognizes your commitment to continue work at this site using Environmental Laboratories, Inc. as your contractor.

In accordance with Section 280.64 of the South Carolina Underground Storage Tank Control Regulations, an Aggressive Fluid and Vapor Recovery (AFVR) event may proceed immediately upon receipt of this letter as outlined in this directive and the UST Quality Assurance Program Plan (QAPP) Revision 3.1. **Please be aware that the AFVR Procedures have been updated.** One 96-hour event should be performed. The event should utilize wells RW-1, RW-2, and RW-6. The stingers shall be lowered at six inch intervals starting at the water table interface to a target depth of 36 feet in the wells. Please advance to the target depth within the first eight (8) hours of the event. Thereafter, the stingers should be adjusted to achieve the highest vapor recovery while maintaining dewatering of the smear zone. Off-gas treatment will be necessary. A copy of the DHEC QAPP Revision 3.1 for the Underground Storage Tank Division is available at http://www.scdhec.gov/environment/PermitCentral/ApplicationForms/#UST.

As soon as the beginning date of the event has been scheduled, please contact Adam Looper at Looperam@dhec.sc.gov.

The AFVR Report should be submitted within 90 days from the date of this correspondence. Please note that all applicable South Carolina certification requirements apply to the services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval is obtained from the UST Management Division. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be preapproved by DHEC for the cost to be paid. DHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in

accordance with established criteria. Further, DHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

On all correspondence concerning this site, please reference UST Permit #06711. If there are any questions concerning this project, feel free to contact me by telephone at (803) 898-0631, by fax at (803) 898-0673, or by e-mail at Looperam@dhec.sc.gov.

Sincerely,

Adam Looper, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Environmental Laboratories, Inc., P.O. Box 1729, Travelers Rest, SC 29690 (w/enc.)
Technical file (w/enc.)

Approved Cost Agreement 57630

Facility: 06711 BOUNTYLAND QUICK STOP 6

AGEEBD

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0.1200	$22,742.250	2,729.07
23 EFR						
		A4	96 HOUR EVENT	1.0000	$12,567.500	12,567.50
		C4	OFF GAS TREATMENT 96 HOUR	1.0000	$780.000	780.00
		D	SITE RECONNAISSANCE	1.0000	$203.250	203.25
		F1	EFFLUENT DISPOSAL	20,000.0000	$0.440	8,800.00
		G	AFVR EQUIPMENT MOB	1.0000	$391.500	391.50
				Total Amount		25,471.32

Document Receipt Information

☐ Hard Copy ☒ CD ☐ Email

Date Received 11-28-2018

Permit Number 00711

Project Manager Adam Looper

Name of Contractor Petra Tech

UST Certification Number Report of Long-Term AFVR/MMPE Event

Docket Number 49 Tech

Scanned

REPORT OF LONG-TERM AFVR/MMPE EVENT

Bountyland Quick Stop 6
SCDHEC UST Permit #06711
5034 S. Highway 11
Westminster, South Carolina
Oconee County

Cost Agreement #06711

PTE Job No. J18-648-A

November 14, 2018

petra-tech
ENVIRONMENTAL, LLC
ENGINEERS & CONSULTANTS

SCDHEC Certified UST Contractor No. 436

Petra-Tech Environmental
2435 East North Street
Suite 1108-202
Greenville, SC 29615

www.petratechenv.com

November 14, 2018

South Carolina Department of Health and Environmental Control
Bureau of Underground Storage Tank Management
2600 Bull Street
Columbia, South Carolina 29201-1708

Attention: Mr. Adam Looper
Hydrogeologist

Subject: **Report of Long-Term AFVR/MMPE Event**
Bountyland Quick Stop 6
5034 S. Highway 11
Westminster, Oconee County, South Carolina
SCDHEC UST Permit #06711; CA#06711
PTE Job No. J18-648-A

Dear Mr. Looper:

Pursuant to the South Carolina Department of Health and Environmental Control's directive letter (cost agreement #06711) dated August 14, 2018, Petra-Tech Environmental, LLC submits herein the results of the 96-hour long-term AFVR/MMPE event performed at the Bountyland Quick Stop 6 site. This report is being submitted on behalf of Bountyland Food Service Inc. and Environmental Laboratories, Inc.

Please do not hesitate to contact us at 864.631.2490 if you have any questions concerning this submittal.

Sincerely,

Petra-Tech Environmental

Trever Z. Slack, P.G.
Principal Hydrogeologist
Registered, South Carolina #2565

2435 E. North Street, Suite 1108-202, Greenville, SC 29615 | Phone (864) 631-2490 | Fax (888) 838-9034
www.petratechenv.com

1.0 PROJECT INFORMATION

The subject property is located at 5034 South Highway 11 in Westminster, Oconee County, South Carolina (**Figure 1**) and currently operates as a retail petroleum fueling station and convenience store. According to the South Carolina Department of Health and Environmental Control Online Underground Storage Tank Registry database, four underground storage tanks (one 10,000-gallon regular gasoline, one 10,000-gallon super/premium gasoline, one 10,000-gallon diesel, and one 10,000-gallon kerosene) are currently in use at the site. A release was reported at the site in December 2011 and a network of twenty-two groundwater monitoring wells (06711-MW01 through 06711-MW19 and 06711-MW-D1 through 06711-MW-DW3) and eight recovery wells (06711-RW01 through 06711-RW08) have been installed during previous environmental assessments.

The South Carolina Department of Health and Environmental Control issued an Aggressive Fluid Vapor Recovery directive letter on August 14, 2018 for the subject site requiring the completion of a 96-hour long term AFVR / MMPE event utilizing wells 06711-RW01, 06711-RW02, and 06711-RW06. The results of the long-term AFVR / MMPE event are included herein.

2.0 LONG-TERM AFVR / MMPE EVENT SUMMARY – 06711-RW01, 06711-RW02, & 06711-RW06

A 96-hour long-term AFVR / MMPE event was completed at the subject site between Tuesday, November 6, 2018 and Saturday, November 10, 2018. The 96-hour event was conducted on recovery wells 06711-RW01, 06711-RW02, and 06711-RW06 (**Figure 2**). A geologist was on-site for initial event setup, and periodic observation and monitoring of the event throughout the week, and a field technician remained on-site for monitoring and data collection. The long-term AFVR / MMPE event was performed using a Vermeer Ring-O-Matic 850 Super Deep Vacuum Unit equipped with a 28 horsepower diesel engine and Masport HXL15V vacuum pump with 27-inches of mercury and 350 cubic feet per minute vacuum capabilities.

Prior to initiating the event, Petra-Tech Environmental staff gauged the wells using a Solinst® Interface Meter. 1.81-feet of free-phase petroleum product was detected in recovery well 06711-RW01, 0.59-feet of free-phase petroleum product was detected in recovery well 06711-RW02, and 0.01-feet of free-phase petroleum product was detected in recovery well 06711-RW06 prior to the AFVR event. The long-term AFVR / MMPE event was initiated at 1500 on Tuesday, November 6, 2018 and concluded at 1500 on Saturday, November 10, 2018. The general weather conditions observed during this period of time were variable; with daily high temperatures ranging from 53º to 72º Fahrenheit and low temperatures ranging from 36º to 54º Fahrenheit. 0.55-inches of rainfall was recorded on November 6, 2018; 0.06-inches of rainfall was recorded on November 7, 2018; 0.08-inches of rainfall was recorded on November 8, 2018 and 0.81-inches of rainfall was recorded on November 9, 2018.

Throughout the duration of the event, a continuous vacuum ranging from 16.0 to 28.0 inches of mercury was applied to recovery wells 06711-RW01, 06711-RW02, and 06711-RW06. The extraction stinger was lowered at 6-inch intervals in the wells from the free-phase product / water table interface to a target depth of 36 feet below ground surface within the first 8-hours of the event. Stinger depths were varied thereafter to maximize free-phase petroleum product and vapor recovery based on conditions observed in the field. Vacuum and field measurements recorded throughout the event are summarized in **Attachment A**. The vacuum in addition to depth-to-water was also measured in adjacent wells 06711-RW08 and 06711-MW01 using magnahelic gauges and an interface probe to evaluate the vacuum's radius of influence. Radius of influence gauging data observed during the event is summarized in **Attachment A**.

Due to the close proximity of the site to places of public business, volatile air emissions were treated on-site utilizing a granulated activated carbon (GAC) unit. Influent and effluent vapor concentrations were measured throughout the event using a MiniRAE® Lite 3000 Photo Ionization Detector (PID). Air emissions pre-treatment and post-treatment concentrations are summarized in **Attachment A**.

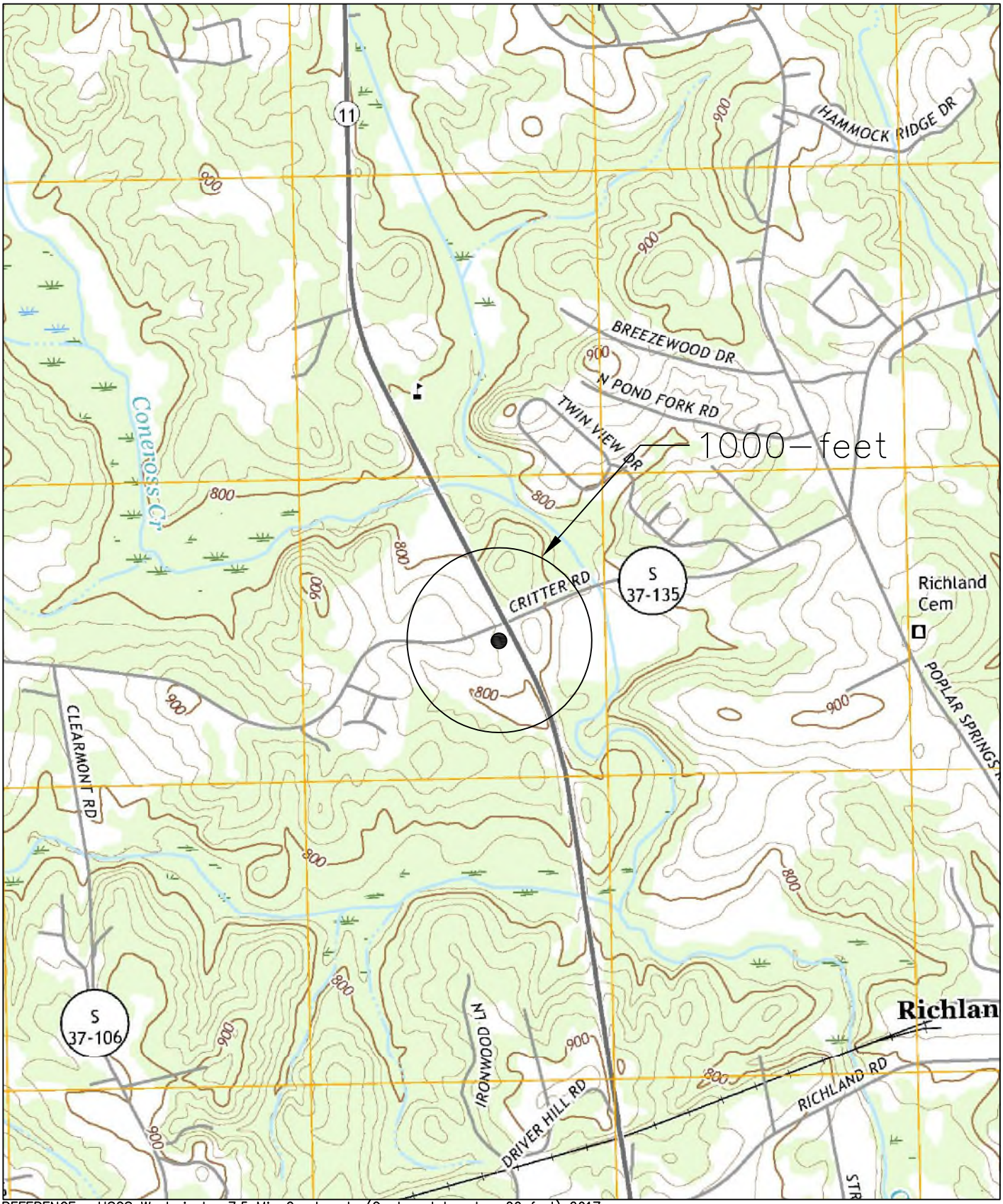
3.0 RESULTS & RECOMMENDATIONS

A total volume of approximately 4357 gallons of petroleum impacted liquid was recovered from the site during the 96-hour event. Of this amount, approximately 60 gallons was gauged as separated phase petroleum product. Waste transportation and disposal records for the petroleum impacted groundwater recovered during the event are provided in **Attachment B**.

A total of approximately 70.3 pounds of gasoline vapor which is equivalent to approximately 11.24 gallons of gasoline were calculated to have been recovered during the 96-hour long term AFVR / MMPE event. The emissions calculations for the event are provided as **Attachment A**.

Based on the results of the current scope of work, the 96-Hour Aggressive Fluid Vapor Recovery event was effective in removing petroleum product as both free-phase and vapor phase; and serves as a critical remedial measure in the removal of free-product at the site. Petra-Tech Environmental recommends the completion of a comprehensive groundwater sampling event to evaluate current groundwater analytical data for the site. Based on a review of the groundwater analytical data and equilibrated free-product thickness measurements; additional recovery wells may be necessary to the east/northeast of recovery well 06711-RW08 and should be followed by a series of additional 96-hour AFVR events at the site to continue free-phase petroleum product removal.

FIGURES



REFERENCE: USGS Westminster 7.5 Min Quadrangle (Contour Interval = 20 feet) 2017

2000 1000 0 2000

APPROXIMATE SCALE IN FEET

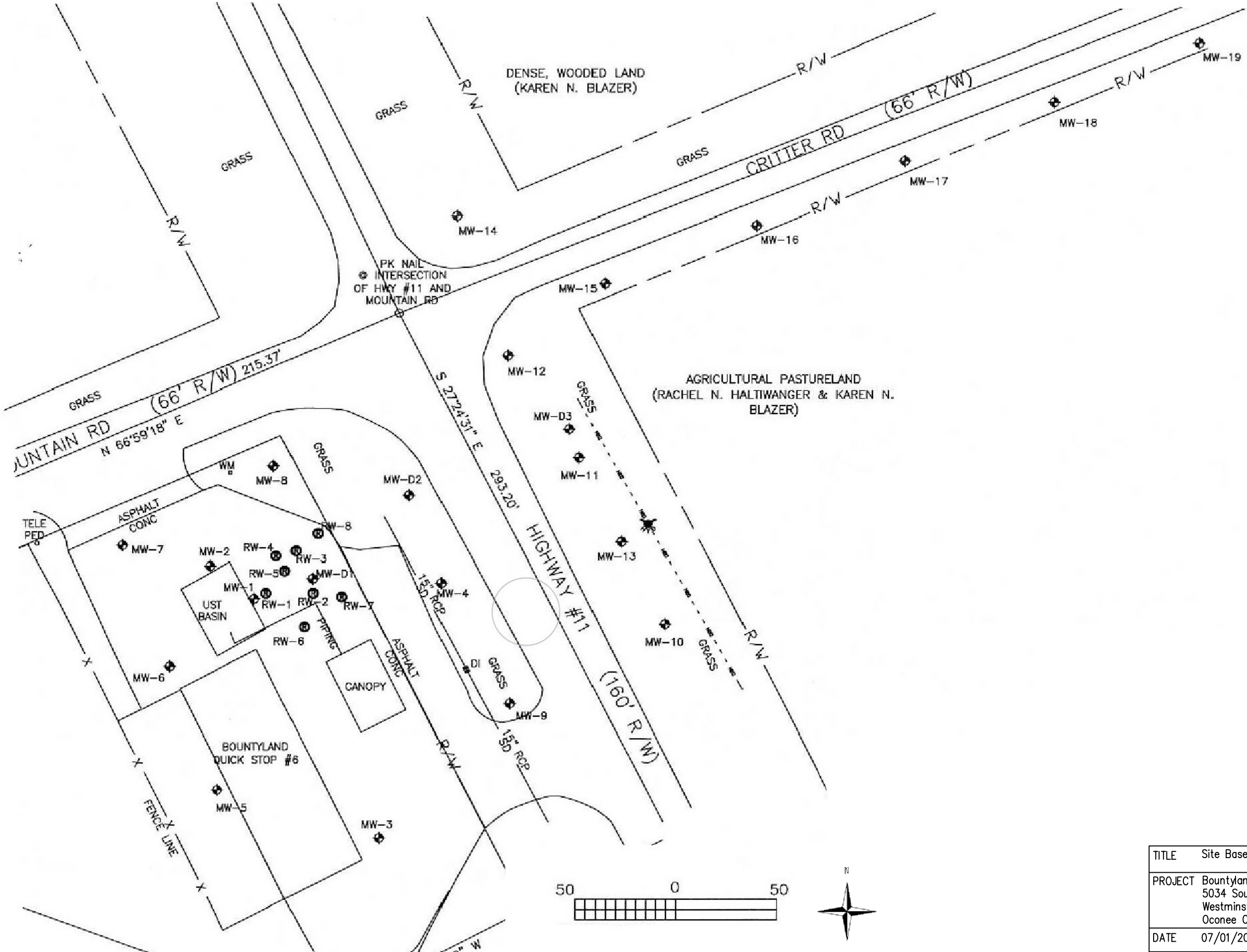
● Approximate Site Location

N

Title	Topographic Site Location Map
Project	Bountyland Quick Stop 6 (UST Permit #06711) 5034 South Highway 11 Westminster, South Carolina Oconee County
Date	07/01/2018
Job No.	J18-582-A

petra-tech ENVIRONMENTAL, LLC ENGINEERS & CONSULTANTS

Figure No. 1



TITLE	Site Base Map
PROJECT	Bountyland Quick Stop 6 (UST Permit #06711) 5034 South Highway 11 Westminster, South Carolina Oconee County
DATE	07/01/2018
JOB NO.	J17-582-A

petra-tech ENVIRONMENTAL, LLC
ENGINEERS & CONSULTANTS

Figure No. 2

BOUNTYLAND QUICK STOP 6 – UST PERMIT #06711
LONG-TERM AFVR/MMPE EVENT

ATTACHMENT A

AFVR / MMPE Field Measurements & Emissions Calculations

Bountyland Quick Stop 6 - UST Permit #06711

06711-RW01, 06711-RW02, & 06711-RW06

		Extraction Wells						Radius of Influence Monitoring						Emissions Field Measurements								Emission Calculations								
		06711-RW01		06711-RW02		06711-RW06		06711-RW08			06711-MW01																			
Date	Time	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Stinger Depth (feet)	Vacuum (in. HG)	Vacuum (in. H2O)	DTP (ft BTOC)	DTW (ft BTOC)	Vacuum (in. HG)	DTP (ft BTOC)	DTW (ft BTOC)	System Vacuum (in. HG)	Effluent Velocity (ft/min)	Pipe Diameter (in)	Effluent Temp. (F)	Relative Humidity (%)	Vapor Conc. Pre-Treatment (ppm)	Vapor Conc. Post Treatment (ppm)	Elapsed Time (hours)	Q_{std} (DSCFM)	PPM_d	PPM_c	K	C_{cm} (mg/dsm3)	C_c (lb/dscf)	PMR_c (lb/hr)	PMR_g (lb/hr)	PMR_g (gal/hr)
	1500	29.0	12.0	29.0	10.0	29.0	10.0	0.0	28.88	29.66	0.0	29.42	30.58	16.0	1,847	2	124.2	76.8	402.6	0.6	0.0	33.46	438.20	1,752.78	4	874.57	5.46E-05	0.1096	0.1269	0.0203
	1530	29.0	15.0	29.0	15.0	29.0	16.0	0.0	28.86	29.68	1.0	29.40	30.60	18.0	1,638	2	126.3	46.3	362.4	1.8	0.5	29.57	394.44	1,577.76	4	787.24	4.91E-05	0.0872	0.1009	0.0161
	1600	29.5	17.0	29.5	15.0	29.5	17.0	0.0	28.85	29.69	1.0	29.43	30.63	19.0	1,346	2	126.1	52.1	105.3	1.6	1.0	24.31	114.61	458.44	4	228.74	1.43E-05	0.0208	0.0241	0.0039
	1630	30.0	19.0	30.0	12.0	30.0	18.0	0.0	28.84	29.71	1.0	29.45	30.65	21.0	2,481	2	115.5	56.8	896.1	2.4	1.5	45.63	975.33	3,901.31	4	1,946.60	1.22E-04	0.3327	0.3850	0.0616
	1700	30.5	20.0	30.5	16.0	30.5	19.0	0.0	28.89	29.71	2.0	29.49	30.69	22.0	2,999	2	116.2	55.2	689.2	3.7	2.0	55.08	750.13	3,000.54	4	1,497.15	9.35E-05	0.3089	0.3575	0.0572
	1730	30.5	21.0	30.5	19.0	30.5	21.0	0.0	28.90	29.79	2.0	29.61	30.72	22.0	2,677	2	114.9	53.2	674.4	2.0	2.5	49.28	734.03	2,936.10	4	1,465.00	9.15E-05	0.2704	0.3130	0.0501
	1800	31.0	18.0	31.0	20.0	31.0	20.0	0.0	28.92	29.85	2.0	29.63	30.77	26.0	4,832	2	116.5	46.1	416.6	9.4	3.0	88.71	453.43	1,813.73	4	904.98	5.65E-05	0.3007	0.3480	0.0557
	1830	31.5	20.0	31.5	20.0	31.5	21.0	0.0	28.94	29.87	2.0	29.61	30.82	28.0	2,614	2	121.3	50.6	307.2	2.8	3.5	47.59	334.36	1,337.44	4	667.33	4.17E-05	0.1190	0.1377	0.0220
	1900	32.0	20.0	32.0	19.0	32.0	20.0	0.0	28.93	29.88	2.0	29.69	30.83	26.0	3,800	2	126.8	43.9	496.8	2.1	4.0	68.54	540.72	2,162.89	4	1,079.20	6.74E-05	0.2771	0.3206	0.0513
11/6/2018	1930	32.5	21.0	32.5	19.0	32.5	19.0	0.0	28.95	29.91	2.0	29.73	30.86	25.0	2,611	2	131.2	36.8	301.2	4.7	4.5	46.74	327.83	1,311.32	4	654.30	4.08E-05	0.1146	0.1326	0.0212
	2000	33.0	21.0	33.0	19.0	33.0	20.0	0.0	28.97	29.93	3.0	29.59	30.89	26.0	2,696	2	128.5	48.6	365.1	10.1	5.0	48.48	397.38	1,589.52	4	793.11	4.95E-05	0.1440	0.1667	0.0267
	2030	33.5	20.0	33.5	19.0	33.5	21.0	0.0	28.99	29.95	3.0	29.73	30.92	24.0	2,014	2	128.0	48.9	387.2	6.4	5.5	36.25	421.43	1,685.73	4	841.12	5.25E-05	0.1142	0.1322	0.0211
	2100	34.0	20.0	34.0	19.0	34.0	20.0	0.5	29.06	29.93	3.0	29.89	30.96	23.0	3,004	2	129.6	49.5	897.2	18.1	6.0	53.92	976.52	3,906.10	4	1,948.99	1.22E-04	0.3937	0.4556	0.0729
	2130	34.5	18.0	34.5	19.0	34.5	20.0	0.5	29.12	29.94	3.0	29.95	31.16	24.0	2,682	2	126.0	48.6	605.2	13.4	6.5	48.44	658.71	2,634.83	4	1,314.68	8.21E-05	0.2385	0.2761	0.0442
	2200	35.0	20.0	35.0	18.0	35.0	20.0	0.5	29.14	29.97	3.0	29.98	31.20	25.0	2,941	2	129.1	42.1	392.8	10.2	7.0	52.84	427.53	1,710.11	4	853.28	5.33E-05	0.1689	0.1954	0.0313
	2230	35.5	19.0	35.5	19.0	35.5	20.0	0.5	29.03	29.95	3.0	29.99	31.18	25.0	2,607	2	138.2	35.6	265.8	9.1	7.5	46.12	289.30	1,157.20	4	577.40	3.60E-05	0.0998	0.1154	0.0185
	2300	36.0	20.0	36.0	19.0	36.0	20.0	0.0	29.00	29.99	3.0	30.06	31.26	25.0	2,300	2	136.1	36.2	486.3	6.8	8.0	40.84	529.30	2,117.18	4	1,056.39	6.60E-05	0.1616	0.1870	0.0299
	2330	36.0	20.0	36.0	19.0	36.0	19.0	0.0	29.05	29.98	3.0	30.06	31.26	25.0	2,634	2	136.7	36.8	258.7	9.5	8.5	46.72	281.57	1,126.29	4	561.98	3.51E-05	0.0983	0.1138	0.0182
	2400	36.0	20.0	36.0	19.0	36.0	19.0	0.0	29.06	29.99	3.0	30.09	31.35	25.0	2,556	2	135.6	35.2	635.2	16.2	9.0	45.42	691.36	2,765.44	4	1,379.85	8.61E-05	0.2348	0.2717	0.0435
No readings recorded between 2400 and 0800																														
	0800	36.0	18.0	36.0	16.0	36.0	20.0	0.5	29.54	30.21	1.0	29.64	30.28	22.0	1,645	2	140.6	60.0	1,805.0	2.4	17.0	28.99	1,964.59	7,858.34	4	3,921.01	2.45E-04	0.4257	0.4927	0.0788
	0900	34.0	17.0	34.0	17.0	34.0	19.5	0.5	29.59	30.29	4.0	28.69	30.27	23.0	1,954	2	145.9	56.1	2,926.0	2.7	18.0	34.13	3,184.70	12,738.79	4	6,356.16	3.97E-04	0.8126	0.9405	0.1505
	1000	34.0	17.0	34.0	18.0	34.0	18.5	1.5	29.62	30.63	2.0	31.02	32.01	22.0	2,635	2	131.2	36.4	2,812.0	4.9	19.0	47.17	3,060.62	12,242.47	4	6,108.52	3.81E-04	1.0793	1.2491	0.1999
	1100	34.0	17.0	34.0	18.0	34.0	18.5	1.5	30.09	31.82	2.0	30.71	31.90	22.0	2,547	2	136.7	42.2	2,355.0	3.1	20.0	45.18	2,563.21	10,252.85	4	5,115.78	3.19E-04	0.8657	1.0019	0.1603
	1200	34.0	17.0	34.0	17.0	34.0	19.0	1.0	29.90	30.84	2.0	29.77	30.60	22.0	2,394	2	139.4	41.4	2,552.0	2.8	21.0	42.27	2,777.63	11,110.52	4	5,543.72	3.46E-04	0.8778	1.0158	0.1625
	1300	34.0	18.0	34.0	17.0	34.0	18.5	1.0	29.95	31.02	2.0	30.11	31.20	23.0	2,560	2	128.7	39.2	2,810.0	3.0	22.0	46.02	3,058.44	12,233.76	4	6,104.17	3.81E-04	1.0523	1.2178	0.1949
	1400	34.0	17.0	34.0	18.0	34.0	19.0	1.0	30.15	31.76	2.0	29.67	30.25	23.0	2,648	2	142.2	40.4	3,239.0	4.1	23.0	46.54	3,525.37	14,101.48	4	7,036.09	4.39E-04	1.2265	1.4195	0.2271
	1500	34.0	17.0	34.0	18.0	34.0	18.5	1.0	30.05	30.96	2.0	29.20	30.75	22.0	2,685	2	140.9	51.5	3,396.0	3.8	24.0	47.29	3,696.25	14,785.00	4	7,377.14	4.61E-04	1.3068	1.5123	0.2420
11/7/2018	1600	34.0	17.0	34.0	18.0	34.0	18.5	12.0	30.71	31.97	2.0	30.31	32.20	23.0	2,310	2	138.7	55.7	3,773.0	2.2	25.0	40.83	4,106.58	16,426.33	4	8,196.10	5.12E-04	1.2537	1.4509	0.2321
	1700	34.0	18.0	34.0	18.0	34.0	18.5	2.0	29.96	31.96	2.0	30.10	32.23	23.0	2,017	2	139.4	38.6	3,402.0	4.3	26.0	35.61	3,702.78	14,811.12	4	7,390.18	4.61E-04	0.9859	1.1409	0.1826
	1800	34.0	17.0	34.0	18.0	34.0	19.0	1.0	29.99	31.65	2.0	30.34	32.29	23.0	2,560	2	128.7	41.2	3,806.0	3.1	27.0	46.02	4,142.50	16,570.00	4	8,267.79	5.16E-04	1.4253	1.6495	0.2639
	1900	34.0	18.0	34.0	18.0	34.0	19.0	1.0	30.21	31.68	2.0	30.61	32.34	23.0	2,098	2	136.8	36.1	2,926.0	6.4	28.0	37.21	3,184.70	12,738.79	4	6,356.16	3.97E-04	0.8858	1.0252	0.1640
	2000	34.0	18.0	34.0	18.0	34.0	19.0	2.0	30.16	31.72	2.0	30.56	32.48	23.0	2,531	2	131.2	38.9	3,281.0	3.8	29.0	45.31	3,571.08	14,284.33	4	7,127.33	4.45E-04	1.2096	1.3999	0.2240
	2100	34.0	17.0	34.0	19.0	34.0	18.0	1.0	30.12	31.78	2.0	30.48	32.51	24.0	1,958	2	134.7	36.2	3,477.0	3.9	30.0	34.85	3,784.41	15,137.65	4	7,553.10	4.72E-04	0.9859	1.1409	0.1825
	2200	34.0	17.0	34.0	19.0	34.0	17.0	1.0	30.18	31.77	2.0	30.51	32.55	24.0	1,946	2	132.6	46.3	3,923.0	9.6	31.0	34.75	4,269.84	17,079.38	4	8,521.95	5.32E-04	1.1094	1.2839	0.2054
	2300	34.0	17.0	34.0	19.0	34.0	19.0	1.0	30.25	31.79	2.0	30.59	32.16	23.0	2,541	2	130.1	39.1	2,861.0	2.7	32.0	45.57	3,113.95	12,455.80	4	6,214.96	3.88E-04	1.0609	1.2278	0.1965
	2400	34.0	17.0	34.0	19.0	34.0	19.0	1.0	30.56	31.85	2.0	30.55	32.38	23.0	2,381	2	139.3	40.6	3,150.0	4.8	33.0	42.05	3,428.50	13,714.00	4	6,842.76	4.27E-04	1.0778	1.2473	0.1996
No readings recorded between 2400 and 0800																														

Date	Time	06711-RW01		06711-RW02		06711-RW06		06711-RW08			06711-MW01			System Vacuum	Effluent Velocity	Pipe Diameter	Effluent Temp.	Relative Humidity	Vapor Conc. Pre-Treatment	Vapor Conc. Post Treatment	Elapsed Time	Q_{std}	PPM_d	PPM_c	K	C_{cm}	C_c	PMR_c	PMR_g	PMR_g
		Stinger Depth	Vacuum	Stinger Depth	Vacuum	Stinger Depth	Vacuum	Vacuum	DTP	DTW	Vacuum	DTP	DTW																	
		(feet)	(in. HG)	(feet)	(in. HG)	(feet)	(in. HG)	(in. H2O)	(ft BTOC)	(ft BTOC)	(in. H2O)	(ft BTOC)	(ft BTOC)	(in. HG)	(ft/min)	(in)	(F)	(%)	(ppm)	(ppm)	(hours)	(DSCFM)				(mg/dsm3)		(lb/dscf)	(lb/hr)	(lb/hr)	(gal/hr)
11/8/2018	0800	34.0	18.0	34.0	19.0	34.0	19.0	1.0	30.71	31.69	2.0	30.36	32.01	24.0	2,348	2	128.1	52.1	1,990.0	2.2	41.0	42.25	2,165.94	8,663.77	4	4,322.89	2.70E-04	0.6842	0.7918	0.1267
	1000	34.0	17.0	34.0	19.0	34.0	19.0	2.0	30.30	31.55	2.0	30.55	32.46	25.0	2,563	2	131.2	45.7	1,522.0	3.6	43.0	45.88	1,656.56	6,626.26	4	3,306.25	2.06E-04	0.5682	0.6576	0.1052
	1200	34.0	17.0	34.0	19.0	34.0	19.0	2.0	30.41	31.09	2.0	30.32	32.76	26.0	2,514	2	138.7	60.6	1,221.0	2.7	45.0	44.44	1,328.95	5,315.81	4	2,652.38	1.66E-04	0.4415	0.5110	0.0818
	1400	34.0	18.0	34.0	18.0	34.0	19.0	2.0	30.75	31.76	2.0	30.72	32.35	25.0	1,946	2	136.0	39.9	1,395.0	4.2	47.0	34.56	1,518.34	6,073.34	4	3,030.36	1.89E-04	0.3923	0.4540	0.0726
	1600	34.0	17.0	34.0	19.0	34.0	19.0	1.0	30.36	31.52	2.0	30.61	32.76	24.0	1,358	2	129.7	45.2	1,502.0	3.3	49.0	24.37	1,634.80	6,539.19	4	3,262.80	2.04E-04	0.2979	0.3447	0.0552
	1800	30.0	16.0	30.0	18.0	30.0	19.0	1.0	30.47	31.56	2.0	30.45	32.91	25.0	1,589	2	123.7	37.6	2,527.0	6.2	51.0	28.81	2,750.42	11,001.68	4	5,489.41	3.43E-04	0.5924	0.6856	0.1097
	2000	31.0	17.0	31.0	18.0	31.0	20.0	1.0	30.62	31.62	2.0	30.56	32.99	24.0	1,354	2	132.7	42.8	1,846.0	1.8	53.0	24.18	2,009.21	8,036.84	4	4,010.07	2.50E-04	0.3632	0.4203	0.0672
	2200	32.0	17.0	32.0	18.0	32.0	19.0	1.0	30.68	31.65	3.0	30.62	32.96	23.0	1,685	2	135.6	51.3	2,413.0	3.7	55.0	29.94	2,626.34	10,505.36	4	5,241.77	3.27E-04	0.5879	0.6804	0.1089
	2400	33.0	16.0	33.0	18.0	33.0	20.0	1.0	30.72	31.64	3.0	30.69	32.95	23.0	104	2	136.9	49.6	2,607.0	6.4	57.0	1.84	2,837.49	11,349.97	4	5,663.20	3.54E-04	0.0391	0.0453	0.0072
No readings recorded between 2400 and 0800																														
11/9/2018	0800	33.0	17.0	33.0	18.0	33.0	19.0	1.0	30.72	31.72	3.0	30.52	32.67	23.0	2,548	2	122.7	56.7	2,275.0	3.3	65.0	46.28	2,476.14	9,904.56	4	4,941.99	3.09E-04	0.8567	0.9915	0.1586
	1000	33.0	16.0	33.0	19.0	33.0	20.0	1.0	30.48	31.56	3.0	30.61	32.14	23.0	2,394	2	139.3	42.1	1,232.0	4.2	67.0	42.28	1,340.92	5,363.70	4	2,676.28	1.67E-04	0.4238	0.4905	0.0785
	1200	33.5	17.0	33.5	19.0	33.5	20.0	2.0	30.36	31.66	2.0	30.42	32.18	24.0	2,173	2	129.6	37.7	2,013.0	2.2	69.0	39.01	2,190.98	8,763.90	4	4,372.85	2.73E-04	0.6389	0.7394	0.1183
	1400	33.5	17.0	33.5	19.0	33.5	20.0	1.0	30.15	31.79	2.0	30.45	32.76	24.0	2,514	2	134.8	40.6	2,774.0	5.2	71.0	44.73	3,019.26	12,077.03	4	6,025.97	3.76E-04	1.0097	1.1685	0.1870
	1600	34.0	16.0	34.0	19.0	34.0	20.0	1.0	30.72	31.88	3.0	30.55	32.52	25.0	2,648	2	140.6	39.9	2,669.0	2.8	73.0	46.66	2,904.97	11,619.90	4	5,797.88	3.62E-04	1.0134	1.1728	0.1876
	1800	34.0	17.0	34.0	19.0	34.0	20.0	1.0	30.79	31.85	3.0	30.54	32.25	25.0	2,544	2	135.8	36.5	2,541.0	6.8	75.0	45.19	2,765.66	11,062.63	4	5,519.82	3.45E-04	0.9344	1.0813	0.1730
	2000	34.0	17.5	34.0	19.0	34.0	19.5	1.0	30.82	31.99	3.0	30.56	32.06	23.0	2,358	2	136.7	39.4	2,361.0	6.3	77.0	41.82	2,569.74	10,278.97	4	5,128.81	3.20E-04	0.8035	0.9299	0.1488
	2200	34.0	18.0	34.0	19.0	34.0	19.5	1.0	30.75	31.98	3.0	30.59	32.12	23.0	2,716	2	136.9	41.5	2,015.0	9.4	79.0	48.16	2,193.15	8,772.61	4	4,377.19	2.73E-04	0.7896	0.9138	0.1462
	2400	34.0	18.0	34.0	18.0	34.0	19.0	1.0	30.95	31.96	3.0	30.65	32.15	23.0	2,335	2	138.2	36.8	1,946.0	8.0	81.0	41.31	2,118.05	8,472.21	4	4,227.30	2.64E-04	0.6541	0.7570	0.1211
No readings recorded between 2400 and 0800																														
11/10/2018	0800	34.0	18.0	34.0	18.5	34.0	19.0	1.0	30.99	31.99	3.0	30.59	32.25	24.0	2,031	2	135.9	39.5	2,563.0	19.5	89.0	36.07	2,789.60	11,158.41	4	5,567.62	3.48E-04	0.7523	0.8706	0.1393
	1000	34.0	17.0	34.0	19.0	34.0	19.5	1.0	30.86	31.95	3.0	30.85	32.30	23.0	2,085	2	139.7	35.6	2,503.0	16.2	91.0	36.80	2,724.30	10,897.19	4	5,437.28	3.39E-04	0.7494	0.8673	0.1388
	1200	34.0	17.0	34.0	19.5	34.0	19.0	1.0	30.87	31.85	3.0	30.65	32.19	21.0	2,631	2	132.5	39.7	2,014.0	10.5	93.0	47.00	2,192.06	8,768.26	4	4,375.02	2.73E-04	0.7702	0.8913	0.1426
	1400	34.0	17.5	34.0	19.0	34.0	20.0	1.0	30.85	31.87	3.0	30.98	32.06	22.0	2,300	2	128.6	36.0	1,658.0	9.8	95.0	41.36	1,804.59	7,218.35	4	3,601.68	2.25E-04	0.5579	0.6457	0.1033
	1500	34.0	18.0	34.0	19.0	34.0	19.0	1.0	30.90	31.85	3.0	30.87	32.01	23.0	2,594	2	146.8	36.7	1,875.0	15.2	96.0	45.24	2,040.77	8,163.10	4	4,073.07	2.54E-04	0.6903	0.7989	0.1278
								Average Values							2,356	2	132.5	44.5	1845.8	6.0	--	42.13	2,008.98	8,035.90	4.00	4009.61	0.00025	0.6328	0.7324	0.1172
														B_{ws}	0.081	B_{wsw}	0.049													

Total Pounds of Carbon (emissions) 60.7504

Total Pounds of Gasoline (as emissions) 70.3066

Total Gallons of Gasoline (as emissions) 11.2491

NOTES:

inches of Hg - inches of mercury

ppm - parts per million

Q_{std} - flow at DSCFM

DSCFM - Dry Standard Cubic Feet per Minute

PPM_d - "dry" concentration

PPM_c - volumetric concentration of VOC emissions as carbon, dry basis, at STP

K - number of carbons in calibration gas

C_{cm} - mass concentration of VOC emissions as carbon

PMR_c - pollutant mass removal of VOCs as carbon

PMR_g - pollutant mass removal of VOCs as gasoline

B_{wsw} - lb of water per lb of dry air

B_{ws} - water vapor % by volume

Extraction Well Information					
Extraction Well ID	**Time**	**Depth to Free-Product (feet BTOC)**	**Depth to Water (feet BTOC)**	**Total Well Depth (feet BTOC)**	**Target Stinger Depth (feet BTOC)**
06711-RW01	Initial	28.20	30.01	40	36
	Post	--	34.05		
06711-RW02	Initial	28.92	29.51	40	36
	Post	--	32.06		
06711-RW06	Initial	29.00	29.01	40	36
	Post	--	33.78		

BOUNTYLAND QUICK STOP 6 – UST PERMIT #06711
LONG-TERM AFVR/MMPE EVENT

ATTACHMENT B

097965

SCALE TICKET

11/13/2018 03:47PM
Progressive 21924
RcD I.D. 613
Inbound weight 27460 lb

11/13/2018 04:11PM
Progressive 21926
RcD I.D. 613
Gross 27460 lb
Tare 18760 lb
Net 8700 lb

1044,41 gal

Scale Company: VLS

Weighed By: LJ

Carrier: petra-tech

Customer: petra-tech

PO/BOL/Manifest WTN011132

Tractor Number:

Trailer Number:

Driver Signature:

WHITE - Driver YELLOW - Driver CARD - Scale

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number: WTN011132

5. Generator's Name and Mailing Address: Petra-Tech Env
2435 E North St. Suite 1108-202
Greenville, SC 29615
Generator's Phone: 864-631-2490

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
VLS Recovery Services
305 S main St.
Mauldin, SC
Facility's Phone: 864-962-9953

U.S. EPA ID Number: SCR000762468

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON Haz / Non regulated well water #16374			1044.44 gal		
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jimmy Slagh — Signature — Month: 11 Day: 13 Year: 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jimmy Slagh — Signature — Month: 11 Day: 13 Year: 18

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Herman Lutcam — Signature — Month: 11 Day: 13 Year: 18

GC Labels • Printed in the USA
1-800-997-6966

TRANSPORTER #1

Reorder Part# MANIFEST-C6NHWC
913-897-6966

098005

SCALE TICKET

11/14/2018 01:17PM
Progressive 21992
RcD I.D. 1943
Inbound weight 27120 lb

11/14/2018 01:45PM
Progressive 21992
RcD I.D. 1943
Gross 27120 lb
Tare 18640 lb
Net 8480 lb

1018,00 gal

Scale Company: VLS

Weighed By: TD

Carrier: Petra Tech

Customer: Petra Tech

PO/BOL/Manifest WHO11141

Tractor Number: N/A

Trailer Number: N/A

Driver Signature:

WHITE - Driver YELLOW - Driver CARD - Scale

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1		WTN011141

5. Generator's Name and Mailing Address
Petra-Tech Env.
2435 E North St. Suite 1108-202
Greenville, SC 29615
Generator's Phone: 864-631-2490

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
Petra-Tech Env.

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
VLS Recovery Services
305 S main St
Mauldin, SC 29662
Facility's Phone: 864-962-9953

U.S. EPA ID Number
SCR000762468

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non haz/Non regulated well water #16374			1018.00 GAL		
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jimmy Slagh — Signature — Month: 11 Day: 14 Year: 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jimmy Slagh — Signature — Month: 11 Day: 14 Year: 18

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month: 11 Day: 14 Year: 18

GC Labels • Printed in the USA
1-800-997-6966

TRANSPORTER #1

Reorder Part# MANIFEST-C6NHWC
913-897-6966

098022

SCALE TICKET

11/14/2018 04:53PM
Progressive 22029
RcD I.D. 02
Inbound weight 27380 lb

11/14/2018 05:25PM
Progressive 23034
RcD I.D. 03
Gross 27380 lb
Tare 17960 lb
Net 9420 lb

1130.85 gal

Scale Company: HS

Weighed By: TD

Carrier: Petra Tech

Customer: Petra Tech

PO/BOL/Manifest WTA011142

Tractor Number: 2

Trailer Number: NA

Driver Signature:

WHITE - Driver YELLOW - Driver CARD - Scale

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number: WTN011142

GENERATOR

5. Generator's Name and Mailing Address
Petra-Tech Env.
2435 E. North St Suite 1108-202
Greenville, SC 29615
Generator's Phone: 864-631-2490

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
Petra-Tech Env.

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
VLS Recovery Services
305 S Main St
Mauldin, SC 29662
Facility's Phone: 864-962-9953

U.S. EPA ID Number
SCR000762468

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non haz/Non Regulated well water #16359		11 DM 49 Gal			
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jimmy Slagh
Signature:
Month: 11 Day: 14 Year: 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jimmy Slagh
Signature:
Month: 11 Day: 14 Year: 18

Transporter 2 Printed/Typed Name
Signature:
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Ryan Crain
Signature:
Month: 11 Day: 14 Year: 18

GC Labels • Printed in the USA
1-800-997-6966

TRANSPORTER #1

Reorder Part# MANIFEST-C6NHWC
913-897-6966

097944

SCALE TICKET

11/13/2018 12:44PM
Progressive 21890
RcD I.D. 49
Inbound weight 28580 lb

11/13/2018 01:19PM
Progressive 21894
RcD I.D. 49
Gross 28580 lb
Tare 18880 lb
Net 9700 lb

1164.46 gal

Scale Company: VLS

Weighed By: LS

Carrier: Petra-tech

Customer: Petra-tech

PO/BOL/Manifest WTN 011131

Tractor Number: _____

Trailer Number: _____

Driver Signature: _____

WHITE - Driver YELLOW - Driver CARD - Scale

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number: WTN 011131

GENERATOR

5. Generator's Name and Mailing Address
Petra-Tech Env
2435 E North St. Suite 1108-202
Greenville, SC 29615
Generator's Phone: 864-631-2490

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
VLS Recovery Services
305 S Main St.
Mauldin, SC 29662
Facility's Phone: 864-962-9953

U.S. EPA ID Number: SCR000762468

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON HAZ/NON Regulated well wate #16374			1164	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jimmy Slagh
Signature
Month 11 Day 13 Year 18

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jimmy Slagh
Signature
Month 11 Day 13 Year 18

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Ryan Crain
Signature
Month 11 Day 13 Year 18

GC Labels • Printed in the USA
1-800-997-6966

TRANSPORTER #1

Reorder Part# MANIFEST-C6NHWC
913-897-6966

dhec
Healthy People. Healthy Communities.

BOUNTYLAND FOOD SERVICES INC
5038 S HWY 11
WESTMINSTER SC 29693

DEC 1 1 2018



Re: Site-Specific Work Plan (SSWP) Request for Groundwater Sampling
Bountyland Quick Stop 6, 5034 S Hwy 11, Westminster, SC
UST Permit #06711
Release reported December 1, 2011
Aggressive Fluid Vapor Recovery report received November 29, 2018
Oconee County

To Whom it May Concern:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed the referenced report submitted by your contractor. The report documents petroleum chemicals in the soil and groundwater above Risk-Based Screening Levels (RBSLs).

To determine what risk the referenced release may pose to human health and the environment, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of groundwater sampling is necessary. The groundwater sampling must be conducted in accordance with the most recent revision of the UST Quality Assurance Program Plan (QAPP), your contractor's Annual Contractor Quality Assurance Plan (ACQAP), and in compliance with all applicable regulations. A copy of the UST QAPP is available at http://www.scdhec.gov/Environment/LW/UST/ReleaseAssessmentClean-up/QualityAssurance/.

Perform a comprehensive groundwater sampling event. Groundwater samples should be collected from all monitoring/recovery wells associated with the above referenced release and all water supply wells, and surface waters within a 1,000 foot radius of the site and analyzed for BTEX, Naphthalene, MtBE, 1,2-DCA, the 8 oxygenates, and EDB. Purge all wells prior to sampling.

Your contractor must complete the SSWP and submit it within 30 days from the date of this letter. Every component may not be necessary to complete the above scope of work. The State Underground Petroleum Environmental Response Bank (SUPERB) Account allowable cost for each component is included on the Assessment Component Cost Agreement Form. **Please note that approval from DHEC must be issued before work begins.**

On all correspondence regarding this site, please reference UST Permit number referenced above. Should you have any questions regarding this correspondence, please feel free to contact me by phone at (803) 898-2832, by fax at (803) 898-0673, or by e-mail at ageebd@dhec.sc.gov.

Sincerely,

Bryan Agee, Hydrogeologist
Corrective Action & Field Support Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

cc: Environmental Laboratories Inc, PO Box 1729, Travelers Rest, SC 29690
Technical file