



**Vapor Extraction / Groundwater Extraction (VE/GE) System
Third Monthly Update Report**

**Gasoline Fueling Station – Royal Farms #96
500 Mechanics Valley Road
North East, MD 21901
MDE OCP Case No. 2011-0729-CE
Facility ID No. 13326**

AEC Project Number: 05-056RF096

Prepared for:

Maryland Department of the Environment
Oil Control Program
1800 Washington Boulevard
Baltimore, Maryland 21230-1719

And

Royal Farms / Two Farms, Inc.
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March 6, 2013

General Site Information

Regulatory Agency:	Maryland Department of the Environment
Agency Contact:	Susan Bull
Royal Farms Contact:	Tom Ruszin
Consultant Contact:	Jeff Stein/James Wolf
Case Number:	OCP Case No. 2011-0729-CE
Facility Status:	Operating fuel station
Facility ID:	13326
Current Case Status:	Vapor Extraction/ Groundwater Extraction (VE/GE) System in operation. Quarterly groundwater sampling. On-site and off-site potable well monitoring.
Area Property Use:	See Site Vicinity Map, Site Map and trenching Layout Map (Figures 1, 2 and 3)
Monitoring Wells:	MW-1R, MW-2, MW-4 through MW-16, MW-10D, MW- 12D, MW-13D, TP-1, TP-2, TP-3, TP-4
VE/GE System Wells:	MW-7, RW-1, RW-2, RW-3, RW-4, RW-6, RW-8, RW- 9, RW-10, RW-11, RW-12
Potable Wells:	CE-94-3354 (site well), CE-88-0994, CE-94-0008, CE- 81-0226, hand dug well (no permit), CE-81-0886, CE- 94-6569

VE/GE System Performance

System Operation

Period:	2-8-13 through 3-6-13
Calendar Days:	27
Operating Days:	21

Period Groundwater and Vapor Recovery

Cumulative Water Discharge:	1,569,600 gallons
Cumulative Vapor Processed:	19,252,800 cubic feet
Period Water Discharge:	403,200 gallons
Period Vapor Processed:	10,946,880 cubic feet
Period Average Water Flow Rate:	13.3 gallons per minute (gpm)
Period Average Vapor Flow Rate:	432 cubic feet per minute (cfm)

Hydrocarbon Recovery Estimates (Period gallons / Cumulative gallons)

System Dissolved Phase Recovery:	0.4 / 2.8
System Vapor Phase Recovery:	57.5 / 179.9
Total Recovery:	57.9 / 182.7

The VE/GE System began operation on December 11, 2012. Since start-up, groundwater drawdown has been observed across the site through gauging of on-site monitoring wells. During gauging events, vacuum gauge readings were also taken to determine vacuum influence of the VE/GE System upon surrounding monitoring wells. Figure 1 in Attachment A illustrates the site vicinity. Figure 2 in Attachment A illustrates the groundwater monitoring well, tank-pit well, recovery well, bedrock monitoring well, and onsite potable drinking water well locations. A scaled depiction of the system layout is included in Figure 3 of Attachment A. Table 1 in Attachment B includes gauging and vacuum influence data obtained through gauging events.

System performance has been monitored through readings taken from diagnostic gauges on system equipment. System monitoring worksheets are included in Attachment C. It should be noted that the system was shutdown February 20 through February 25 for quarterly groundwater sampling.

Approximately 403,200 gallons of liquid and approximately 10,946,880 cubic feet of air have been processed by the system during this period, removing approximately 362 pounds (or 58 gallons) of volatile organic compounds (VOCs). No liquid phase hydrocarbon (LPH) was recovered during this monitoring period. Table 2 in Attachment B summarizes the hydrocarbon recovery data, and Table 3 in summarizes the hydrocarbon recovery estimates.

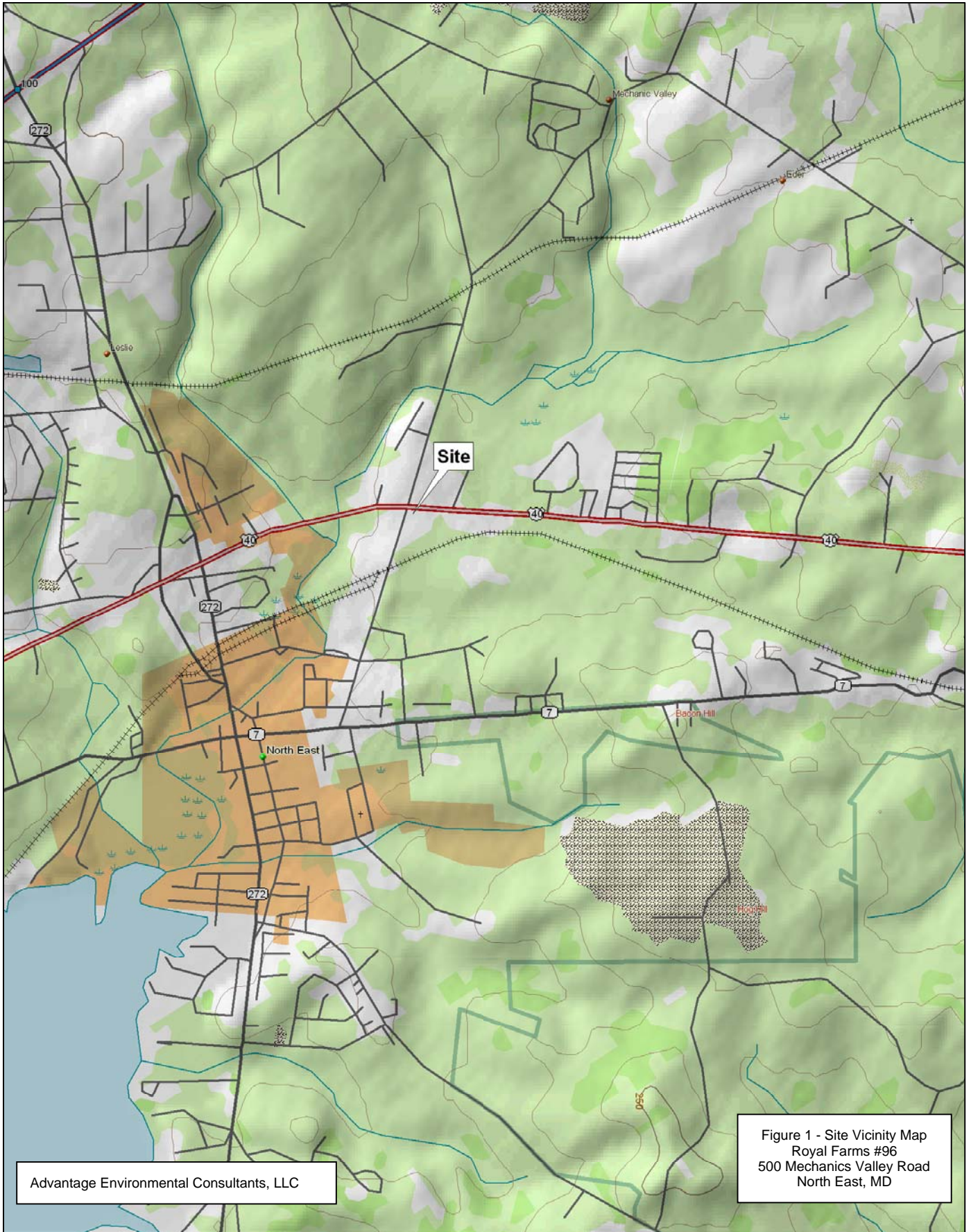
Figures

- Figure 1 Site Vicinity Map
- Figure 2 Site Features Map
- Figure 3 Trenching Layout Map

Attachments

- Attachment A Figures
- Attachment B Tables
- Attachment C System Monitoring Worksheets

Attachment A



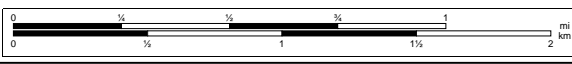
Advantage Environmental Consultants, LLC

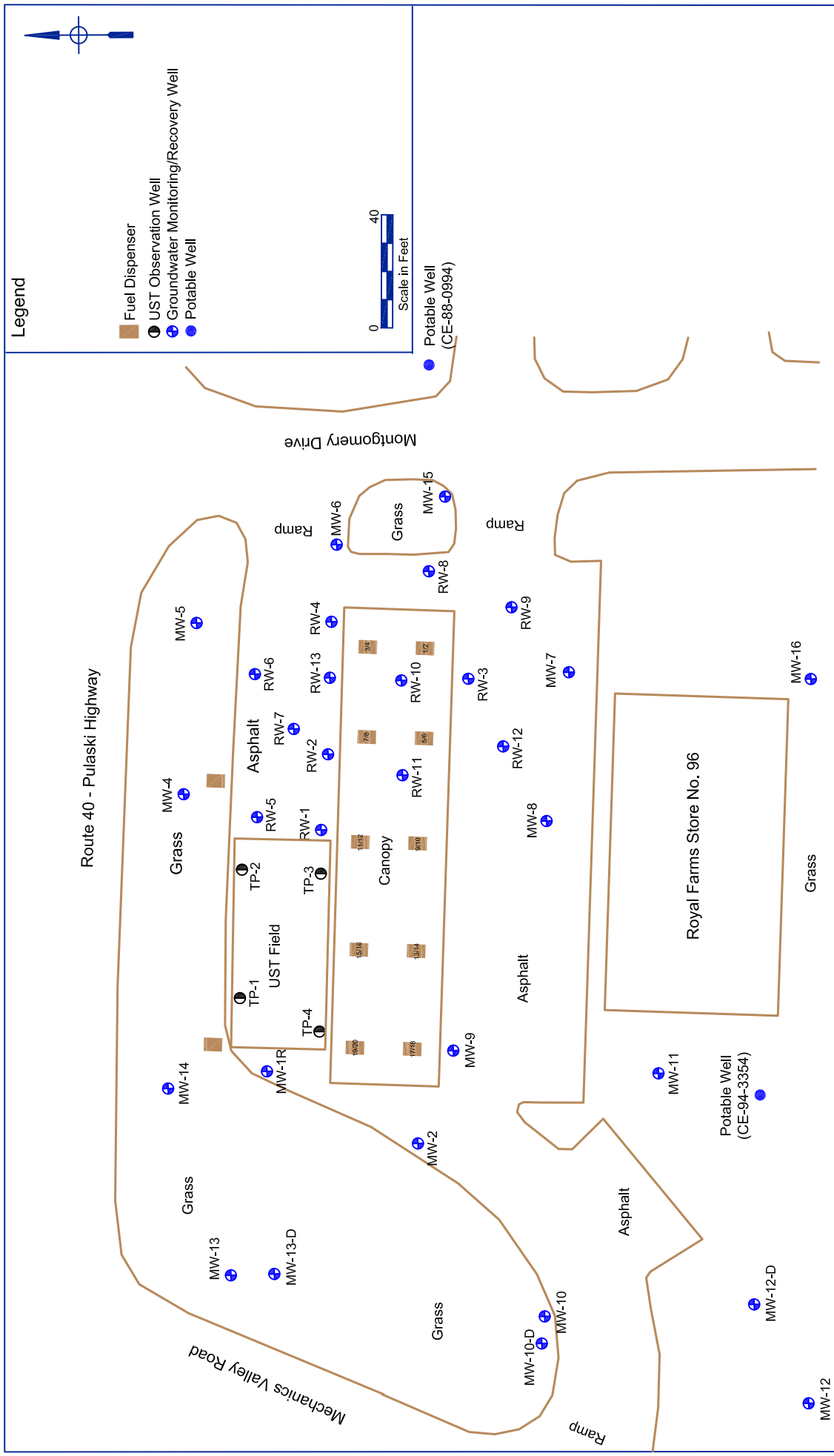
Figure 1 - Site Vicinity Map
 Royal Farms #96
 500 Mechanics Valley Road
 North East, MD



© 2001 DeLorme. Topo USA® 3.0
 Zoom Level: 12-7 Datum: WGS84

Scale: 1" = 28.125'
 1" = 2,343.75 ft





Advantage Environmental Consultants, LLC 8610 Washington Blvd. Suite 217 Jessup, MD 20794 Phone 301-776-0500 Fax 301-776-1123		Project No.: 05-056	Drawn by: JDW
		Task No.: RF96	Date: 12-15-2012
		File: Site Features	Revision No.: 2

Figure 2 - Site Features Map
 Royal Farms No. 96
 500 Mechanics Valley Road
 North East, MD

Attachment B

Table 1 - Well Gauging Summary
Gasoline Fueling Station – Royal Farms No. 96
500 Mechanic Valley Road, North East, Maryland 21901

Well ID	Date	Depth to Water	Depth to LPH	TOC Elevation	Water Elevation	LPH Elevation	Corrected Water Elevation	LPH Thickness	Comments	Vacuum Pressure
MW-1R	12/10/2012	11.08	ND	94.74	83.66	NA	NA	NA		NA
	12/11/2012	12.20	ND	94.74	82.54	NA	NA	NA		0.20
	12/20/2012	13.77	ND	94.74	80.97	NA	NA	NA		0.10
	12/24/2012	13.00	ND	94.74	81.74	NA	NA	NA		0.05
	1/4/2013	14.00	ND	94.74	80.74	NA	NA	NA		0.11
	1/8/2013	14.20	ND	94.74	80.54	NA	NA	NA		0.12
	1/15/2013	13.32	ND	94.74	81.42	NA	NA	NA		0.62
	1/25/2013	11.89	ND	94.74	82.85	NA	NA	NA		
	1/29/2013	11.68	ND	94.74	83.06	NA	NA	NA		
	2/7/2013	12.59	ND	94.74	82.15	NA	NA	NA		
	2/14/2013	12.64	ND	94.74	82.10	NA	NA	NA		
	2/27/2013	12.99	ND	94.74	81.75	NA	NA	NA		
	MW-2	12/10/2012	12.46	ND	95.86	83.40	NA	NA	NA	
12/11/2012		13.92	ND	95.86	81.94	NA	NA	NA		0.08
12/20/2012		15.28	ND	95.86	80.58	NA	NA	NA		0.04
12/24/2012		14.49	ND	95.86	81.37	NA	NA	NA		0.04
1/4/2013		15.40	ND	95.86	80.46	NA	NA	NA		0.00
1/8/2013		15.70	ND	95.86	80.16	NA	NA	NA		0.00
1/15/2013		14.73	ND	95.86	81.13	NA	NA	NA		0.14
1/25/2013		13.12	ND	95.86	82.74	NA	NA	NA		
1/29/2013		12.95	ND	95.86	82.91	NA	NA	NA		
2/7/2013		14.03	ND	95.86	81.83	NA	NA	NA		
2/14/2013		14.16	ND	95.86	81.70	NA	NA	NA		
2/27/2013		14.62	ND	95.86	81.24	NA	NA	NA		
MW-4		12/10/2012	12.95	ND	96.87	83.92	NA	NA	NA	
	12/11/2012	14.46	ND	96.87	82.41	NA	NA	NA		1.00
	12/20/2012	17.45	ND	96.87	79.42	NA	NA	NA		2.90
	12/24/2012	14.72	ND	96.87	82.15	NA	NA	NA		1.50
	1/4/2013	16.19	ND	96.87	80.68	NA	NA	NA		2.90
	1/8/2013	16.32	ND	96.87	80.55	NA	NA	NA		2.50
	1/15/2013	15.50	ND	96.87	81.37	NA	NA	NA		> 5.0
	1/25/2013	13.77	ND	96.87	83.10	NA	NA	NA		
	1/29/2013	13.58	ND	96.87	83.29	NA	NA	NA		
	2/7/2013	14.71	ND	96.87	82.16	NA	NA	NA		1.60
	2/14/2013	14.89	ND	96.87	81.98	NA	NA	NA		4.50
	2/27/2013	15.29	ND	96.87	81.58	NA	NA	NA		4.40
	MW-5	12/10/2012	14.42	ND	98.39	83.97	NA	NA	NA	
12/11/2012		15.93	ND	98.39	82.46	NA	NA	NA		0.39
12/20/2012		15.93	ND	98.39	82.46	NA	NA	NA		4.70
12/24/2012		16.37	ND	98.39	82.02	NA	NA	NA		0.75
1/4/2013		17.59	ND	98.39	80.80	NA	NA	NA		2.00
1/8/2013		17.74	ND	98.39	80.65	NA	NA	NA		1.60
1/15/2013		17.22	ND	98.39	81.17	NA	NA	NA		> 5.0
1/25/2013		15.20	ND	98.39	83.19	NA	NA	NA		
1/29/2013		15.03	ND	98.39	83.36	NA	NA	NA		
2/7/2013		16.19	ND	98.39	82.20	NA	NA	NA		0.75
2/14/2013		16.32	ND	98.39	82.07	NA	NA	NA		2.90
2/27/2013		16.82	ND	98.39	81.57	NA	NA	NA		2.90
MW-6		12/10/2012	15.01	ND	98.91	83.90	NA	NA	NA	
	12/11/2012	16.24	ND	98.91	82.67	NA	NA	NA		5.00

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500 Mechanic Valley Road, North East, Maryland 21901

	12/20/2012	17.93	ND	98.91	80.98	NA	NA	NA		6.00
	12/24/2012	16.55	ND	98.91	82.36	NA	NA	NA		3.90
	1/4/2013	17.96	ND	98.91	80.95	NA	NA	NA		7.00
	1/8/2013	18.35	ND	98.91	80.56	NA	NA	NA		6.50
	1/15/2013	17.02	ND	98.91	81.89	NA	NA	NA		13.00
	1/25/2013	15.86	ND	98.91	83.05	NA	NA	NA		
	1/29/2013	15.63	ND	98.91	83.28	NA	NA	NA		
	2/7/2013	16.70	ND	98.91	82.21	NA	NA	NA		4.80
	2/14/2013	16.29	ND	98.91	82.62	NA	NA	NA		> 5.0
	2/27/2013	16.68	ND	98.91	82.23	NA	NA	NA		> 5.0
MW-7*	12/10/2012	14.27	ND	97.75	83.48	NA	NA	NA	Depth to Groundwater Pump intake: 16.5 ft.	
MW-8	12/10/2012	14.29	ND	97.81	83.52	NA	NA	NA		NA
	12/11/2012	16.81	ND	97.81	81.00	NA	NA	NA		2.00
	12/20/2012	17.53	ND	97.81	80.28	NA	NA	NA		2.70
	12/24/2012	17.00	ND	97.81	80.81	NA	NA	NA		4.80
	1/4/2013	18.00	ND	97.81	79.81	NA	NA	NA		0.22
	1/8/2013	18.37	ND	97.81	79.44	NA	NA	NA		2.70
	1/15/2013	16.98	ND	97.81	80.83	NA	NA	NA		2.60
	1/25/2013	14.96	ND	97.81	82.85	NA	NA	NA		
	1/29/2013	14.80	ND	97.81	83.01	NA	NA	NA		
	2/7/2013	16.30	ND	97.81	81.51	NA	NA	NA		2.10
	2/14/2013	16.87	ND	97.81	80.94	NA	NA	NA		0.85
	2/27/2013	17.15	ND	97.81	80.66	NA	NA	NA		2.40
MW-9	12/10/2012	13.29	ND	96.73	83.44	NA	NA	NA	Mod. Odor	NA
	12/11/2012	14.87	ND	96.73	81.86	NA	NA	NA	Mod. Odor	0.00
	12/20/2012	16.28	ND	96.73	80.45	NA	NA	NA	Mod. Odor	0.00
	12/24/2012	15.42	ND	96.73	81.31	NA	NA	NA	Mod. Odor	0.00
	1/4/2013	16.42	ND	96.73	80.31	NA	NA	NA	Slight Odor	0.02
	1/8/2013	16.71	ND	96.73	80.02	NA	NA	NA	Mod. Odor	0.00
	1/15/2013	15.64	ND	96.73	81.09	NA	NA	NA		0.03
	1/25/2013	13.95	ND	96.73	82.78	NA	NA	NA	Mod. Odor	
	1/29/2013	13.79	ND	96.73	82.94	NA	NA	NA	Slight Odor	
	2/7/2013	14.95	ND	96.73	81.78	NA	NA	NA	Slight Odor	
	2/14/2013	15.12	ND	96.73	81.61	NA	NA	NA	Slight Odor	
	2/27/2013	15.62	ND	96.73	81.11	NA	NA	NA	Mod. Odor	
MW-10	12/10/2012	11.73	ND	94.95	83.22	NA	NA	NA		NA
	12/11/2012	12.93	ND	94.95	82.02	NA	NA	NA		0.03
	12/20/2012	14.25	ND	94.95	80.70	NA	NA	NA		0.03
	12/24/2012	16.42	ND	94.95	78.53	NA	NA	NA		0.00
	1/4/2013	14.31	ND	94.95	80.64	NA	NA	NA		0.04
	1/8/2013	14.58	ND	94.95	80.37	NA	NA	NA		0.04
	1/15/2013	13.65	ND	94.95	81.30	NA	NA	NA		0.04
	1/25/2013	12.23	ND	94.95	82.72	NA	NA	NA		
	1/29/2013	12.12	ND	94.95	82.83	NA	NA	NA		
	2/7/2013	13.02	ND	94.95	81.93	NA	NA	NA		
	2/14/2013	13.05	ND	94.95	81.90	NA	NA	NA		
	2/27/2013	13.53	ND	94.95	81.42	NA	NA	NA		
MW-11	12/10/2012	15.50	ND	98.69	83.19	NA	NA	NA		NA
	12/11/2012	17.09	ND	98.69	81.60	NA	NA	NA		0.00
	12/20/2012	18.23	ND	98.69	80.46	NA	NA	NA		0.00
	12/24/2012	17.44	ND	98.69	81.25	NA	NA	NA		0.00
	1/4/2013	18.32	ND	98.69	80.37	NA	NA	NA		0.00
	1/8/2013	18.66	ND	98.69	80.03	NA	NA	NA		0.00

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	1/15/2013	17.61	ND	98.69	81.08	NA	NA	NA		< 0.0
	1/25/2013	15.98	ND	98.69	82.71	NA	NA	NA		
	1/29/2013	15.85	ND	98.69	82.84	NA	NA	NA		
	2/7/2013	16.99	ND	98.69	81.70	NA	NA	NA		
	2/14/2013	17.09	ND	98.69	81.60	NA	NA	NA		
	2/27/2013	17.71	ND	98.69	80.98	NA	NA	NA		
MW-12	12/10/2012	14.03	ND	96.75	82.72	NA	NA	NA		NA
	12/11/2012	14.96	ND	96.75	81.79	NA	NA	NA		0.02
	12/20/2012	16.16	ND	96.75	80.59	NA	NA	NA		0.03
	12/24/2012	15.35	ND	96.75	81.40	NA	NA	NA		0.02
	1/4/2013	16.09	ND	96.75	80.66	NA	NA	NA		0.00
	1/8/2013	16.34	ND	96.75	80.41	NA	NA	NA		0.00
	1/15/2013	15.53	ND	96.75	81.22	NA	NA	NA		0.00
	1/25/2013	14.29	ND	96.75	82.46	NA	NA	NA		
	1/29/2013	14.22	ND	96.75	82.53	NA	NA	NA		
	2/7/2013	14.92	ND	96.75	81.83	NA	NA	NA		
	2/14/2013	14.86	ND	96.75	81.89	NA	NA	NA		
	2/27/2013	15.32	ND	96.75	81.43	NA	NA	NA		
MW-13	12/10/2012	8.35	ND	91.72	83.37	NA	NA	NA		NA
	12/11/2012	8.81	ND	91.72	82.91	NA	NA	NA		0.00
	12/20/2012	9.96	ND	91.72	81.76	NA	NA	NA		0.03
	12/24/2012	9.51	ND	91.72	82.21	NA	NA	NA		0.00
	1/4/2013	10.18	ND	91.72	81.54	NA	NA	NA		0.03
	1/8/2013	10.32	ND	91.72	81.40	NA	NA	NA		0.02
	1/15/2013	9.82	ND	91.72	81.90	NA	NA	NA		0.14
	1/25/2013	8.98	ND	91.72	82.74	NA	NA	NA		
	1/29/2013	8.86	ND	91.72	82.86	NA	NA	NA		
	2/7/2013	9.25	ND	91.72	82.47	NA	NA	NA		
	2/14/2013	9.17	ND	91.72	82.55	NA	NA	NA		
	2/27/2013	9.32	ND	91.72	82.40	NA	NA	NA		
MW-14	12/10/2012	10.23	ND	94.07	83.84	NA	NA	NA		NA
	12/11/2012	11.03	ND	94.07	83.04	NA	NA	NA		0.00
	12/20/2012	12.49	ND	94.07	81.58	NA	NA	NA		0.05
	12/24/2012	11.82	ND	94.07	82.25	NA	NA	NA		0.00
	1/4/2013	12.73	ND	94.07	81.34	NA	NA	NA		0.00
	1/8/2013	12.85	ND	94.07	81.22	NA	NA	NA		0.00
	1/15/2013	12.26	ND	94.07	81.81	NA	NA	NA		< 0.0
	1/25/2013	11.02	ND	94.07	83.05	NA	NA	NA		
	1/29/2013	10.81	ND	94.07	83.26	NA	NA	NA		
	2/7/2013	11.51	ND	94.07	82.56	NA	NA	NA		
	2/14/2013	11.48	ND	94.07	82.59	NA	NA	NA		
	2/27/2013	11.75	ND	94.07	82.32	NA	NA	NA		
MW-15	12/10/2012	16.36	ND	99.77	83.41	NA	NA	NA		NA
	12/11/2012	17.56	ND	99.77	82.21	NA	NA	NA		3.80
	12/20/2012	19.92	ND	99.77	79.85	NA	NA	NA		2.40
	12/24/2012	18.26	ND	99.77	81.51	NA	NA	NA		1.00
	1/4/2013	19.75	ND	99.77	80.02	NA	NA	NA		5.50
	1/8/2013	20.08	ND	99.77	79.69	NA	NA	NA		2.40
	1/15/2013	18.56	ND	99.77	81.21	NA	NA	NA		> 5.0
	1/25/2013	17.11	ND	99.77	82.66	NA	NA	NA		
	1/29/2013	16.95	ND	99.77	82.82	NA	NA	NA		
	2/7/2013	18.30	ND	99.77	81.47	NA	NA	NA		3.10
	2/14/2013	18.03	ND	99.77	81.74	NA	NA	NA		> 5.0
	2/27/2013	18.90	ND	99.77	80.87	NA	NA	NA		> 5.0

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MW-16	12/10/2012	7.56	ND	98.73	91.17	NA	NA	NA		NA	
	12/11/2012	7.30	ND	98.73	91.43	NA	NA	NA		0.00	
	12/20/2012	8.17	ND	98.73	90.56	NA	NA	NA		0.00	
	12/24/2012	7.96	ND	98.73	90.77	NA	NA	NA		0.00	
	1/4/2013	8.02	ND	98.73	90.71	NA	NA	NA		0.05	
	1/8/2013	8.03	ND	98.73	90.70	NA	NA	NA		0.05	
	1/15/2013	7.65	ND	98.73	91.08	NA	NA	NA		< 0.0	
	1/25/2013	7.81	ND	98.73	90.92	NA	NA	NA			
	1/29/2013	7.77	ND	98.73	90.96	NA	NA	NA			
	2/7/2013	7.90	ND	98.73	90.83	NA	NA	NA			
	2/14/2013	NG	ND	98.73	NA	NA	NA	NA	Well head submerged in puddle		
	2/27/2013	NG	ND	98.73	NA	NA	NA	NA	Well head submerged in puddle		
	MW-10-D	12/10/2012	13.53	ND	94.05	80.52	NA	NA	NA		
		12/20/2012	17.51	ND	94.05	76.54	NA	NA	NA		
12/24/2012		16.55	ND	94.05	77.50	NA	NA	NA			
1/4/2013		16.99	ND	94.05	77.06	NA	NA	NA			
1/8/2013		17.31	ND	94.05	76.74	NA	NA	NA			
1/15/2013		14.85	ND	94.05	79.20	NA	NA	NA			
1/25/2013		14.14	ND	94.05	79.91	NA	NA	NA			
1/29/2013		13.71	ND	94.05	80.34	NA	NA	NA			
2/7/2013		14.11	ND	94.05	79.94	NA	NA	NA			
2/14/2013		14.03	ND	94.05	80.02	NA	NA	NA			
2/27/2013	14.03	ND	94.05	80.02	NA	NA	NA				
MW-12-D	12/10/2012	27.34	ND	96.25	68.91	NA	NA	NA			
	12/20/2012	42.81	ND	96.25	53.44	NA	NA	NA			
	12/24/2012	41.17	ND	96.25	55.08	NA	NA	NA			
	1/4/2013	40.97	ND	96.25	55.28	NA	NA	NA			
	1/8/2013	41.25	ND	96.25	55.00	NA	NA	NA			
	1/15/2013	29.10	ND	96.25	67.15	NA	NA	NA			
	1/25/2013	NA	ND	96.25	NA	NA	NA	NA			
	1/29/2013	NA	ND	96.25	NA	NA	NA	NA			
	2/7/2013	29.05	ND	96.25	67.20	NA	NA	NA			
	2/14/2013	29.76	ND	96.25	66.49	NA	NA	NA			
2/27/2013	30.57	ND	96.25	65.68	NA	NA	NA				
MW-13-D	12/10/2012	17.26	ND	91.85	74.59	NA	NA	NA			
	12/20/2012	24.43	ND	91.85	67.42	NA	NA	NA			
	12/24/2012	23.94	ND	91.85	67.91	NA	NA	NA			
	1/4/2013	24.16	ND	91.85	67.69	NA	NA	NA			
	1/8/2013	22.84	ND	91.85	69.01	NA	NA	NA			
	1/15/2013	19.18	ND	91.85	72.67	NA	NA	NA			
	1/25/2013	19.40	ND	91.85	72.45	NA	NA	NA			
	1/29/2013	20.68	ND	91.85	71.17	NA	NA	NA			
	2/7/2013	19.66	ND	91.85	72.19	NA	NA	NA			
	2/14/2013	22.22	ND	91.85	69.63	NA	NA	NA			
2/27/2013	21.51	ND	91.85	70.34	NA	NA	NA				
TP-1	12/10/2012	11.04	ND	NM	NA	NA	NA	NA		NA	
	12/20/2012	14.32	ND	NM	NA	NA	NA	NA		0.06	
	12/24/2012	13.60	ND	NM	NA	NA	NA	NA		0.06	
	1/4/2013	14.75	ND	NM	NA	NA	NA	NA		0.04	
	1/8/2013	14.98	ND	NM	NA	NA	NA	NA		0.05	
	1/15/2013	14.10	ND	NM	NA	NA	NA	NA		0.08	
	1/25/2013	12.49	ND	NM	NA	NA	NA	NA			
1/29/2013	12.04	ND	NM	NA	NA	NA	NA				
2/7/2013	12.73	ND	NM	NA	NA	NA	NA				

Table 1 - Well Gauging Summary
Gasoline Fueling Station – Royal Farms No. 96
500 Mechanic Valley Road, North East, Maryland 21901

	2/14/2013	12.54	ND	NM	NA	NA	NA	NA		
	2/27/2013	12.62	ND	NM	NA	NA	NA	NA		
TP-2	12/10/2012	11.37	ND	NM	NA	NA	NA	NA		NA
	12/20/2012	15.24	ND	NM	NA	NA	NA	NA		0.06
	12/24/2012	14.51	ND	NM	NA	NA	NA	NA		0.05
	1/4/2013	15.68	ND	NM	NA	NA	NA	NA		0.07
	1/8/2013	15.89	ND	NM	NA	NA	NA	NA		0.06
	1/15/2013	15.03	ND	NM	NA	NA	NA	NA		0.10
	1/25/2013	13.41	ND	NM	NA	NA	NA	NA		
	1/29/2013	12.97	ND	NM	NA	NA	NA	NA		
	2/7/2013	13.63	ND	NM	NA	NA	NA	NA		0.06
	2/14/2013	13.46	ND	NM	NA	NA	NA	NA		0.04
	2/27/2013	13.53	ND	NM	NA	NA	NA	NA		0.08
TP-3	12/10/2012	12.72	ND	NM	NA	NA	NA	NA		NA
	12/20/2012	15.96	ND	NM	NA	NA	NA	NA		0.05
	12/24/2012	15.23	ND	NM	NA	NA	NA	NA		0.04
	1/4/2013	16.40	ND	NM	NA	NA	NA	NA		0.08
	1/8/2013	16.60	ND	NM	NA	NA	NA	NA		0.08
	1/15/2013	15.73	ND	NM	NA	NA	NA	NA		0.10
	1/25/2013	14.13	ND	NM	NA	NA	NA	NA		
	1/29/2013	13.67	ND	NM	NA	NA	NA	NA		
	2/7/2013	14.37	ND	NM	NA	NA	NA	NA		0.05
	2/14/2013	14.17	ND	NM	NA	NA	NA	NA		0.05
	2/27/2013	14.27	ND	NM	NA	NA	NA	NA		0.17
TP-4	12/10/2012	12.82	ND	NM	NA	NA	NA	NA		NA
	12/20/2012	15.12	ND	NM	NA	NA	NA	NA		0.06
	12/24/2012	14.38	ND	NM	NA	NA	NA	NA		0.05
	1/4/2013	15.55	ND	NM	NA	NA	NA	NA		0.05
	1/8/2013	15.76	ND	NM	NA	NA	NA	NA		0.06
	1/15/2013	14.91	ND	NM	NA	NA	NA	NA		0.09
	1/25/2013	13.29	ND	NM	NA	NA	NA	NA		
	1/29/2013	12.85	ND	NM	NA	NA	NA	NA		
	2/7/2013	13.53	ND	NM	NA	NA	NA	NA		
	2/14/2013	13.35	ND	NM	NA	NA	NA	NA		
	2/27/2013	13.42	ND	NM	NA	NA	NA	NA		
RW-1*	12/10/2012	12.50	ND	95.92	83.42	NA	NA	NA	Depth to Groundwater Pump intake: 14.5 ft.	
RW-2*	12/10/2013	13.80	13.80	96.21	82.41	82.41	82.41	0.00 Sheen	Depth to Groundwater Pump intake: 15.0 ft.	
RW-3*	12/10/2013	14.55	ND	97.59	83.04	NA	NA	NA	Depth to Groundwater Pump intake: 16.5 ft.	
RW-4*	12/10/2013	14.15	14.15	97.38	83.23	83.23	83.23	0.00 Sheen	Depth to Groundwater Pump intake: 15.0 ft.	
RW-5	12/10/2012	12.41	ND	96.21	83.80	NA	NA	NA		NA
	12/20/2012	15.80	ND	96.21	80.41	NA	NA	NA		7.00
	12/24/2012	15.02	ND	96.21	81.19	NA	NA	NA		3.90
	1/4/2013	16.39	ND	96.21	79.82	NA	NA	NA		8.00
	1/8/2013	16.66	ND	96.21	79.55	NA	NA	NA		8.00
	1/15/2013	15.86	ND	96.21	80.35	NA	NA	NA		
	1/25/2013	13.25	ND	96.21	82.96	NA	NA	NA		
	1/29/2013	13.04	ND	96.21	83.17	NA	NA	NA		
	2/7/2013	14.52	ND	96.21	81.69	NA	NA	NA		
	2/14/2013	15.11	ND	96.21	81.10	NA	NA	NA		> 5.0
	2/27/2013	15.49	ND	96.21	80.72	NA	NA	NA		> 5.0

**Table 1 - Well Gauging Summary
Gasoline Fueling Station – Royal Farms No. 96
500 Mechanic Valley Road, North East, Maryland 21901**

RW-6*	12/10/2013	13.33	ND	96.78	83.45	NA	NA	NA	Depth to Groundwater Pump intake: 15.5 ft.	
RW-7	12/10/2013	13.23	ND	96.60	83.37	NA	NA	NA		NA
	12/20/2012	16.09	ND	96.60	80.51	NA	NA	NA		13.00
	12/24/2012	16.28	ND	96.60	80.32	NA	NA	NA		15.00
	1/4/2013	17.22	ND	96.60	79.38	NA	NA	NA		21.00
	1/8/2013	17.60	ND	96.60	79.00	NA	NA	NA		21.00
	1/15/2013	16.96	ND	96.60	79.64	NA	NA	NA		
	1/25/2013	13.99	ND	96.60	82.61	NA	NA	NA		
	1/29/2013	13.79	ND	96.60	82.81	NA	NA	NA		
	2/7/2013	15.62	ND	96.60	80.98	NA	NA	NA		
	2/14/2013	15.73	ND	96.60	80.87	NA	NA	NA		> 5.0
	2/27/2013	15.60	ND	96.60	81.00	NA	NA	NA		> 5.0
RW-8*	12/10/2013	13.60	ND	97.98	84.38	NA	NA	NA	Depth to Groundwater Pump intake: 13.75 ft.	
RW-9*	12/10/2012	7.30	ND	97.25	89.95	NA	NA	NA	Depth to Groundwater Pump intake: 9.5 ft.	
RW-10*	12/10/2013	13.87	13.87	96.98	83.11	83.11	83.11	0.00 Sheen	Depth to Groundwater Pump intake: 16.0 ft.	
RW-11*	12/10/2013	13.21	13.21	96.29	83.08	83.08	83.08	0.00 Sheen	Depth to Groundwater Pump intake: 15.0 ft.	
RW-12*	12/10/2013	13.70	ND	98.20	84.50	NA	NA	NA	Depth to Groundwater Pump intake: 14.5 ft.	
RW-13	12/10/2012	14.37	14.37	97.52	83.15	83.15	83.15	0.00 Sheen	NA	NA
	12/20/2012	17.64	ND	97.52	79.88	NA	NA	NA		6.00
	12/24/2012	17.26	ND	97.52	80.26	NA	NA	NA		2.20
	1/4/2013	18.05	ND	97.52	79.47	NA	NA	NA		7.00
	1/8/2013	18.46	ND	97.52	79.06	NA	NA	NA		7.00
	1/15/2013	17.74	ND	97.52	79.78	NA	NA	NA		
	1/25/2013	14.88	ND	97.52	82.64	NA	NA	NA		
	1/29/2013	14.70	ND	97.52	82.82	NA	NA	NA		
	2/7/2013	16.54	ND	97.52	80.98	NA	NA	NA		2.20
	2/14/2013	16.82	ND	97.52	80.70	NA	NA	NA		> 5.0
	2/27/2013	17.78	ND	97.52	79.74	NA	NA	NA		> 5.0

* - Well used for recovery by the VE/GE System

VE/GE System began operation 12/11/2012

LPH = Liquid Phase Hydrocarbon

TOC = Top of Casing Elevation

ND = None Detected

NA = Not Applicable

NG = Not Gauged

NM = Not Measured

Vacuum pressure readings measured in inches of water

Corrected water elevation based on LPH density of 0.7 grams per milliliter

Table 2 - VE/GE System Quarterly Hydrocarbon Recovery Data
Fueling Station – Royal Farms #96
500 Mechanics Valley Road, North East, MD 21901

Monitoring Period	Operating Days	Dissolved Phase				Maximum System Discharge Flow Rate (gpm)	Period GW Discharge (gallons)	Cumulative GW Discharge (gallons)	Average Extraction Rate per Well (gpm)	Average Extraction Rate for System (gpm)	Vapor Phase	
		System Influent Dissolved Benzene Concentration (ug/L)	System Influent Dissolved BTEX Concentration (ug/L)	System Influent Dissolved MTBE Concentration (ug/L)	System Influent Dissolved TPH-GRO Concentration (ug/L)						PID (ppm)	Airflow (cfm)
12/11/12 - 1/8/13	28	503	2007	0	2870	25	866,880.0	866,880.0	1.95	21.50	351	122
1/9/13 - 2/7/13	16	47.1	233	0	383	16	299,520.0	1,166,400.0	1.18	13.00	262	147
2/8/13 - 3/6/13	22	41.5	722.3	0	967	15	403,200.0	1,569,600.0	1.16	12.73	107	362

BTEX = Benzene, toluene, ethylbenzene and xylenes

Calculation used for dissolved phase recovery in pounds: Flow rate gpm * contaminate concentration ug/L * 3.785 L/gal * 1440 min/day *(2.205 lbs/10⁹ ug)

Calculation used for dissolved phase recovery in gallons: Flow rate gpm * contaminate concentration ug/L * 3.785 L/gal * 1440 min/day *(2.205 lbs/10⁹ ug) / 6.25 lbs/gal

Groundwater discharge is estimated due to malfunction in discharge totalizer

Table 3 - VE/GE System Quarterly Hydrocarbon Recovery Estimates
Fueling Station – Royal Farms #96
500 Mechanics Valley Road, North East, MD 21901

Monitoring Period	Gallons of Hydrocarbons (BTEX) Recovered During Period			Period Total Gallons	Cumulative Gallons to Date	Pounds of Hydrocarbons (BTEX) Recovered During Period					Period Total Pounds	Cumulative Pounds to Date
	Liquid (gallons)	Dissolved (gallons)	Vapor (gallons)			Liquid (lbs)	Dissolved (lbs)	Dissolved (lbs/day)	Vapor (lbs)	Vapor (lbs/day)		
12/11/12 - 1/8/13	0	2.32	80.88	83.21	83.21	0.00	14.52	0.52	505.51	18.05	520.03	520.03
1/9/13-2/7/13	0	0.09	41.57	41.66	124.87	0.00	0.58	0.04	259.80	16.24	260.39	780.42
2/8/13 - 3/6/13	0	0.39	57.48	57.87	182.74	0.00	2.43	0.11	359.27	16.33	361.70	1142.12

Calculation used for dissolved phase recovery in pounds per day: Flow rate gpm * Total BTEX concentration ug/L * 3.785 L/gal * 1440 min/day *(2.205 lbs/10⁹ ug)

Calculation used for vapor phase recovery in pounds per day: Airflow ft³/min * 0.0283 m³/ft³ * VOCs ppm * 105 g/mole BTEX * .00268 gas constant * 0.001 kg/g * 52.91 lbs per day / kg per hr

1 gallon = 6.25 pounds

Attachment C

VE/GE System Monitoring Worksheet
Gasoline Fueling Station – Royal Farms #96
500 Mechanics Valley Road
North East, MD

Date: 2/14/2013
Time: 16:00
Recorded By: JDW

Main Control Panel	
System Running (Y/N)	Yes
Alarm Condition (Y/N)	No
Circuits Tripped (Y/N)	No
Stripper Backpressure (psig)	15.5
Run Time (hours)	1,174.2
Electric (kw/h)	54,554

VE/GE System - Building Interior	
SVE Exhaust Temperature (°F)	145
AWS-1 Vacuum Pressure (inHg)	9.0
Dilution Valve (% open)	25
Compressor Tank Pressure (psi)	120
Pressure to Wells (psi)	22
GW Return Pressure (psi)	0
Ambient Room Temperature (°F)	49
Sump Transfer Pump Pressure (psi)	50
Bag Filter Vessel Pressure (psi)	46
Carbon 1 Pressure (psi)	42
Carbon 2 Pressure (psi)	22
Flow Rate (gal/min)	15

A backflush was performed on both Carbon tanks
Groundwater filter bags were replaced

VE/GE System Monitoring Worksheet
Gasoline Fueling Station – Royal Farms #96
500 Mechanics Valley Road
North East, MD

Date: 2/27/2013
Time: 9:30
Recorded By: JDW

Main Control Panel	
System Running (Y/N)	Yes
Alarm Condition (Y/N)	No
Circuits Tripped (Y/N)	No
Stripper Backpressure (psig)	15.5
Run Time (hours)	1,353.8
Electric (kw/h)	59,761

VE/GE System - Building Interior	
SVE Exhaust Temperature (°F)	138
AWS-1 Vacuum Pressure (inHg)	9.0
Dilution Valve (% open)	0
Compressor Tank Pressure (psi)	125
Pressure to Wells (psi)	21
GW Return Pressure (psi)	0
Ambient Room Temperature (°F)	49
Sump Transfer Pump Pressure (psi)	51
Bag Filter Vessel Pressure (psi)	47
Carbon 1 Pressure (psi)	42
Carbon 2 Pressure (psi)	13
Flow Rate (gal/min)	12.5

A backflush was performed on both Carbon tanks
Groundwater filter bags were replaced