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February 14, 2014

Mr. Jim Richmond  
Maryland Department of Environment  
Oil Control Program  
1800 Washington Blvd. Suite 620  
Baltimore, Maryland 21230-1719

AECOM Project #: 60144916

**Subject: Remediation System Status Update Report #3  
7-Eleven Store No. 32785  
125 Hanover Pike  
Hampstead, MD  
Facility ID No. 11266  
Case No. 2006-0282-CL**

Dear Mr. Richmond,

On behalf of 7-Eleven, Inc. (7-Eleven), AECOM has prepared this Remediation System Startup and Status Update report for the above-referenced site. This report was prepared to meet the requirements set forth in the Corrective Action Plan (CAP) Approval letter from the Maryland Department of the Environment (MDE) dated February 20, 2013, requesting submission of monthly Update Reports to the Oil Control Program (OCP) regarding the progress of remedial activities at the site for the first 90 days of system operation. This report covers operation and maintenance of the system during January 2014.

AECOM began installation of the ex-situ groundwater extraction and treatment system at the site on August 19, 2013. System startup and shakedown took place on October 8, 2013 following extensive inspections and piping testing to ensure maximum efficiency and operability. Based on decreasing methyl tert-butyl ether (MTBE) trends and MDE approval, AECOM excluded monitoring well MW-6 from the system. Electric submersible pumps have been installed in monitoring wells MW-8, MW-9 and MW-10 at depths from the asphalt of 180 feet (ft), 185 ft, and 185 ft below ground surface (bgs), respectively.

All extracted groundwater is treated through an air stripper, two particulate filters, and two 500-pound granular activated carbon (GAC) units prior to discharge. The treated groundwater is discharged to the stormwater system on the vicinity of the 7-Eleven property. The treated groundwater is discharged in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit and all necessary permits obtained from Carroll County. The air stripper system received an exemption from the requirements of the General Permit to Construct for Soil Vapor Extraction and Groundwater Air Stripping Equipment.

In accordance with the MDE CAP Approval letter dated February 20, 2013, AECOM samples the remediation system effluent twice monthly and completes twice monthly operation and maintenance (O&M) site visits, including gauging of the monitoring wells, to evaluate the operation of the remediation system and to complete any necessary system maintenance.

The remediation system was started on October 8, 2013. A total of 593,592 gallons of treated groundwater have been discharged through the end of this reporting period, 97,437 of which were discharged from the system during this reporting period (January 2014): 21,676 gallons were pumped from monitoring well MW-8 at an average rate of 0.558 gallons-per-minute (gpm); 1,158 gallons were pumped from monitoring well MW-9 at an average rate of 0.013 gpm; and 74,603 gallons were pumped from monitoring well MW-10 at an average rate of 1.921 gpm. The decrease in discharge during this reporting period in the three pumping wells is reportedly due to the sump pump signaling the pumps to shut down with subsequent air stripper high level problems. An obstruction was thought to have been

the reason for flow problems in the pump in well MW-9, but upon deployment of a camera into the trench pipe, it was reported that no such obstruction existed. Upon leaving the site on January 29, 2014, the system was operating, with pumps in wells MW-8 and MW-10 fully operational. The pump in monitoring well MW-9 remained off. Potential cracks along the piping due to consistent freezing or below-freezing temperatures may have contributed to the flow issue during this reporting period, and may prolong flow issues, as repairs and general maintenance will remain tedious under these current weather conditions. System performance data is provided in **Table 2**.

Depth-to-water on January 13, 2014 in monitoring well MW-8 was 146.80 feet bgs; 100.21 feet bgs in well MW-9 and 131.18 feet bgs in well MW-10. Groundwater drawdown graphs of the pumping wells (MW-8, MW-9 and MW-10) are provided in **Attachment A**.

In the remaining monitoring wells (MW-1 through MW-7 (non-pumping wells)), depth-to-water ranged from 22.07 feet bgs in well MW-4, to 29.93 feet bgs in well MW-7 on January 13, 2014. During the January 29, 2014 gauging event, wells MW-1, MW-4, MW-5, and MW-7 were inaccessible due to frozen conditions. Groundwater in the shallow wells historically has flowed to the northwest, but since the system was started, groundwater in these wells has flowed to the east/northeast. Historical monitoring well elevation data is provided in **Table 1**. A groundwater elevation map for January 13, 2014 is provided as **Figure 1**. Note: since three of the four bedrock wells are currently under pumping conditions, no groundwater elevation maps are provided for these wells.

### **Groundwater Treatment System Analytical Summary**

Initial system influent and effluent samples were collected and submitted for laboratory analysis on January 13, 2014. The total petroleum hydrocarbons gasoline range organics (TPH-GRO) concentration in the air stripper influent sample was 230 micrograms-per-liter ( $\mu\text{g/l}$ ), which is a slight increase from the previous reporting period (140  $\mu\text{g/l}$  on December 16, 2013), but represents an overall decrease since system startup. The air stripper influent MTBE concentration was 230  $\mu\text{g/l}$ ; a decline of nearly 57% since system startup. The tert-butanol (TBA) concentration was below detection limits. Tert-amyl methyl ether (TAME) has not been detected in the air stripper influent since it was first sampled on October 17, 2013, which it reported a concentration of 12  $\mu\text{g/l}$ . All remaining analytes in the air stripper influent revealed concentrations below detection limits. The GAC 2 final effluent sample revealed all analytes below detection limits. A system final effluent (GAC 2) sample was also collected on December 16, 2013, the results of which revealed all analyte parameters below detection limits.

The air stripper effluent concentration of MTBE on January 13, 2014 was 3.6  $\mu\text{g/l}$ , a slight increase from the December 16, 2013 concentration of 1.7  $\mu\text{g/l}$ . The air stripper system removed MTBE at an efficiency rate of 98.8% during this reporting period, with an average rate of 99.3% efficiency since system startup. A summary of the analytical results are provided in **Table 3**. Laboratory reports are provided in **Attachment B**. A graph depicting the air stripper MTBE concentration over time is provided in **Attachment C**.

### **Groundwater Monitoring Well Analytical Summary**

Groundwater samples were not collected during this reporting period. Summary and laboratory reports are included in the fourth quarterly report for 2013, which was submitted under separate cover.

### **Residential Treatment Potable Well**

Samples were collected from the point of entry treatment (POET) system of the potable well servicing 124 Hanover Pike this quarter, on January 13, 2014. At the request of MDE, the POET system was sampled monthly during the system startup for the first 90 days. The samples were analyzed for total VOCs plus oxygenates via EPA Method 524.2. AECOM samples the system bimonthly (pre-, mid-, and post-injection), based on carbon breakthrough data. MTBE Concentrations in the influent sample have steadily decreased during every sampling event since September 9, 2012, dropping by more than 99% during that period from 1,100  $\mu\text{g/l}$  to 7.2  $\mu\text{g/l}$  during this monitoring period. Six carbon changes have

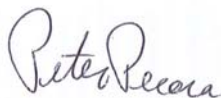
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been conducted to date, including change-out of all three carbon units on July 20, 2010, February 8, 2011, June 28, 2011, February 21, 2012, June 26, 2012 and December 28, 2012, based on TBA breakthrough of the first carbon unit. No VOCs, including MTBE, have been detected above laboratory detection limits in the final effluent. Potable well sampling results are included in **Table 4**, and **Attachment D**. A graph depicting the Influent MTBE Concentrations in the potable carbon treatment system at 124 Hanover Pike over time are provided as **Attachment E**.

Going forward, AECOM will include the remediation system data and analysis within the quarterly monitoring and progress reports.

If you have any questions, please contact the undersigned at (240) 565-6501.

Yours sincerely,



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Attachments:

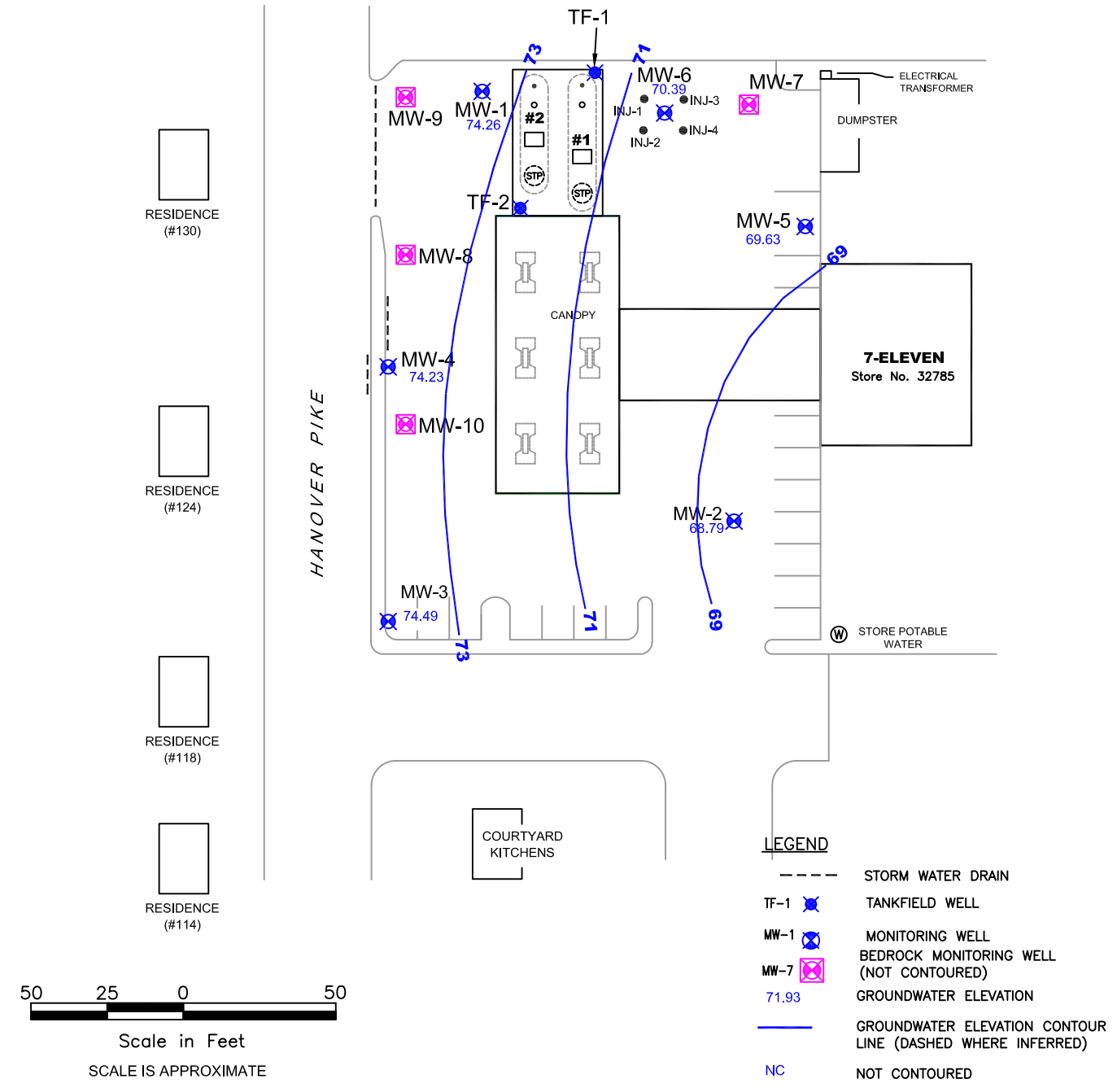
Figure 1 – Groundwater Elevation Map – Shallow Wells, January 13, 2014  
Table 1 – Depth-to-Water and Groundwater Elevation of Monitoring Wells  
Table 2 – System Performance Data  
Table 3 – System Analytical Results  
Table 4 – 124 Hanover Pike Sampling Results  
Attachment A – Groundwater Monitoring Well Drawdown Graphs  
Attachment B – Laboratory Reports  
Attachment C – Air Stripper MTBE Concentration Graph Over Time  
Attachment D – Potable Well Laboratory Report  
Attachment E - Potable Carbon Treatment System - Influent MTBE Concentrations

cc: 7-Eleven Project File

## FIGURES

**TANK LEGEND**

- #1 - 15K REGULAR UNLEADED UST
- #2 - 10K GAL. PREMIUM UNLEADED UST
- UST - UNDERGROUND STORAGE TANK
- (STP) SUBMERSIBLE PUMP
- AUTOMATIC TANK GAUGE
- FILL PORT
- STAGE 1 VAPOR RECOVERY



<p style="text-align: center;"><b>AECOM</b></p> <p><b>AECOM CORPORATION</b>                  8320 GUILFORD ROAD, SUITE L                  COLUMBIA, MD 21046                  PHONE: (410) 884-9280                  FAX: (410) 884-9271                  WEB: HTTP://WWW.AECOM.COM</p>	<p><b>GROUNDWATER ELEVATION MAP                  SHALLOW WELLS (PUMPING CONDITIONS)                  January 13, 2014</b></p> <p>7-ELEVEN STORE NO. 32785                  125 HANOVER PIKE                  HAMPSTEAD, MD</p>			FIGURE NUMBER:  <h1 style="font-size: 2em;">1</h1>
	DRAWN BY: JT	CHECKED BY: RA	DATE: 1/30/14	PROJECT NUMBER: 60144916

## TABLES

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-1  Installed 7/7/05 Total depth 35' Screened 15' to 35' 4" casing; .020 slot screen	96.54	7/25/05	24.47	72.07
		8/18/05	25.98	70.56
		1/25/06	24.92	71.62
		7/11/06	25.74	70.80
		9/7/06	28.08	68.46
		1/9/07	25.45	71.09
		6/14/07	25.32	71.22
		11/30/07	31.10	65.44
		2/14/08	29.20	67.34
		5/23/08	25.04	71.50
		8/7/08	25.36	71.18
		12/3/08	27.22	69.32
		2/12/09	26.15	70.39
		5/12/09	23.56	72.98
		8/19/09	24.86	71.68
		11/4/09	21.88	74.66
		2/26/10	22.26	74.28
		5/13/10	23.85	72.69
		8/17/10	25.37	71.17
		11/28/10	28.04	68.50
		2/2/11	28.78	67.76
		3/31/11	23.52	73.02
		4/6/11	24.26	72.28
		5/26/11	22.25	74.29
		6/28/11	25.66	70.88
		7/29/11	26.25	70.29
		8/26/11	25.03	71.51
		9/26/11	23.75	72.79
		10/14/11	24.45	72.09
		11/23/11	23.71	72.83
		12/20/11	21.85	74.69
		1/10/12	22.09	74.45
		2/24/12	24.28	72.26
		3/8/12	23.63	72.91
		6/7/12	21.54	75.00
		7/17/12	24.69	71.85
		8/21/12	24.34	72.20
		9/19/12	26.18	70.36
		10/24/12	24.74	71.80
		10/31/12	23.67	72.87
11/27/12	24.14	72.40		
12/21/12	25.20	71.34		
1/22/13	24.07	72.47		
2/26/13	23.40	73.14		
3/29/13	22.60	73.94		
4/17/13	23.78	72.76		
5/30/13	24.57	71.97		
6/5/13	24.98	71.56		
7/23/13	24.88	71.66		
8/29/13	26.09	70.45		
9/25/13	27.68	68.86		
10/14/13	26.21	70.33		
10/15/13	25.68	70.86		
10/17/13	25.04	71.50		
10/21/13	24.77	71.77		
11/14/13	26.10	70.44		
11/25/13	26.48	70.06		
12/16/13	23.81	72.73		
1/13/14	22.28	74.26		
1/29/14	NA	NA		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-2  Installed 7/7/05 Total depth 35' Screened 15' to 35' 4" casing; .020 slot screen	98.67	7/25/05	27.60	71.07
		8/18/05	28.38	70.29
		1/25/06	27.85	70.82
		7/11/06	28.92	69.75
		9/7/06	30.15	68.52
		1/9/07	28.36	70.31
		6/14/07	27.51	71.16
		11/30/07	33.37	65.30
		2/14/08	32.17	66.50
		5/23/08	28.63	70.04
		8/7/08	28.58	70.09
		12/3/08	31.07	67.60
		2/12/09	29.10	69.57
		5/12/09	28.56	70.11
		8/19/09	28.56	70.11
		11/4/09	27.27	71.40
		2/26/10	25.49	73.18
		5/13/10	25.33	73.34
		8/17/10	28.98	69.69
		11/28/10	30.78	67.89
		2/2/11	31.34	67.33
		3/31/11	26.01	72.66
		4/6/11	28.63	70.04
		5/26/11	26.46	72.21
		6/28/11	27.59	71.08
		7/29/11	29.38	69.29
		8/26/11	29.97	68.70
		9/26/11	27.99	70.68
		10/14/11	27.49	71.18
		11/23/11	27.19	71.48
		12/20/11	22.24	76.43
		1/10/12	25.82	72.85
		2/24/12	26.39	72.28
		3/8/12	26.66	72.01
		6/7/12	27.22	71.45
		7/17/12	28.41	70.26
		8/21/12	28.50	70.17
		9/19/12	29.13	69.54
		10/24/12	29.14	69.53
		10/31/12	28.94	69.73
		11/27/12	28.51	70.16
		12/21/12	27.76	70.91
1/22/13	27.67	71.00		
2/26/13	26.86	71.81		
3/29/13	26.60	72.07		
4/17/13	26.83	71.84		
5/30/13	27.41	71.26		
6/5/13	27.70	70.97		
7/23/13	27.67	71.00		
8/29/13	29.15	69.52		
9/25/13	30.29	68.38		
10/14/13	31.34	67.33		
10/15/13	31.43	67.24		
10/17/13	31.45	67.22		
10/21/13	31.57	67.10		
11/14/13	31.82	66.85		
11/25/13	32.17	66.50		
12/16/13	31.49	67.18		
1/13/14	29.88	68.79		
1/29/14	28.68	69.99		



Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-3  Installed 7/11/05 Total depth 35' Screened 15' to 35' 4" casing; .020 slot screen	97.51	7/25/05	25.02	72.49
		8/18/05	27.41	70.10
		1/25/06	24.56	72.95
		7/11/06	25.42	72.09
		9/7/06	28.17	69.34
		1/9/07	24.29	73.22
		6/14/07	26.85	70.66
		11/30/07	32.45	65.06
		2/14/08	29.80	67.71
		5/23/08	24.09	73.42
		8/7/08	26.85	70.66
		12/3/08	29.55	67.96
		2/12/09	28.17	69.34
		5/12/09	25.63	71.88
		8/19/09	27.15	70.36
		11/4/09	23.84	73.67
		2/26/10	NG	--
		5/13/10	24.64	72.87
		8/17/10	26.04	71.47
		11/28/10	29.93	67.58
		2/2/11	NG	--
		3/31/11	NG	--
		4/6/11	26.33	71.18
		5/26/11	24.52	72.99
		6/28/11	27.32	70.19
		7/29/11	29.02	68.49
		8/26/11	28.00	69.51
		9/26/11	25.48	72.03
		10/14/11	26.27	71.24
		11/23/11	25.38	72.13
		12/20/11	24.12	73.39
		1/10/12	24.48	73.03
		2/24/12	26.09	71.42
		3/8/12	25.58	71.93
		6/7/12	23.96	73.55
		7/17/12	26.86	70.65
		8/21/12	26.61	70.90
		9/19/12	28.22	69.29
		10/24/12	26.41	72.26
		10/31/12	25.36	73.31
11/27/12	25.96	72.71		
12/21/12	26.85	71.82		
1/22/13	25.55	73.12		
2/26/13	25.27	73.40		
3/29/13	24.96	72.55		
4/17/13	25.86	71.65		
5/30/13	26.58	70.93		
6/5/13	26.89	70.62		
7/23/13	26.80	70.71		
8/29/13	28.20	69.31		
9/25/13	29.94	67.57		
10/14/13	26.21	71.30		
10/15/13	25.28	72.23		
10/17/13	24.41	73.10		
10/21/13	24.24	73.27		
11/14/13	25.05	72.46		
11/25/13	25.12	72.39		
12/16/13	23.48	74.03		
1/13/14	23.02	74.49		
1/29/14	24.96	72.55		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation	
MW-4  Installed 11/21/05 Total depth 35' Screened 15' to 35' 4" casing; .020 slot screen	96.30	7/25/05	NI	--	
		8/18/05	NI	--	
		1/25/06	23.78	72.52	
		7/11/06	24.06	72.24	
		9/7/06	28.29	68.01	
		1/9/07	23.91	72.39	
		6/14/07	25.49	70.81	
		11/30/07	31.07	65.23	
		2/14/08	28.36	67.94	
		5/23/08	23.06	73.24	
		8/7/08	25.40	70.90	
		12/3/08	28.98	67.32	
		2/12/09	26.65	69.65	
		5/12/09	23.93	72.37	
		8/19/09	25.43	70.87	
		11/4/09	22.00	74.30	
		2/26/10	22.79	73.51	
		5/13/10	23.25	73.05	
		8/17/10	25.91	70.39	
		11/28/10	28.44	67.86	
		2/2/11	29.19	67.11	
		3/31/11	23.94	72.36	
		4/6/11	24.63	71.67	
		5/26/11	22.84	73.46	
		6/28/11	25.85	70.45	
		7/29/11	27.44	68.86	
		8/26/11	25.97	70.33	
		9/26/11	23.78	72.52	
		10/14/11	24.77	71.53	
		11/23/11	24.32	71.98	
		12/20/11	22.47	73.83	
		1/10/12	22.85	73.45	
		2/24/12	24.49	71.81	
		3/8/12	24.20	72.10	
		6/7/12	22.01	74.29	
		7/17/12	25.19	71.11	
		8/21/12		NG	
		9/19/12	26.63	69.67	
		10/24/12	25.05	71.25	
		10/31/12	24.48	71.82	
		11/27/12	24.36	71.94	
		12/21/12	25.46	70.84	
		1/22/13	24.12	72.18	
		2/26/13	23.67	72.63	
		3/29/13	23.38	72.92	
		4/17/13	24.34	71.96	
		5/30/13	26.37	69.93	
6/5/13	25.45	70.85			
7/23/13	25.24	71.06			
8/29/13	26.61	69.69			
9/25/13	29.48	66.82			
10/14/13	25.88	70.42			
10/15/13	24.65	71.65			
10/17/13	23.67	72.63			
10/21/13	23.50	72.80			
11/14/13	24.32	71.98			
11/25/13	24.35	71.95			
12/16/13	22.81	73.49			
1/13/14	22.07	74.23			
1/29/14		NA	NA		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-5  Installed 11/22/05 Total depth 35' Screened 15' to 35' 4" casing; .020 slot screen	98.35	7/25/05	NI	--
		8/18/05	NI	--
		1/25/06	27.55	70.80
		7/11/06	28.54	69.81
		9/7/06	29.97	68.38
		1/9/07	28.08	70.27
		6/14/07	27.38	70.97
		11/30/07	33.06	65.29
		2/14/08	31.74	66.61
		5/23/08	28.02	70.33
		8/7/08	28.18	70.17
		12/3/08	30.45	67.90
		2/12/09	28.67	69.68
		5/12/09	27.88	70.47
		8/19/09	28.20	70.15
		11/4/09	26.55	71.80
		2/26/10	25.22	73.13
		5/13/10	25.21	73.14
		8/17/10	28.62	69.73
		11/28/10	30.49	67.86
		2/2/11	35.96	62.39
		3/31/11	27.91	70.44
		4/6/11	28.05	70.30
		5/26/11	25.96	72.39
		6/28/11	27.47	70.88
		7/29/11	29.18	69.17
		8/26/11	29.40	68.95
		9/26/11	27.36	70.99
		10/14/11	27.11	71.24
		11/23/11	26.85	71.50
		12/20/11	25.71	72.64
		1/10/12	25.43	72.92
		2/24/12	26.30	72.05
		3/8/12	26.42	71.93
		6/7/12	26.45	71.90
		7/17/12	27.66	70.69
		8/21/12	27.98	70.37
		9/19/12	28.79	69.56
		10/24/12	28.52	69.83
		10/31/12	28.28	70.07
		11/27/12	27.10	71.25
		12/21/12	27.41	70.94
		1/22/13	27.14	71.21
		2/26/13	26.38	71.97
		3/29/13	26.13	72.22
		4/17/13	26.59	71.76
		5/30/13	27.30	71.05
6/5/13	27.68	70.67		
7/23/13	27.56	70.79		
8/29/13	28.81	69.54		
9/25/13	30.00	68.35		
10/14/13	NG	NG		
10/15/13	30.73	67.62		
10/17/13	30.64	67.71		
10/21/13	30.64	67.71		
11/14/13	NG	NG		
11/25/13	31.16	67.19		
12/16/13	30.15	68.20		
1/13/14	28.72	69.63		
1/29/14	NA	NA		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-6  Installed 11/17/08 Total depth 40' Screened 15' to 40' 4" casing; .020 slot screen	95.74	12/3/08	28.89	66.85
		2/12/09	27.52	68.22
		5/12/09	25.91	69.83
		8/19/09	26.68	69.06
		11/4/09	24.30	71.44
		2/26/10	23.89	71.85
		5/13/10	24.06	71.68
		8/17/10	27.08	68.66
		11/28/10	29.18	66.56
		2/2/11	29.72	66.02
		3/31/11	25.84	69.90
		4/6/11	26.20	69.54
		5/26/11	24.36	71.38
		6/28/11	26.40	69.34
		7/29/11	27.98	67.76
		8/26/11	27.40	68.34
		9/26/11	25.46	70.28
		10/14/11	25.63	70.11
		11/23/11	25.37	70.37
		12/20/11	23.91	71.83
		1/10/12	23.92	71.82
		2/24/12	24.81	70.93
		3/8/12	25.19	70.55
		6/7/12	24.10	71.64
		7/17/12	26.15	69.59
		8/21/12	26.24	69.50
		9/19/12	27.36	68.38
		10/24/12	26.68	69.06
		10/31/12	26.22	69.52
		11/27/12	25.52	70.22
		12/21/12	26.10	69.64
		1/22/13	27.48	68.26
2/26/13	24.87	70.87		
3/29/13	24.55	71.19		
4/17/13	25.20	70.54		
5/30/13	25.82	69.92		
6/5/13	26.18	69.56		
7/23/13	26.26	69.48		
8/29/13	27.38	68.36		
9/25/13	28.80	66.94		
10/14/13	28.34	67.40		
10/15/13	27.95	67.79		
10/17/13	27.44	68.30		
10/21/13	27.21	68.53		
11/14/13	27.69	68.05		
11/25/13	28.00	67.74		
12/16/13	26.41	69.33		
1/13/14	25.35	70.39		
1/29/14	25.21	70.53		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-7  Installed 11/17/08 Total depth 200' 6' steel casing to 92'	95.71	12/3/08	29.61	66.10
		2/12/09	28.14	67.57
		5/12/09	27.12	68.59
		8/19/09	27.54	68.17
		11/4/09	26.05	69.66
		2/26/10	24.31	71.40
		5/13/10	24.40	71.31
		8/17/10	27.85	67.86
		11/28/10	29.62	66.09
		2/2/11	30.28	65.43
		3/31/11	27.38	68.33
		4/6/11	27.30	68.41
		5/26/11	25.24	70.47
		6/28/11	26.68	69.03
		7/29/11	28.41	67.30
		8/26/11	28.16	67.55
		9/26/11	26.73	68.98
		10/14/11	26.63	69.08
		11/23/11	26.03	69.68
		12/20/11	24.98	70.73
		1/10/12	24.68	71.03
		2/24/12	25.52	70.19
		3/8/12	25.65	70.06
		6/7/12	26.02	69.69
		7/17/12	27.02	68.69
		8/21/12	27.27	68.44
		9/19/12	28.01	67.70
		10/24/12	27.90	67.81
		10/31/12	27.62	68.09
		11/27/12	26.38	69.33
		12/21/12	26.80	68.91
		1/22/13	26.38	69.33
2/26/13	25.64	70.07		
3/29/13	25.39	70.32		
4/17/13	25.69	70.02		
5/30/13	26.45	69.26		
6/5/13	26.83	68.88		
7/23/13	26.82	68.89		
8/29/13	28.12	67.59		
9/25/13	29.17	66.54		
10/14/13	30.92	64.79		
10/15/13	31.40	64.31		
10/17/13	31.53	64.18		
10/21/13	31.51	64.20		
11/14/13	31.81	63.90		
11/25/13	32.41	63.30		
12/16/13	31.52	64.19		
1/13/14	29.93	65.78		
1/29/14	NA	NA		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-8  Installed 11/17/08 Total depth 200' 6' steel casing to 100'	96.97	12/3/08	28.56	68.41
		2/12/09	26.71	70.26
		5/12/09	25.79	71.18
		8/19/09	26.28	70.69
		11/4/09	24.46	72.51
		2/26/10	23.17	73.80
		5/13/10	23.24	73.73
		8/17/10	26.24	70.73
		11/28/10	28.30	68.67
		2/2/11	29.83	67.14
		3/31/11	25.93	71.04
		4/6/11	25.91	71.06
		5/26/11	24.14	72.83
		6/28/11	25.53	71.44
		7/29/11	27.26	69.71
		8/26/11	27.51	69.46
		9/26/11	26.55	70.42
		10/14/11	25.30	71.67
		11/23/11	24.95	72.02
		12/20/11	23.70	73.27
		1/10/12	23.51	73.46
		2/24/12	24.21	72.76
		3/8/12	24.24	72.73
		6/7/12	24.42	72.55
		7/17/12	25.72	71.25
		8/21/12	26.02	70.95
		9/19/12	26.72	70.25
		10/24/12	26.45	70.52
		10/31/12	26.17	70.80
		11/27/12	25.06	71.91
		12/21/12	25.67	71.30
		1/22/13	25.10	71.87
		2/26/13	24.39	72.58
		3/29/13	24.15	72.82
		4/17/13	24.51	72.46
		5/30/13	25.25	71.72
6/5/13	25.56	71.41		
7/23/13	25.62	71.35		
8/29/13	26.89	70.08		
9/25/13	28.04	68.93		
10/14/13	85.23	**		
10/15/13	150.90	**		
10/17/13	158.33	**		
10/21/13	162.16	**		
11/14/12	153.81	**		
11/25/13	155.56	**		
12/16/13	160.70	**		
1/13/14	146.80	**		
1/29/13	129.04	**		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
MW-9  Installed 6/1/10 Total depth 200' 6' steel casing to 110'	97.26	8/17/10	26.90	70.36
		11/28/10	27.19	70.07
		2/2/11	28.92	68.34
		3/31/11	25.89	71.37
		4/6/11	25.00	72.26
		5/26/11	24.10	73.16
		6/28/11	25.53	71.73
		7/29/11	27.23	70.03
		8/26/11	27.51	69.75
		9/26/11	25.98	71.28
		10/14/11	25.18	72.08
		11/23/11	24.70	72.56
		12/20/11	23.77	73.49
		1/10/12	23.54	73.72
		2/24/12	24.17	73.09
		3/8/12	24.58	72.68
		6/7/12	25.15	72.11
		7/17/12	25.50	71.76
		8/21/12	26.05	71.21
		9/19/12	26.49	70.77
		10/24/12	26.49	70.77
		10/31/12	26.30	70.96
		11/27/12	24.96	72.30
		12/21/12	25.44	71.82
		1/22/13	24.99	72.27
		2/26/13	24.45	72.81
		3/29/13	24.25	73.01
		4/17/13	24.54	72.72
		5/30/13	25.34	71.92
		6/5/13	25.70	71.56
		7/23/13	25.73	71.53
		8/29/13	26.94	70.32
9/25/13	28.02	69.24		
10/14/13	47.95	**		
10/15/13	58.64	**		
10/17/13	147.10	**		
11/14/13	127.01	**		
11/25/13	115.24	**		
12/16/13	102.31	**		
1/13/14	100.21	**		
1/29/14	104.50	**		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation	
MW-10  Installed 6/3/10 Total depth 200' 6' steel casing to 99'	96.40	8/17/10	27.98	68.42	
		11/28/10	29.62	66.78	
		2/2/11	30.84	65.56	
		3/31/11	26.94	69.46	
		4/6/11	27.02	69.38	
		5/26/11	24.17	72.23	
		6/28/11	27.51	68.89	
		7/29/11	28.25	68.15	
		8/26/11	28.80	67.60	
		9/26/11	26.52	69.88	
		10/14/11	26.15	70.25	
		11/23/11	25.74	70.66	
		12/20/11	24.85	71.55	
		1/10/12	24.56	71.84	
		2/24/12	26.26	70.14	
		3/8/12	25.62	70.78	
		6/7/12	26.09	70.31	
		7/17/12	27.03	69.37	
		8/21/12	NG		
		9/19/12	27.85	68.55	
		10/24/12	26.99	69.41	
		10/31/12	27.36	69.04	
		11/27/12	26.15	70.25	
		12/21/12	26.41	69.99	
		1/22/13	26.20	70.20	
		2/26/13	25.46	70.94	
		3/29/13	25.28	71.12	
		4/17/13	25.51	70.89	
		5/30/13	25.01	71.39	
		6/5/13	26.79	69.61	
		7/23/13	26.72	69.68	
		8/29/13	27.99	68.41	
		9/25/13	29.05	67.35	
		10/14/13	69.35	**	
		10/15/13	92.20	**	
10/17/13	95.10	**			
10/21/13	94.08	**			
11/14/13	107.75	**			
11/25/13	126.95	**			
12/16/13	130.54	**			
1/13/14	131.18	**			
1/29/14	130.39	**			



Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
INJ-1  Installed 9/28/09 Total depth 35' Screened 10' to 35' 2" casing; .020 slot screen		11/4/09	23.72	--
		2/26/10	NG	--
		5/13/10	NG	--
		3/31/11	NG	--
		4/6/11	NG	--
		5/26/11	23.94	--
		6/28/11	26.33	--
		7/29/11	28.02	--
		8/26/11	27.45	--
		9/26/11	25.16	--
		10/14/11	NG	--
		11/23/11	NG	--
		12/20/11	NG	--
INJ-2  Installed 9/28/09 Total depth 35' Screened 10' to 35' 2" casing; .020 slot screen		11/4/09	24.04	--
		2/26/10	23.75	--
		5/13/10	NG	--
		3/31/11	NG	--
		4/6/11	NG	--
		5/26/11	24.58	--
		6/28/11	26.49	--
		7/29/11	28.14	--
		8/26/11	27.05	--
		9/26/11	24.82	--
		10/14/11	NG	--
		11/23/11	NG	--
		12/20/11	NG	--
INJ-3  Installed 9/28/09 Total depth 35' Screened 10' to 35' 2" casing; .020 slot screen		11/4/09	24.33	--
		2/26/10	23.80	--
		5/13/10	NG	--
		3/31/11	NG	--
		4/6/11	NG	--
		5/26/11	24.25	--
		6/28/11	26.53	--
		7/29/11	28.16	--
		8/26/11	27.67	--
		9/26/11	25.71	--
		10/14/11	NG	--
		11/23/11	NG	--
		12/20/11	NG	--

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
INJ-4  Installed 9/28/09 Total depth 35' Screened 10' to 35' 2" casing; .020 slot screen		11/4/09	24.51	--
		2/26/10	24.01	--
		5/13/10	NG	--
		3/31/11	NG	--
		4/6/11	NG	--
		5/26/11	24.70	--
		6/28/11	26.76	--
		7/29/11	28.29	--
		8/26/11	27.93	--
		9/26/11	25.96	--
		10/14/11	NG	--
		11/23/11	NG	--
		12/20/11	NG	--
TF-1 4" PVC Total Depth 13'	96.74	7/25/05	Dry	--
		8/18/05	Dry	--
		1/25/06	Dry	--
		7/11/06	Dry	--
		9/7/06	NG	--
		1/9/07	Dry	--
		6/14/07	Dry	--
		11/30/07	Dry	--
		2/14/08	Dry	--
		5/23/08	Dry	--
		8/7/08	Dry	--
		12/3/08	Dry	--
		2/12/09	Dry	--
		5/12/09	Dry	--
		8/19/09	Dry	--
		11/4/09	Dry	--
		2/26/10	Dry	--
		5/13/10	Dry	--
		8/17/10	Dry	--
		11/28/10	Dry	--
		2/2/11	NG	--
		3/31/11	Dry	--
		4/6/11	NG	--
		5/26/11	Dry	--
		6/28/11	Dry	--
		7/29/11	NG	--
		8/26/11	Dry	--
		9/26/11	Dry	--
		10/14/11	NG	--
		11/23/11	NG	--
12/20/11	Dry	--		
1/10/12	NG	--		
2/24/12	NG	--		
3/8/12	Dry	--		

Table 1: Depth to Water and Groundwater Elevation  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Well	Top of Casing	Date	Depth to Water (in feet)	Corrected Elevation
TF-2 4" PVC Total Depth 13'	97.08	7/25/05	Dry	--
		8/18/05	Dry	--
		1/25/06	Dry	--
		7/11/06	Dry	--
		9/7/06	NG	--
		1/9/07	Dry	--
		6/14/07	Dry	--
		11/30/07	Dry	--
		2/14/08	Dry	--
		5/23/08	Dry	--
		8/7/08	Dry	--
		12/3/08	Dry	--
		2/12/09	Dry	--
		5/12/09	Dry	--
		8/19/09	Dry	--
		11/4/09	Dry	--
		2/26/10	Dry	--
		5/13/10	Dry	--
		8/17/10	Dry	--
		11/28/10	Dry	--
		2/2/11	Dry	--
		3/31/11	Dry	--
		4/6/11	NG	--
		5/26/11	12.95	--
		6/28/11	12.95	--
		7/29/11	NG	--
		8/26/11	Dry	--
		9/26/11	Dry	--
		10/14/11	NG	--
		11/23/11	NG	--
12/20/11	Dry	--		
1/10/12	NG	--		
2/24/12	NG	--		
3/8/12	Dry	--		

Groundwater Remediation System Started on October 8, 2013  
 Submersible pumps deployed into monitoring wells MW-8, MW-9 and MW-10  
 NI - not installed  
 NG - not gauged  
 NA - Frozen access  
 \*\* represents well is under pumping conditions

Table 2  
Groundwater Remediation System Performance Data  
7-Eleven Store No. 32785  
Hampstead, MD

MW-8					
Date	Pump MW-8 (gallons)	Change from previous (gallons)	Average GPD	Average GPM	Total Gallons Removed (since activation)
10/8/2013	131	**	**	**	131
10/9/2013	477	346	346	0.24	477
10/10/2013	1,940	1,463	1,463	1.02	1,940
10/14/2013	7,922	5,982	1,496	1.04	7,922
10/17/2013	14,983	7,061	2,354	1.63	14,983
10/21/2013	23,351	8,368	2,092	1.45	23,351
10/25/2013	31,526	8,175	2,044	1.42	31,526
10/28/2013	38,184	6,658	2,219	1.54	38,184
11/14/2013	70,341	32,157	1,892	1.31	70,341
11/25/2013	89,282	18,941	1,722	1.20	89,282
12/16/2013	123,263	33,981	1,618	1.12	123,263
12/31/2013	137,828	14,565	971	0.67	137,828
1/13/2014	148,714	10,886	837	0.58	148,714
1/28/2014	157,920	9,206	614	0.43	157,920
1/29/2014	159,504	1,584	1,584	1.10	159,504

MW-9					
Date	Pump MW-9 (gallons)	Change from previous (gallons)	Average GPD	Average GPM	Total Gallons Removed (since activation)
10/8/2013	114	**	**	**	114
10/9/2013	398	284	284	0.20	398
10/10/2013	398	0	0	0.00	398
10/14/2013	398	0	0	0.00	398
10/17/2013	1,792	1,394	465	0.32	1,792
10/21/2013	4,409	2,617	654	0.45	4,409
10/25/2013	6,860	2,451	613	0.43	6,860
10/28/2013	8,762	1,902	634	0.44	8,762
11/14/2013	14,917	6,155	362	0.25	14,917
11/25/2013	17,618	2,701	246	0.17	17,618
12/16/2013	23,147	5,529	263	0.18	23,147
12/31/2013	26,235	3,088	206	0.14	26,235
1/13/2014	27,393	1,158	89	0.06	27,393
1/28/2014	27,393	0	0	0.00	27,393
1/29/2014	27,393	0	0	0.00	27,393

MW-10					
Date	Pump MW-10 (gallons)	Change from previous (gallons)	Average GPD	Average GPM	Total Gallons Removed (since activation)
10/8/2013	183	**	**	**	183
10/9/2013	1,673	1,490	1,490	1.03	1,673
10/10/2013	3,600	1,927	1,927	1.34	3,600
10/14/2013	11,540	7,940	1,985	1.38	11,540
10/17/2013	21,140	9,600	3,200	2.22	21,140
10/21/2013	32,540	11,400	2,850	1.98	32,540
10/25/2013	47,980	15,440	3,860	2.68	47,980
10/28/2013	60,680	12,700	4,233	2.94	60,680
11/14/2013	126,225	65,545	3,856	2.68	126,225
11/25/2013	180,720	54,495	4,954	3.44	180,720
12/16/2013	285,260	104,540	4,978	3.46	285,260
12/31/2013	332,092	46,832	3,122	2.17	332,092
1/13/2014	369,070	36,978	2,844	1.98	369,070
1/28/2014	401,120	32,050	2,137	1.48	401,120
1/29/2014	406,695	5,575	5,575	3.87	406,695

\*\* = data not available due to system startup on October 8, 2013  
GPD - gallons-per-day  
GPM- gallons-per-minute

**Table 3**  
**Summary of Treatment System Analytical Results**  
 7-Eleven Store No. 32785  
 Hampstead, MD

Date	Air Stripper Influent									Air Stripper Effluent									GAC 1 Effluent								GAC 2 Effluent										
	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Tert-Butanol	TAME	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Tert-Butanol	TAME	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Tert-Butanol	TAME	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Tert-Butanol	TAME	TPH-GRO	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
10/17/13	ND@1	ND@1	ND@1	ND@3	ND	530	20	12	370	ND@1	ND@1	ND@1	ND@3	ND	1.2	30	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	
10/28/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/14/13	ND@1	ND@1	ND@1	ND@3	ND	390	22	ND@10	260	ND@1	ND@1	ND@1	ND@3	ND	2.0	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/25/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/16/13	ND@1	ND@1	ND@1	ND@3	ND	140	ND@20	ND@10	160	ND@1	ND@1	ND@1	ND@3	ND	1.7	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	
1/13/14	ND@1	ND@1	ND@1	ND@3	ND	230	ND@20	ND@10	230	ND@1	ND@1	ND@1	ND@3	ND	3.6	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	ND@1	ND@1	ND@1	ND@3	ND	ND@1	ND@20	ND@10	ND@100	

ug/L = Micrograms-per-liter

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TAME - Tert-amyl methyl ether

MTBE - methyl-tert-butyl ether

BTEX - Benzene, toluene, ethylbenzene, total xylenes

NS - not sampled

ND@x - not detected above laboratory detection limit of "x"

Table 4: 124 Hanover Pike Sampling Results  
 7-Eleven Store No. 32785  
 Hampstead, Maryland

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)	TBA (µg/L)	TAME (µg/L)	TPH-GRO (µg/L)	Diisopropyl Ether	
124 Hanover Pike - Influent	4/1/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	3,100	480	73	2,100	16	
	4/15/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	2,500	300 E	60	2,000	13	
	6/1/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,600	340	46	1,600	12	
	6/8/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,500	380	66	1,400	13	
	6/17/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	920	41	21	840	9	
	6/22/10	ND@5	ND@5	ND@5	ND@15	BDL	1,500	ND@200	ND@50	NA	ND@50	
	6/29/10	ND@5	ND@5	ND@5	ND@15	BDL	900	88	19	NA	8	
	7/6/10	ND@5	ND@5	ND@5	ND@15	BDL	860	97	23	NA	10	
	7/13/10	ND@5	ND@5	ND@5	ND@15	BDL	750	190	24	NA	8	
	7/20/10	ND@5	ND@5	ND@5	ND@15	BDL	770	130	21	NA	7	
	7/27/10	ND@5	ND@5	ND@5	ND@15	BDL	1,300	280	33	NA	11	
	7/27/10	ND@5	ND@5	ND@5	ND@15	BDL	1,300	280	33	NA	11	
	8/10/10	ND@5	ND@5	ND@5	ND@15	BDL	480	ND@200	ND@50	NA	ND@50	
	8/24/10	ND@5	ND@5	ND@5	ND@15	BDL	1,700	230	42	NA	10	
	8/27/10	--	--	--	--	--	--	--	--	--	--	--
	9/9/10	ND@5	ND@5	ND@5	ND@15	BDL	820	79	24	NA	8	
	9/21/10	ND@5	ND@5	ND@5	ND@15	BDL	750	52	15	NA	8	
	10/5/10	ND@5	ND@5	ND@5	ND@15	BDL	590	ND@50	6	NA	9	
	10/18/10	ND@5	ND@5	ND@5	ND@15	BDL	1,400	65	34	NA	11	
	11/2/10	ND@5	ND@5	ND@5	ND@15	BDL	1,700	230	43	NA	12	
	11/16/10	ND@5	ND@5	ND@5	ND@15	BDL	1,200	180	32	NA	10	
	11/30/10	ND@5	ND@5	ND@5	ND@15	BDL	1,800	310	50	NA	13	
	12/14/10	ND@5	ND@5	ND@5	ND@15	BDL	1,500	220	42	NA	13	
	12/28/10	ND@5	ND@5	ND@5	ND@15	BDL	1,600	330	46	NA	13	
	1/11/11	ND@5	ND@5	ND@5	ND@15	BDL	820	530	41	NA	13	
	1/25/11	ND@5	ND@5	ND@5	ND@15	BDL	1,700	ND@400	ND@100	NA	ND@100	
	2/8/11	ND@5	ND@5	ND@5	ND@15	BDL	1,700	190	45	NA	13	
	3/1/11	ND@5	ND@5	ND@5	ND@15	BDL	1,300	78	36	NA	13	
	3/15/11	ND@5	ND@5	ND@5	ND@15	BDL	980	53	24	NA	10	
	4/12/11	ND@5	ND@5	ND@5	ND@15	BDL	1,400	120	39	NA	12	
	5/11/11	ND@5	ND@5	ND@5	ND@15	BDL	1,900	180	46	NA	13	
	6/14/11	ND@5	ND@5	ND@5	ND@15	BDL	1,700	120	42	NA	14	
	7/12/11	ND@5	ND@5	ND@5	ND@15	BDL	1,200	ND@20	25	NA	11	
	8/16/11	ND@5	ND@5	ND@5	ND@15	BDL	870	ND@20	18	NA	8	
	9/12/11	ND@5	ND@5	ND@5	ND@15	BDL	1,400	68	33	NA	13	
	10/14/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,700	130	47	NA	14	
	11/8/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	2,000	150	47	NA	14	
	12/20/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,500	90	39	NA	12	
	1/18/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,200	100	32	NA	12	
	2/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,100	65	27	NA	10	
	3/8/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,100	53	25	NA	9.8	
4/20/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,200	88	28	NA	10		
5/22/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	670	ND@20	13	NA	8.2		
6/26/12	ND@25	ND@25	ND@25	ND@25	BDL	1,400	ND@25	31	NA	ND@25		
7/17/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,000	67	23	NA	9.8		
8/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	290	ND@20	ND@5	NA	5.7		
9/19/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	1,100	67	22	NA	9.7		
10/25/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	730	23	12	NA	8.7		
12/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	460	ND@20	1/8/00	NA	1/7/00		
1/22/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	450	ND@20	ND@5	NA	ND@5		
2/26/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	330	ND@20	ND@5	NA	ND@5		
4/17/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	260	ND@20	ND@5	NA	6		
6/28/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	170	ND@20	ND@5	NA	6		
8/30/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	130	ND@20	ND@5	NA	6		
10/28/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	220	22	ND@5	NA	7		
12/16/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	56	ND@20	ND@5	NA	6		
1/13/14	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	7.2	ND@20	ND@5	NA	ND@5		
GAC - 1	6/1/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	6/8/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	6/17/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	6/22/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	6/29/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	7/6/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	47	ND@5	ND@100	ND@5	
	7/13/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	31	ND@5	ND@100	ND@5	
	7/20/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	22	ND@5	ND@100	ND@5	
	7/27/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	8/10/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	8/24/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	9/9/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	2.1	ND@20	ND@5	ND@100	ND@5	
	9/21/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	10/5/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	10/18/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	11/2/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	11/16/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	11/30/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	12/14/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
	12/28/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5	
1/11/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	33	ND@5	ND@100	ND@5		
1/25/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	62	ND@5	ND@100	ND@5		
2/8/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	61	ND@5	ND@100	ND@5		
3/1/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5		



Table 4: 124 Hanover Pike Sampling Results  
7-Eleven Store No. 32785  
Hampstead, Maryland

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)	TBA (µg/L)	TAME (µg/L)	TPH-GRO (µg/L)	Diisopropyl Ether
Final Effluent	6/1/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	6/22/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	6/29/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	7/6/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	7/13/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	7/20/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	7/27/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	8/10/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	8/24/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	9/9/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	9/21/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	10/5/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	10/18/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	11/2/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	11/16/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	11/30/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	12/14/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	12/28/10	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	1/11/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	1/25/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	2/8/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	3/1/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	3/15/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	4/12/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	5/11/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	6/14/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	7/12/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	8/16/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	9/12/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	10/14/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	11/8/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	12/20/11	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	1/18/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	2/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	3/8/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	4/20/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	5/22/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	6/26/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@10	ND@0.5	ND@100	ND@5
	7/17/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	8/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	9/19/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	10/25/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	12/21/12	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	1/22/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	2/26/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	4/17/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	6/28/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	8/30/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	10/28/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	12/16/13	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
	1/13/14	ND@0.5	ND@0.5	ND@0.5	ND@1.5	BDL	ND@0.5	ND@20	ND@5	ND@100	ND@5
<b>MDE CLEANUP STD</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>--</b>	<b>20</b>	<b>--</b>	<b>--</b>	<b>47</b>	<b>--</b>

BTEX - Total Benzene, Toluene, Ethylbenzene and Xylenes  
MTBE - Methyl Tert-Butyl Ether  
TBA - Tert-Butyl Alcohol  
TAME - Tert-Amyl Methyl Ether  
µg/L - micrograms-per-liter  
ND@x - not detected above laboratory detection level of x

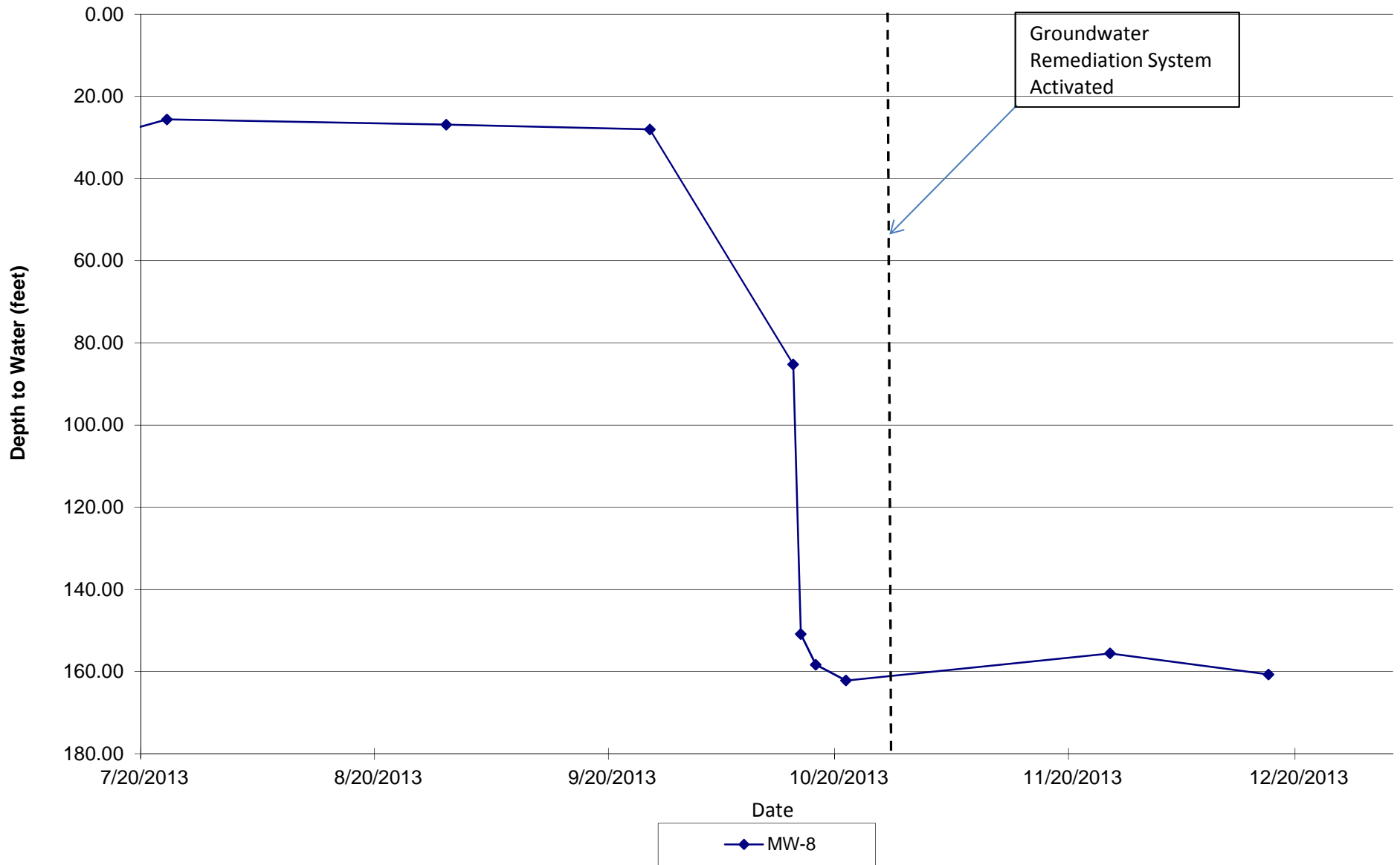
ND - not detected  
NI - not installed  
NA - not analyzed  
NS - inaccessible  
E - estimated result; exceeds calibration range  
Bold - indicates level above the MDE Cleanup Standard



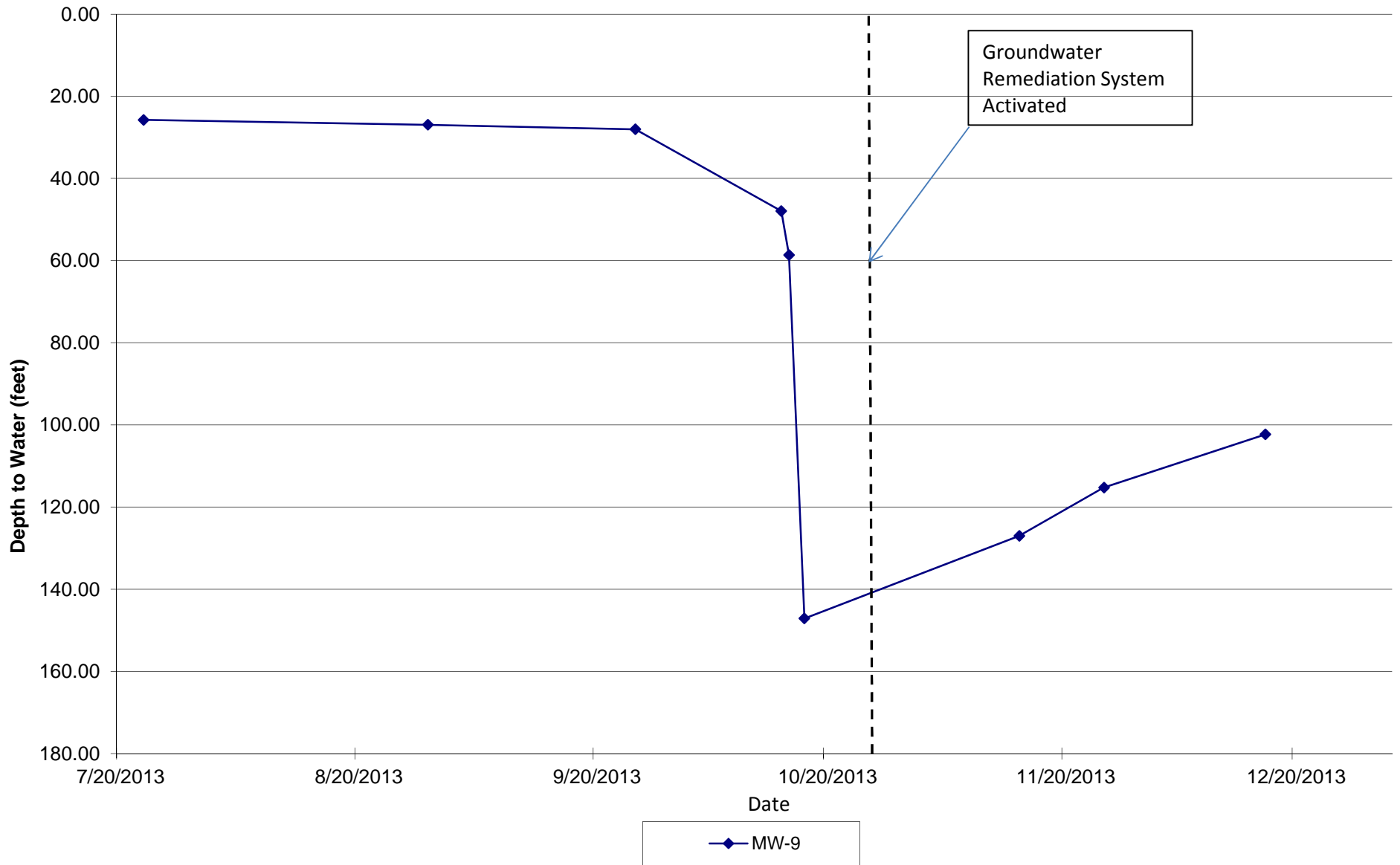
## **ATTACHMENT A**

### **Groundwater Monitoring Well Drawdown Graphs**

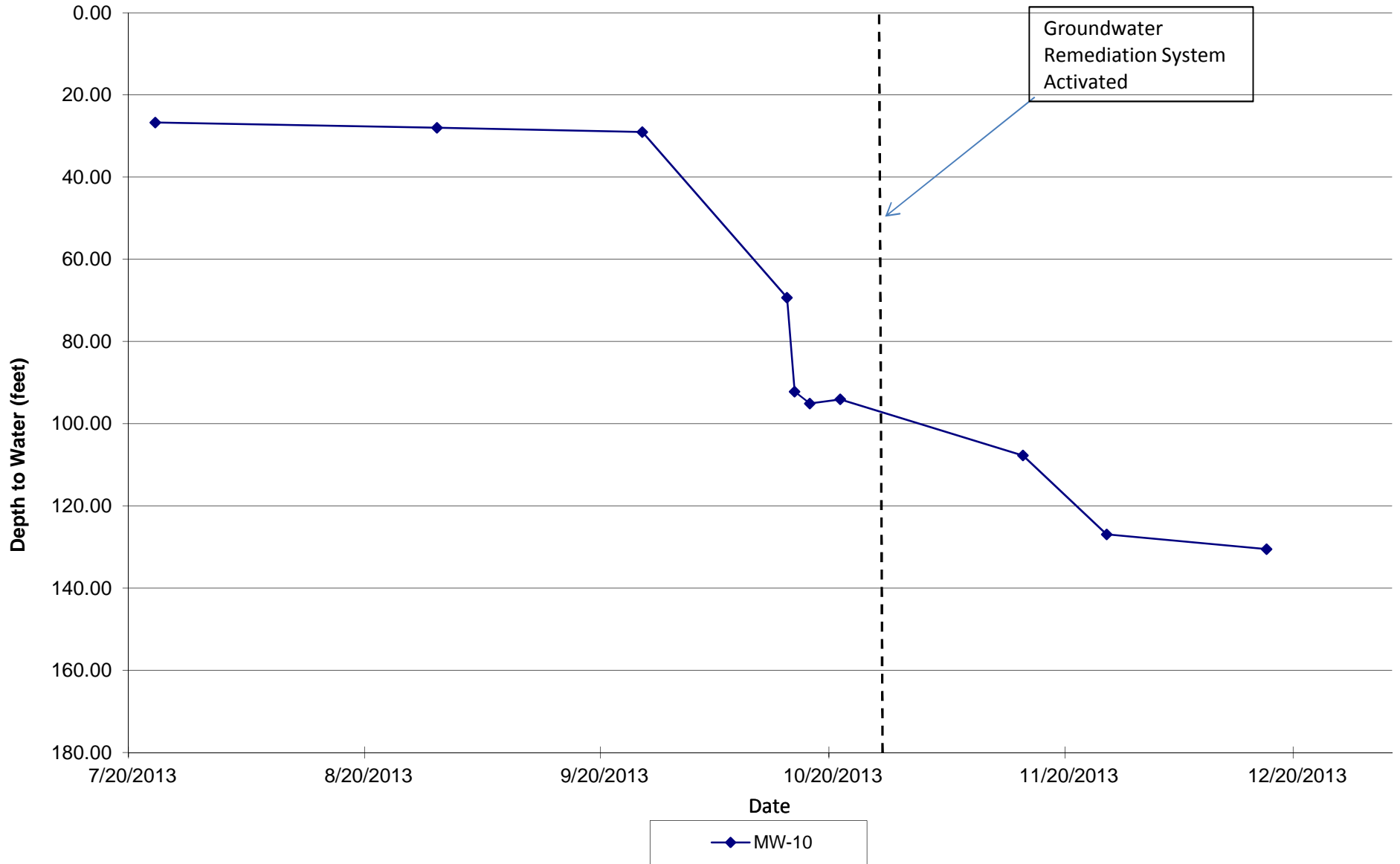
MW-8  
Depth To Water Over Time



MW-9  
Depth to Water Over Time



MW-10  
Depth to Water Over Time



## **ATTACHMENT B**

**Groundwater Remediation System Laboratory Reports**

# Analytical Report for

**AECOM**

**Certificate of Analysis No.: 14011401**

**Project Manager: John Canzeri**  
**Project Name : 7-11 Store 32785**  
**Project Location: Hampstead, MD**  
**Project ID : 60144916**



**January 21, 2014**  
**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**  
**Phone: (410) 747-8770**  
**Fax: (410) 788-8723**

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# PHASE SEPARATION SCIENCE, INC.



January 21, 2014

**John Canzeri**  
**AECOM**  
8320 Guilford Road, Ste. L  
Columbia, MD 21046

Reference: PSS Work Order(s) No: **14011401**  
Project Name: 7-11 Store 32785  
Project Location: Hampstead, MD  
Project ID.: 60144916

Dear John Canzeri :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **14011401**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on February 18, 2014. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'.

---

**Dan Prucnal**  
Laboratory Manager



**Sample Summary**  
**Client Name: AECOM**  
**Project Name: 7-11 Store 32785**

**Work Order Number(s): 14011401**

**Project ID: 60144916**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/14/2014 at 10:00 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
14011401-001	A/S INF	GROUND WATER	01/13/14 15:55
14011401-002	A/S EFF	GROUND WATER	01/13/14 15:52
14011401-003	GAC 1 EFF	GROUND WATER	01/13/14 15:49
14011401-004	GAC 2 FINAL	GROUND WATER	01/13/14 15:46

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

**Notes:**

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. The following analytical results are never reported on a dry weight basis: pH, flashpoint, moisture and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.
6. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.

**Standard Flags/Abbreviations:**

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.  
An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

**Certifications:**

- NELAP Certifications: PA 68-03330, VA 2200
- State Certifications: MD 179, WV 303
- Regulated Soil Permit: P330-12-00268
- NSWC USCG Accepted Laboratory
- LDBA MWAA LD1997-0041-2015



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011401  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

<b>Sample ID: A/S INF</b>	<b>Date/Time Sampled: 01/13/2014 15:55</b>	<b>PSS Sample ID: 14011401-001</b>
<b>Matrix: GROUND WATER</b>	<b>Date/Time Received: 01/14/2014 10:00</b>	

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW-846 8015C      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	<b>230</b>	ug/L	100		1	01/14/14	01/14/14 13:07	1035

BTEX, naphthalene + oxygenates      Analytical Method: SW-846 8260 B      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butanol	ND	ug/L	20		1	01/16/14	01/17/14 05:50	1011
Methyl-t-Butyl Ether	<b>230</b>	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011
Benzene	ND	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011
Toluene	ND	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011
tert-Amyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 05:50	1011
tert-Butyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 05:50	1011
Diisopropyl ether	ND	ug/L	10		1	01/16/14	01/17/14 05:50	1011
tert-Amyl methyl ether	ND	ug/L	10		1	01/16/14	01/17/14 05:50	1011
tert-Amyl alcohol	ND	ug/L	20		1	01/16/14	01/17/14 05:50	1011
Ethylbenzene	ND	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011
m&p-Xylene	ND	ug/L	2.0		1	01/16/14	01/17/14 05:50	1011
o-Xylene	ND	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011
Naphthalene	ND	ug/L	1.0		1	01/16/14	01/17/14 05:50	1011

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011401  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: A/S EFF**      **Date/Time Sampled: 01/13/2014 15:52**      **PSS Sample ID: 14011401-002**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW-846 8015C      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	100		1	01/14/14	01/14/14 13:33	1035

BTEX, naphthalene + oxygenates      Analytical Method: SW-846 8260 B      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butanol	ND	ug/L	20		1	01/16/14	01/17/14 06:19	1011
Methyl-t-Butyl Ether	3.6	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011
Benzene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011
Toluene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011
tert-Amyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:19	1011
tert-Butyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:19	1011
Diisopropyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:19	1011
tert-Amyl methyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:19	1011
tert-Amyl alcohol	ND	ug/L	20		1	01/16/14	01/17/14 06:19	1011
Ethylbenzene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011
m&p-Xylene	ND	ug/L	2.0		1	01/16/14	01/17/14 06:19	1011
o-Xylene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011
Naphthalene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:19	1011

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011401  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: GAC 1 EFF**      **Date/Time Sampled: 01/13/2014 15:49**      **PSS Sample ID: 14011401-003**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW-846 8015C      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	100		1	01/14/14	01/14/14 13:58	1035

BTEX, naphthalene + oxygenates      Analytical Method: SW-846 8260 B      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butanol	ND	ug/L	20		1	01/15/14	01/17/14 05:20	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011
Benzene	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011
Toluene	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011
tert-Amyl ethyl ether	ND	ug/L	10		1	01/15/14	01/16/14 07:12	1011
tert-Butyl ethyl ether	ND	ug/L	10		1	01/15/14	01/16/14 07:12	1011
Diisopropyl ether	ND	ug/L	10		1	01/15/14	01/16/14 07:12	1011
tert-Amyl methyl ether	ND	ug/L	10		1	01/15/14	01/16/14 07:12	1011
tert-Amyl alcohol	ND	ug/L	20		1	01/15/14	01/17/14 05:20	1011
Ethylbenzene	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011
m&p-Xylene	ND	ug/L	2.0		1	01/15/14	01/16/14 07:12	1011
o-Xylene	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011
Naphthalene	ND	ug/L	1.0		1	01/15/14	01/16/14 07:12	1011

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011401  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: GAC 2 FINAL**      **Date/Time Sampled: 01/13/2014 15:46**      **PSS Sample ID: 14011401-004**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW-846 8015C      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	100		1	01/14/14	01/14/14 14:23	1035

BTEX, naphthalene + oxygenates      Analytical Method: SW-846 8260 B      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butanol	ND	ug/L	20		1	01/16/14	01/17/14 06:49	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011
Benzene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011
Toluene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011
tert-Amyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:49	1011
tert-Butyl ethyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:49	1011
Diisopropyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:49	1011
tert-Amyl methyl ether	ND	ug/L	10		1	01/16/14	01/17/14 06:49	1011
tert-Amyl alcohol	ND	ug/L	20		1	01/16/14	01/17/14 06:49	1011
Ethylbenzene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011
m&p-Xylene	ND	ug/L	2.0		1	01/16/14	01/17/14 06:49	1011
o-Xylene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011
Naphthalene	ND	ug/L	1.0		1	01/16/14	01/17/14 06:49	1011



# Case Narrative Summary

Client Name: AECOM

Project Name: 7-11 Store 32785

Work Order Number(s): 14011401

Project ID: 60144916

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

### **Sample Receipt:**

All sample receipt conditions were acceptable.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**



# Analytical Data Package Information Summary

**Work Order(s): 14011401**

Report Prepared For: AECOM, Columbia, MD

Project Name: 7 Eleven - gen'l

Project Manager: John Canzeri

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>SW-846 8015C</b>	A/S INF	Initial	14011401-001	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 13:07
	A/S EFF	Initial	14011401-002	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 13:33
	GAC 1 EFF	Initial	14011401-003	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 13:58
	GAC 2 FINAL	Initial	14011401-004	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 14:23
	48863-2-BKS	BKS	48863-2-BKS	1035	W	48863	111216	-----	01/14/2014 10:23	01/14/2014 12:17
	48863-2-BLK	BLK	48863-2-BLK	1035	W	48863	111216	-----	01/14/2014 10:23	01/14/2014 11:51
	GAC 2 FINAL S	MS	14011401-004 S	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 14:49
	GAC 2 FINAL SD	MSD	14011401-004 SD	1035	W	48863	111216	01/13/2014	01/14/2014 10:23	01/14/2014 15:14
<b>SW-846 8260 B</b>	GAC 1 EFF	Initial	14011401-003	1011	W	48885	111259	01/13/2014	01/15/2014 13:00	01/16/2014 07:12
	48885-1-BKS	BKS	48885-1-BKS	1011	W	48885	111259	-----	01/15/2014 13:00	01/16/2014 01:18
	48885-1-BLK	BLK	48885-1-BLK	1011	W	48885	111259	-----	01/15/2014 13:00	01/16/2014 04:16
	GAC 1 EFF S	MS	14011401-003 S	1011	W	48885	111259	01/13/2014	01/15/2014 13:00	01/16/2014 09:38
	GAC 1 EFF SD	MSD	14011401-003 SD	1011	W	48885	111259	01/13/2014	01/15/2014 13:00	01/16/2014 10:09
	A/S INF	Initial	14011401-001	1011	W	48900	111293	01/13/2014	01/16/2014 13:00	01/17/2014 05:50
	A/S EFF	Initial	14011401-002	1011	W	48900	111293	01/13/2014	01/16/2014 13:00	01/17/2014 06:19
	GAC 2 FINAL	Initial	14011401-004	1011	W	48900	111293	01/13/2014	01/16/2014 13:00	01/17/2014 06:49
	48900-1-BKS	BKS	48900-1-BKS	1011	W	48900	111293	-----	01/16/2014 13:00	01/17/2014 00:55
	48900-1-BLK	BLK	48900-1-BLK	1011	W	48900	111293	-----	01/16/2014 13:00	01/17/2014 03:52
	6522-PW1-1/14 S	MS	14011012-001 S	1011	W	48900	111293	01/09/2014	01/16/2014 13:00	01/17/2014 10:15
	6522-PW1-1/14 SD	MSD	14011012-001 SD	1011	W	48900	111293	01/09/2014	01/16/2014 13:00	01/17/2014 10:44
	GAC 1 EFF	Reanalysis	14011401-003	1011	W	48885	111293	01/13/2014	01/15/2014 13:00	01/17/2014 05:20

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111216

Sample: 48863-2-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/14/2014 11:51

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	87.7	100	88	65-111	

Lab Batch #: 111216

Sample: 48863-2-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/14/2014 12:17

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	101	100	101	65-111	

Lab Batch #: 111216

Sample: 14011401-001 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 13:07

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	92.0	100	92	65-111	

Lab Batch #: 111216

Sample: 14011401-002 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 13:33

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	92.0	100	92	65-111	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111216

Sample: 14011401-003 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 13:58

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	92.0	100	92	65-111	

Lab Batch #: 111216

Sample: 14011401-004 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 14:23

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	92.0	100	92	65-111	

Lab Batch #: 111216

Sample: 14011401-004 S / MS

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 14:49

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	96.5	100	96	65-111	

Lab Batch #: 111216

Sample: 14011401-004 SD / MSD

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/14/2014 15:14

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	102	100	102	65-111	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228



# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111259

Sample: 48885-1-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/16/2014 01:18

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.6	50.00	101	83-108	
Toluene-D8	50.1	50.00	100	91-105	
4-Bromofluorobenzene	49.6	50.00	99	83-118	

Lab Batch #: 111259

Sample: 48885-1-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/16/2014 04:16

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	49.3	50.00	99	83-108	
Toluene-D8	50.2	50.00	100	91-105	
4-Bromofluorobenzene	52.8	50.00	106	83-118	

Lab Batch #: 111259

Sample: 14011401-003 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/16/2014 07:12

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	49.0	50.00	98	83-108	
Toluene-D8	50.0	50.00	100	91-105	
4-Bromofluorobenzene	51.0	50.00	102	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111259

Sample: 14011401-003 S / MS

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/16/2014 09:38

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	51.0	50.00	102	83-108	
Toluene-D8	50.4	50.00	101	91-105	
4-Bromofluorobenzene	49.0	50.00	98	83-118	

Lab Batch #: 111259

Sample: 14011401-003 SD / MSD

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/16/2014 10:09

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	51.5	50.00	103	83-108	
Toluene-D8	50.6	50.00	101	91-105	
4-Bromofluorobenzene	48.5	50.00	97	83-118	

Lab Batch #: 111293

Sample: 48900-1-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/17/2014 00:55

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.4	50.00	101	83-108	
Toluene-D8	50.7	50.00	101	91-105	
4-Bromofluorobenzene	49.9	50.00	100	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111293

Sample: 48900-1-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/17/2014 03:52

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	49.8	50.00	100	83-108	
Toluene-D8	50.4	50.00	101	91-105	
4-Bromofluorobenzene	50.4	50.00	101	83-118	

Lab Batch #: 111293

Sample: 14011401-003 / DL

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/17/2014 05:20

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.0	50.00	100	83-108	
Toluene-D8	50.0	50.00	101	91-105	
4-Bromofluorobenzene	51.0	50.00	102	83-118	

Lab Batch #: 111293

Sample: 14011401-001 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/17/2014 05:50

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.0	50.00	100	83-108	
Toluene-D8	50.0	50.00	101	91-105	
4-Bromofluorobenzene	51.0	50.00	102	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111293

Sample: 14011401-002 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/17/2014 06:19

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.0	50.00	99	83-108	
Toluene-D8	50.0	50.00	100	91-105	
4-Bromofluorobenzene	52.0	50.00	105	83-118	

Lab Batch #: 111293

Sample: 14011401-004 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/17/2014 06:49

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.0	50.00	100	83-108	
Toluene-D8	51.0	50.00	102	91-105	
4-Bromofluorobenzene	51.0	50.00	102	83-118	

Lab Batch #: 111293

Sample: 14011012-001 S / MS

Matrix: Drinking Water

Units: ug/L

Date Analyzed: 01/17/2014 10:15

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	50.4	50.00	101	83-108	
Toluene-D8	50.5	50.00	101	91-105	
4-Bromofluorobenzene	49.0	50.00	98	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011401

Project ID: 60144916

Lab Batch #: 111293

Sample: 14011012-001 SD / MSD

Matrix: Drinking Water

Units: ug/L

Date Analyzed: 01/17/2014 10:44

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	51.1	50.00	102	83-108	
Toluene-D8	50.3	50.00	101	91-105	
4-Bromofluorobenzene	49.6	50.00	99	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

**Blank Summary 14011401**

**AECOM, Columbia, MD**

7-11 Store 32785

<b>Analytical Method:</b> SW-846 8015C <b>Matrix:</b> WATER	<b>Prep Method:</b> SW5030B
--	-----------------------------

Sample Id: <b>48863-2-BLK</b>	Lab Sample Id: <b>48863-2-BLK</b>
Date Analyzed: Jan-14-14 11:51	Analyst: 1035
	Date Prep: Jan-14-14 10:23
	Tech: 1035
	Seq Number: 111216

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
TPH-GRO (Gasoline Range Organics)	C6C10GRO	ND	100	40.00	ug/L	U	1

# Blank Summary 14011401

AECOM, Columbia, MD

7-11 Store 32785

**Analytical Method: SW-846 8260 B**

Prep Method: SW5030B

Matrix: **WATER**

Sample Id: **48885-1-BLK**

Lab Sample Id: **48885-1-BLK**

Date Analyzed: Jan-16-14 04:16

Analyst: 1011

Date Prep: Jan-15-14 13:00

Tech: 1011

Seq Number: 111259

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
Methyl-t-Butyl Ether	1634-04-4	ND	1.000	0.5000	ug/L	U	1
Benzene	71-43-2	ND	1.000	0.5000	ug/L	U	1
Toluene	108-88-3	ND	1.000	0.5000	ug/L	U	1
tert-Amyl ethyl ether	919-94-8	ND	10.00	5.000	ug/L	U	1
tert-Butyl ethyl ether	637-92-3	ND	10.00	5.000	ug/L	U	1
Diisopropyl ether	108-20-3	ND	10.00	5.000	ug/L	U	1
tert-Amyl methyl ether	994-05-8	ND	10.00	5.000	ug/L	U	1
Ethylbenzene	100-41-4	ND	1.000	0.5000	ug/L	U	1
m&p-Xylene	108-38-3	ND	2.000	1.000	ug/L	U	1
o-Xylene	95-47-6	ND	1.000	0.5000	ug/L	U	1
Naphthalene	91-20-3	ND	1.000	0.5000	ug/L	U	1

Sample Id: **48900-1-BLK**

Lab Sample Id: **48900-1-BLK**

Date Analyzed: Jan-17-14 03:52

Analyst: 1011

Date Prep: Jan-16-14 13:00

Tech: 1011

Seq Number: 111293

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
tert-Butanol	75-65-0	ND	20.00	10.00	ug/L	U	1
Methyl-t-Butyl Ether	1634-04-4	ND	1.000	0.5000	ug/L	U	1
Benzene	71-43-2	ND	1.000	0.5000	ug/L	U	1
Toluene	108-88-3	ND	1.000	0.5000	ug/L	U	1
tert-Amyl ethyl ether	919-94-8	ND	10.00	5.000	ug/L	U	1
tert-Butyl ethyl ether	637-92-3	ND	10.00	5.000	ug/L	U	1
Diisopropyl ether	108-20-3	ND	10.00	5.000	ug/L	U	1
tert-Amyl methyl ether	994-05-8	ND	10.00	5.000	ug/L	U	1
tert-Amyl alcohol	75-85-4	ND	20.00	10.00	ug/L	U	1
Ethylbenzene	100-41-4	ND	1.000	0.5000	ug/L	U	1
m&p-Xylene	108-38-3	ND	2.000	1.000	ug/L	U	1
o-Xylene	95-47-6	ND	1.000	0.5000	ug/L	U	1
Naphthalene	91-20-3	ND	1.000	0.5000	ug/L	U	1

# Blank Spike Recovery

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011401

**Project ID:** 60144916

**Prep Batch #:** 48863

**Date Prepared:** 01/14/2014 10:23

**Sample ID:** 48863-2-BKS

**Matrix:** Water

**Lab Batch ID:** 111216

**Date Analyzed:** 01/14/2014 11:51

**Analyst:** 1035

**Reporting Units:** ug/L

## BLANK /BLANK SPIKE RECOVERY STUDY

<b>Total Petroleum Hydrocarbons-GRO</b>  <b>Analytes</b>	<b>Blank Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Control Limits %R</b>	<b>Flags</b>
TPH-GRO (Gasoline Range Organics)	<100	5000	4884	98	61-138	

Blank Spike Recovery [D] = 100\*(([C]-[A])/[B])

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits  
 F = RPD exceeded the laboratory control limits  
 L = Recovery of BS,BSD or both below the laboratory control limits



# Blank Spike Recovery

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011401

**Project ID:** 60144916

**Prep Batch #:** 48885

**Date Prepared:** 01/15/2014 13:00

**Sample ID:** 48885-1-BKS

**Matrix:** Water

**Lab Batch ID:** 111259

**Date Analyzed:** 01/16/2014 04:16

**Analyst:** 1011

**Reporting Units:** ug/L

**BLANK /BLANK SPIKE RECOVERY STUDY**

BTEX, naphthalene + oxygenates  Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags	Marginal Exceedance Limits
Methyl-t-Butyl Ether	<1.000	50.00	43.63	87	74-124		66-132
Benzene	<1.000	50.00	45.45	91	79-129		71-137
Toluene	<1.000	50.00	45.67	91	79-128		71-136
tert-Amyl ethyl ether	<10.00	50.00	45.53	91	76-121		69-128
tert-Butyl ethyl ether	<10.00	50.00	45.81	92	70-126		61-135
Diisopropyl ether	<10.00	50.00	45.07	90	68-132		57-142
tert-Amyl methyl ether	<10.00	50.00	44.32	89	77-122		70-130
Ethylbenzene	<1.000	50.00	46.81	94	83-128		75-136
m&p-Xylene	<2.000	100	92.38	92	84-129		77-136
o-Xylene	<1.000	50.00	47.46	95	85-129		78-136
Naphthalene	<1.000	50.00	45.88	92	66-161		50-177

**Prep Batch #:** 48900

**Date Prepared:** 01/16/2014 13:00

**Sample ID:** 48900-1-BKS

**Matrix:** Water

**Lab Batch ID:** 111293

**Date Analyzed:** 01/17/2014 03:52

**Analyst:** 1011

**Reporting Units:** ug/L

**BLANK /BLANK SPIKE RECOVERY STUDY**

BTEX, naphthalene + oxygenates  Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags	Marginal Exceedance Limits
tert-Butanol	<20.00	50.00	39.15	78	43-161		24-181
Methyl-t-Butyl Ether	<1.000	50.00	43.63	87	74-124		66-132
Benzene	<1.000	50.00	46.77	94	79-129		71-137
Toluene	<1.000	50.00	46.11	92	79-128		71-136
tert-Amyl ethyl ether	<10.00	50.00	46.10	92	76-121		69-128
tert-Butyl ethyl ether	<10.00	50.00	45.32	91	70-126		61-135
Diisopropyl ether	<10.00	50.00	46.79	94	68-132		57-142
tert-Amyl methyl ether	<10.00	50.00	42.85	86	77-122		70-130
tert-Amyl alcohol	<20.00	50.00	29.52	59	27-164		4-187
Ethylbenzene	<1.000	50.00	46.71	93	83-128		75-136
m&p-Xylene	<2.000	100	94.41	94	84-129		77-136
o-Xylene	<1.000	50.00	48.78	98	85-129		78-136
Naphthalene	<1.000	50.00	41.82	84	66-161		50-177

Blank Spike Recovery [D] = 100\*(([C]-[A])/[B])

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits  
F = RPD exceeded the laboratory control limits  
L = Recovery of BS,BSD or both below the laboratory control limits



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

www.phaseonline.com  
email: info@phaseonline.com

## PHASE SEPARATION SCIENCE, INC.

**1** \*CLIENT: AECOM \*OFFICE LOC: Columbia, MD PSS Work Order #: 1401401 PAGE 1 OF 1

\*PROJECT MGR: J. Canzeri \*PHONE NO.: (240) 365 6516  
 \*PROJECT NAME: 7-11 store 32785 PROJECT NO: 601149116  
 EMAIL: FAX NO.: ( )  
 SITE LOCATION: Hampstead, MD P.O. NO.: 45814 ACM  
 SAMPLER(S): M. Parsons DW CERT NO.:

LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	CONTAINERS	SAMPLE TYPE	C = COMP G = GRAB	Preservatives Used	Analysis/Method Required	REMARKS
1	A/S INF	1/15/14	1555	GW	6	G			③ Nephelometric BTEX + Dry Blot	
2	A/S EFF		1552		6					
3	GAC 1 EFF		1549		6					
4	GAC 2 FINAL		1546		6					

**4** \*Requested TAT (One TAT per COC)  
 5-Day  3-Day  2-Day  
 Next Day  Emergency  Other

Data Deliverables Required:  
 COA  SUMM  CLP LIKE  OTHER

# of Coolers: 1  
 Custody Seal: ABS  
 Ice Present: Pres Temp: 2°C  
 Shipping Carrier: Chwest

Special Instructions:

DW COMPLIANCE? YES  NO  EDD FORMAT TYPE: AECOM  
 STATE RESULTS REPORTED TO: MD  DE  PA  VA  WV  OTHER

**5** Relinquished By: (1) M. Parsons Date: 1/14/14 Time: 1000 Received By: Robert L. Hurd  
 Relinquished By: (2) Date: Time: Received By:  
 Relinquished By: (3) Date: Time: Received By:  
 Relinquished By: (4) Date: Time: Received By:

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723  
 The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. \* = REQUIRED



# Phase Separation Science, Inc

## Sample Receipt Checklist

<b>Work Order #</b>	14011401	<b>Received By</b>	Robyn Rhudy
<b>Client Name</b>	AECOM	<b>Date Received</b>	01/14/2014 10:00:00 AM
<b>Project Name</b>	7-11 Store 32785	<b>Delivered By</b>	Client
<b>Project Number</b>	60144916	<b>Tracking No</b>	Not Applicable
<b>Disposal Date</b>	02/18/2014	<b>Logged In By</b>	Robyn Rhudy

### Shipping Container(s)

No. of Coolers	1	Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	2
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

### Documentation

COC agrees with sample labels?	Yes
Chain of Custody	Yes

Sampler Name	<u>Mike Parsons</u>
MD DW Cert. No.	<u>N/A</u>

### Sample Container

Appropriate for Specified Analysis?	Yes
Intact?	Yes
Labeled and Labels Legible?	Yes

Custody Seal(s) Intact?	Not Applicable
Seal(s) Signed / Dated	Not Applicable

Total No. of Samples Received 4

Total No. of Containers Received 24

### Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Date: 01/14/2014

Robyn Rhudy

PM Review and Approval:

Date: 01/14/2014

Amy Friedlander

# Analytical Report for

**AECOM**

**Certificate of Analysis No.: 14013001**

**Project Manager: John Canzeri**  
**Project Name : 7-11 Store 32785**  
**Project Location: Hampstead, MD**  
**Project ID : 60144916**



**February 6, 2014**  
**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**  
**Phone: (410) 747-8770**  
**Fax: (410) 788-8723**

OFFICES:  
6630 BALTIMORE NATIONAL PIKE  
ROUTE 40 WEST  
BALTIMORE, MD 21228  
410-747-8770  
800-932-9047  
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



February 6, 2014

**John Canzeri**  
**AECOM**  
8320 Guilford Road, Ste. L  
Columbia, MD 21046

Reference: PSS Work Order(s) No: **14013001**  
Project Name: 7-11 Store 32785  
Project Location: Hampstead, MD  
Project ID.: 60144916

Dear John Canzeri :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **14013001**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 6, 2014. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'. The signature is fluid and cursive.

---

**Dan Prucnal**  
Laboratory Manager



**Sample Summary**  
**Client Name: AECOM**  
**Project Name: 7-11 Store 32785**

**Work Order Number(s): 14013001**

**Project ID: 60144916**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/30/2014 at 09:21 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
14013001-001	GAC-2 Final	GROUND WATER	01/29/14 10:50

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

**Notes:**

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].

**Standard Flags/Abbreviations:**

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

**Certifications:**

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBA MWAA LD1997-0041-2015

OFFICES:  
 6630 BALTIMORE NATIONAL PIKE  
 ROUTE 40 WEST  
 BALTIMORE, MD 21228  
 410-747-8770  
 800-932-9047  
 FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14013001  
**AECOM, Columbia, MD**  
 February 6, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

<b>Sample ID: GAC-2 Final</b>	<b>Date/Time Sampled: 01/29/2014 10:50</b>	<b>PSS Sample ID: 14013001-001</b>
<b>Matrix: GROUND WATER</b>	<b>Date/Time Received: 01/30/2014 09:21</b>	

Total Petroleum Hydrocarbons-GRO      Analytical Method: SW-846 8015C      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/L	100		1	01/30/14	01/30/14 11:24	1035

BTEX, naphthalene + oxygenates      Analytical Method: SW-846 8260 B      Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butanol	ND	ug/L	20		1	01/31/14	01/31/14 13:56	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011
Benzene	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011
Toluene	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011
tert-Amyl ethyl ether	ND	ug/L	10		1	01/31/14	01/31/14 13:56	1011
tert-Butyl ethyl ether	ND	ug/L	10		1	01/31/14	01/31/14 13:56	1011
Diisopropyl ether	ND	ug/L	10		1	01/31/14	01/31/14 13:56	1011
tert-Amyl methyl ether	ND	ug/L	10		1	01/31/14	01/31/14 13:56	1011
tert-Amyl alcohol	ND	ug/L	20		1	01/31/14	01/31/14 13:56	1011
Ethylbenzene	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011
m&p-Xylene	ND	ug/L	2.0		1	01/31/14	01/31/14 13:56	1011
o-Xylene	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011
Naphthalene	ND	ug/L	1.0		1	01/31/14	01/31/14 13:56	1011



# Case Narrative Summary

Client Name: AECOM

Project Name: 7-11 Store 32785

Work Order Number(s): 14013001

Project ID: 60144916

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

### **Sample Receipt:**

All sample receipt conditions were acceptable.

### **Analytical:**

#### **GC/MS Purgeable Aromatics**

**Batch: 111542**

Surrogate exceedances identified; see surrogate summary form.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**





## Analytical Data Package Information Summary

**Work Order(s): 14013001**

Report Prepared For: AECOM, Columbia, MD

Project Name: 7 Eleven - gen'l

Project Manager: John Canzeri

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>SW-846 8015C</b>	GAC-2 Final	Initial	14013001-001	1035	W	49038	111507	01/29/2014	01/30/2014 09:33	01/30/2014 11:24
	49038-2-BKS	BKS	49038-2-BKS	1035	W	49038	111507	-----	01/30/2014 09:33	01/30/2014 12:40
	49038-2-BLK	BLK	49038-2-BLK	1035	W	49038	111507	-----	01/30/2014 09:33	01/30/2014 10:58
	GAC-2 Final S	MS	14013001-001 S	1035	W	49038	111507	01/29/2014	01/30/2014 09:33	01/30/2014 13:40
	GAC-2 Final SD	MSD	14013001-001 SD	1035	W	49038	111507	01/29/2014	01/30/2014 09:33	01/30/2014 14:05
<b>SW-846 8260 B</b>	GAC-2 Final	Initial	14013001-001	1011	W	49068	111542	01/29/2014	01/31/2014 13:00	01/31/2014 13:56
	49068-1-BKS	BKS	49068-1-BKS	1011	W	49068	111542	-----	01/31/2014 13:00	01/31/2014 10:29
	49068-1-BLK	BLK	49068-1-BLK	1011	W	49068	111542	-----	01/31/2014 13:00	01/31/2014 13:26
	GAC-2 Final S	MS	14013001-001 S	1011	W	49068	111542	01/29/2014	01/31/2014 13:00	01/31/2014 19:49
	GAC-2 Final SD	MSD	14013001-001 SD	1011	W	49068	111542	01/29/2014	01/31/2014 13:00	01/31/2014 20:18

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

02/05/2014

Work Order #: 14013001

Project ID: 60144916

Lab Batch #: 111507

Sample: 49038-2-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/30/2014 10:58

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	86.0	100	86	65-111	

Lab Batch #: 111507

Sample: 14013001-001 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/30/2014 11:24

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	84.0	100	84	65-111	

Lab Batch #: 111507

Sample: 49038-2-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/30/2014 12:40

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	97.1	100	97	65-111	

Lab Batch #: 111507

Sample: 14013001-001 S / MS

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/30/2014 13:40

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	97.6	100	98	65-111	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

02/05/2014

Work Order #: 14013001

Project ID: 60144916

Lab Batch #: 111507

Sample: 14013001-001 SD / MSD

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/30/2014 14:05

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons-GRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
a,a,a-Trifluorotoluene	96.2	100	96	65-111	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

02/05/2014

Work Order #: 14013001

Project ID: 60144916

Lab Batch #: 111542

Sample: 49068-1-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/31/2014 10:29

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	46.6	50.00	93	83-108	
Toluene-D8	51.3	50.00	103	91-105	
4-Bromofluorobenzene	48.5	50.00	97	83-118	

Lab Batch #: 111542

Sample: 49068-1-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/31/2014 13:26

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	46.6	50.00	93	83-108	
Toluene-D8	51.6	50.00	103	91-105	
4-Bromofluorobenzene	52.5	50.00	105	83-118	

Lab Batch #: 111542

Sample: 14013001-001 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/31/2014 13:56

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
Dibromofluoromethane	47.0	50.00	94	83-108	
Toluene-D8	52.0	50.00	105	91-105	
4-Bromofluorobenzene	49.0	50.00	98	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

02/05/2014

Work Order #: 14013001

Project ID: 60144916

Lab Batch #: 111542

Sample: 14013001-001 S / MS

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/31/2014 19:49

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	46.3	50.00	93	83-108	
Toluene-D8	52.8	50.00	106	91-105	*
4-Bromofluorobenzene	49.2	50.00	98	83-118	

Lab Batch #: 111542

Sample: 14013001-001 SD / MSD

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/31/2014 20:18

SURROGATE RECOVERY STUDY					
BTEX, naphthalene + oxygenates Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	46.3	50.00	93	83-108	
Toluene-D8	52.7	50.00	105	91-105	
4-Bromofluorobenzene	50.4	50.00	101	83-118	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

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6630 Baltimore National Pike  
Baltimore, MD 21228

**Blank Summary 14013001**

**AECOM, Columbia, MD**

7-11 Store 32785

<b>Analytical Method:</b> SW-846 8015C <b>Matrix:</b> WATER	<b>Prep Method:</b> SW5030B
--	-----------------------------

Sample Id: <b>49038-2-BLK</b>	Lab Sample Id: <b>49038-2-BLK</b>
Date Analyzed: Jan-30-14 10:58	Analyst: 1035
	Date Prep: Jan-30-14 09:33
	Tech: 1035
	Seq Number: 111507

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
TPH-GRO (Gasoline Range Organics)	C6C10GRO	ND	100	40.00	ug/L	U	1

# Blank Summary 14013001

AECOM, Columbia, MD

7-11 Store 32785

Analytical Method: SW-846 8260 B  
Matrix: WATER

Prep Method: SW5030B

Sample Id: 49068-1-BLK

Lab Sample Id: 49068-1-BLK

Date Analyzed: Jan-31-14 13:26

Analyst: 1011

Date Prep: Jan-31-14 13:00

Tech: 1011

Seq Number: 111542

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
tert-Butanol	75-65-0	ND	20.00	10.00	ug/L	U	1
Methyl-t-Butyl Ether	1634-04-4	ND	1.000	0.5000	ug/L	U	1
Benzene	71-43-2	ND	1.000	0.5000	ug/L	U	1
Toluene	108-88-3	ND	1.000	0.5000	ug/L	U	1
tert-Amyl ethyl ether	919-94-8	ND	10.00	5.000	ug/L	U	1
tert-Butyl ethyl ether	637-92-3	ND	10.00	5.000	ug/L	U	1
Diisopropyl ether	108-20-3	ND	10.00	5.000	ug/L	U	1
tert-Amyl methyl ether	994-05-8	ND	10.00	5.000	ug/L	U	1
tert-Amyl alcohol	75-85-4	ND	20.00	10.00	ug/L	U	1
Ethylbenzene	100-41-4	ND	1.000	0.5000	ug/L	U	1
m&p-Xylene	108-38-3	ND	2.000	1.000	ug/L	U	1
o-Xylene	95-47-6	ND	1.000	0.5000	ug/L	U	1
Naphthalene	91-20-3	ND	1.000	0.5000	ug/L	U	1

# Blank Spike Recovery

Project Name: 7-11 Store 32785

Work Order #: 14013001

Project ID: 60144916

Prep Batch #: 49038

Date Prepared: 01/30/2014 09:33

Sample ID: 49038-2-BKS

Matrix: Water

Lab Batch ID: 111507

Date Analyzed: 01/30/2014 10:58

Analyst: 1035

Reporting Units: ug/L

## BLANK /BLANK SPIKE RECOVERY STUDY

Total Petroleum Hydrocarbons-GRO  Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
TPH-GRO (Gasoline Range Organics)	<100	5000	4849	97	61-138	

Blank Spike Recovery [D] =  $100 * (([C]) / [B])$

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Baltimore, MD 21228

H = Recovery of BS, BSD or both exceeded the laboratory control limits  
F = RPD exceeded the laboratory control limits  
L = Recovery of BS, BSD or both below the laboratory control limits



# Blank Spike Recovery

Project Name: 7-11 Store 32785

Work Order #: 14013001

Project ID: 60144916

Prep Batch #: 49068

Date Prepared: 01/31/2014 13:00

Sample ID: 49068-1-BKS

Matrix: Water

Lab Batch ID: 111542

Date Analyzed: 01/31/2014 13:26

Analyst: 1011

Reporting Units: ug/L

## BLANK /BLANK SPIKE RECOVERY STUDY

BTEX, naphthalene + oxygenates  Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags	Marginal Exceedance Limits
tert-Butanol	<20.00	50.00	47.93	96	43-161		24-181
Methyl-t-Butyl Ether	<1.000	50.00	47.50	95	74-124		66-132
Benzene	<1.000	50.00	48.00	96	79-129		71-137
Toluene	<1.000	50.00	49.61	99	79-128		71-136
tert-Amyl ethyl ether	<10.00	50.00	43.10	86	76-121		69-128
tert-Butyl ethyl ether	<10.00	50.00	42.83	86	70-126		61-135
Diisopropyl ether	<10.00	50.00	51.61	103	68-132		57-142
tert-Amyl methyl ether	<10.00	50.00	43.07	86	77-122		70-130
tert-Amyl alcohol	<20.00	50.00	24.27	49	27-164		4-187
Ethylbenzene	<1.000	50.00	49.68	99	83-128		75-136
m&p-Xylene	<2.000	100	100.7	101	84-129		77-136
o-Xylene	<1.000	50.00	48.91	98	85-129		78-136
Naphthalene	<1.000	50.00	43.97	88	66-161		50-177

Blank Spike Recovery [D] = 100\*(([C])/[B])

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6630 Baltimore National Pike  
Baltimore, MD 21228

H= Recovery of BS,BSD or both exceeded the laboratory control limits  
F = RPD exceeded the laboratory control limits  
L = Recovery of BS,BSD or both below the laboratory control limits



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

www.phaseonline.com  
email: info@phaseonline.com

## PHASE SEPARATION SCIENCE, INC.

<b>1</b> *CLIENT: <u>AECOM</u> *PROJECT MGR: <u>J. Canzari</u> *PROJECT NAME: <u>7-11 store 32785</u> SITE LOCATION: <u>Hampstead, MD</u> *OFFICE LOC.: <u>Columbia, MD</u> *PHONE NO.: <u>244 565 6516</u> FAX NO.: ( ) ( ) PROJECT NO.: <u>600014</u> P.O. NO.: <u>45814CM</u> *SAMPLER(S): <u>Mike Parsons</u> DW CERT NO.:	PSS Work Order #: <u>14013001</u> PAGE <u>1</u> OF <u>1</u> Matrix Codes: DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe SW=Surface Wtr	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2">LAB NO</th> <th rowspan="2">*SAMPLE IDENTIFICATION</th> <th rowspan="2">*DATE (SAMPLED)</th> <th rowspan="2">*TIME (SAMPLED)</th> <th rowspan="2">MATRIX (See Codes)</th> <th rowspan="2">CONTAINER NO.</th> <th rowspan="2">SAMPLE TYPE</th> <th rowspan="2">C= C= COMP</th> <th rowspan="2">G= GRAB</th> <th rowspan="2">REMARKS</th> </tr> <tr> <th>C</th> <th>O</th> <th>N</th> <th>T</th> <th>A</th> <th>I</th> <th>N</th> <th>E</th> <th>R</th> <th>S</th> </tr> <tr> <td></td> <td><u>GAC-2 Final</u></td> <td><u>1/29/14</u></td> <td><u>1050</u></td> <td><u>GW</u></td> <td><u>6</u></td> <td><u>G</u></td> <td><u>(3)</u></td> <td></td> <td></td> </tr> </table>	LAB NO	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	CONTAINER NO.	SAMPLE TYPE	C= C= COMP	G= GRAB	REMARKS	C	O	N	T	A	I	N	E	R	S		<u>GAC-2 Final</u>	<u>1/29/14</u>	<u>1050</u>	<u>GW</u>	<u>6</u>	<u>G</u>	<u>(3)</u>			# of Coolers: <u>1</u> Custody Seal: <u>Abs</u> Ice Present: <u>prec</u> Temp: <u>30c</u> Shipping Carrier: <u>Area</u> *Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other Data Deliverables Required: <input checked="" type="checkbox"/> COA <input type="checkbox"/> GC SUMM <input type="checkbox"/> CLP LIKE <input type="checkbox"/> OTHER
LAB NO	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)											*TIME (SAMPLED)	MATRIX (See Codes)	CONTAINER NO.	SAMPLE TYPE	C= C= COMP	G= GRAB	REMARKS														
			C	O	N	T	A	I	N	E	R	S																					
	<u>GAC-2 Final</u>	<u>1/29/14</u>	<u>1050</u>	<u>GW</u>	<u>6</u>	<u>G</u>	<u>(3)</u>																										
<b>2</b> Relinquished By: (1) <u>[Signature: Mike Parsons]</u> Date: <u>1/31/14</u> Time: <u>9:21</u> Relinquished By: (2) Received By: <u>[Signature: Robert Hudby]</u> Relinquished By: (3) Received By: Relinquished By: (4) Received By:																																	
Special Instructions: DW COMPLIANCE? YES <input type="checkbox"/> NO <input type="checkbox"/> EDD FORMAT TYPE: <u>AECOM</u> STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>																																	



# Phase Separation Science, Inc

## Sample Receipt Checklist

<b>Work Order #</b>	14013001	<b>Received By</b>	Robyn Rhudy
<b>Client Name</b>	AECOM	<b>Date Received</b>	01/30/2014 09:21:00 AM
<b>Project Name</b>	7-11 Store 32785	<b>Delivered By</b>	Client
<b>Project Number</b>	60144916	<b>Tracking No</b>	Not Applicable
<b>Disposal Date</b>	03/06/2014	<b>Logged In By</b>	Robyn Rhudy

### Shipping Container(s)

No. of Coolers	1	Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	3
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

### Documentation

COC agrees with sample labels?	Yes
Chain of Custody	Yes

Sampler Name	<u>Mike Parsons</u>
MD DW Cert. No.	<u>N/A</u>

### Sample Container

Appropriate for Specified Analysis?	Yes
Intact?	Yes
Labeled and Labels Legible?	Yes

Custody Seal(s) Intact?	Not Applicable
Seal(s) Signed / Dated	Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 6

### Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Date: 01/30/2014

Robyn Rhudy

PM Review and Approval:

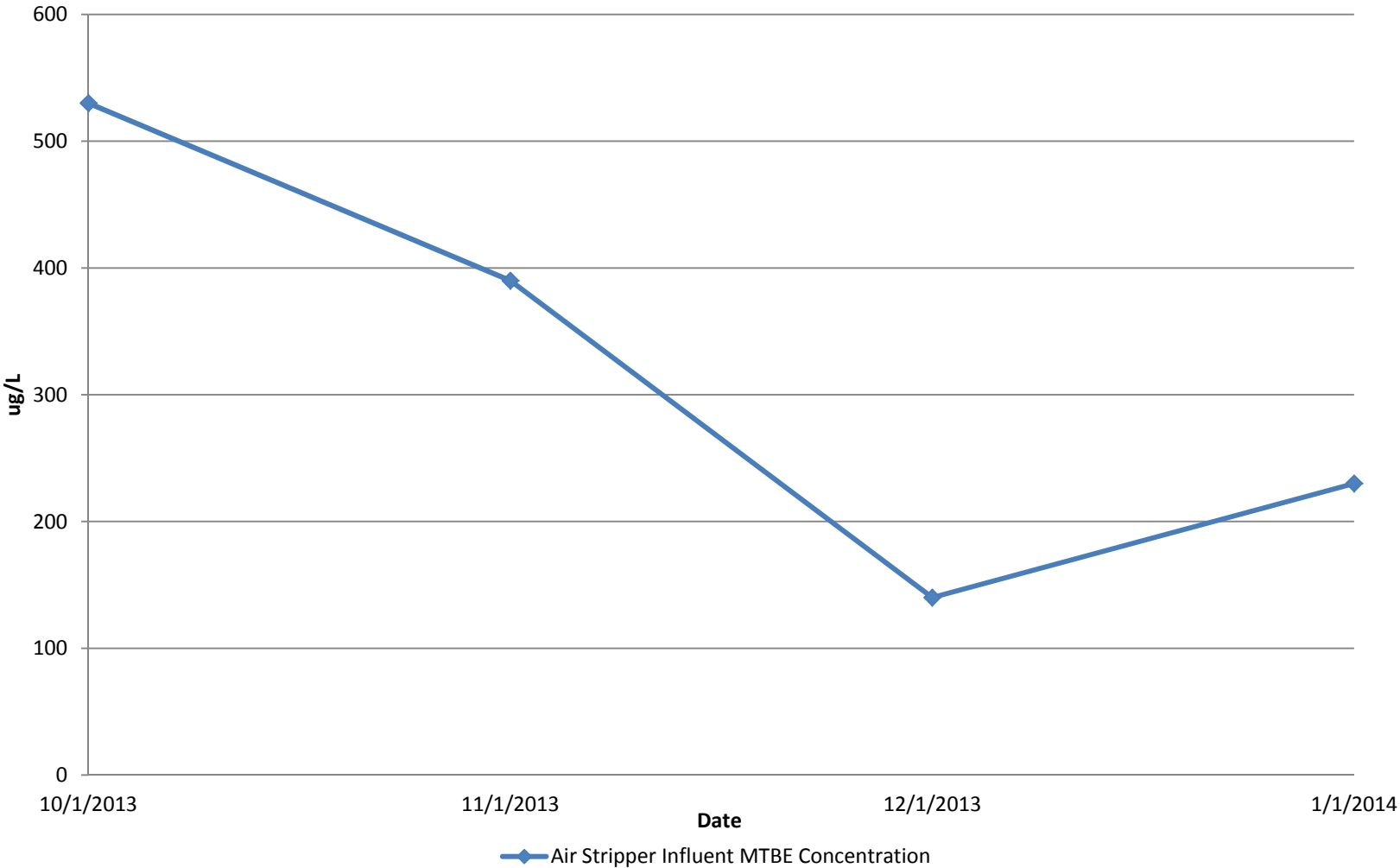
Date: 01/30/2014

Amy Friedlander

## **ATTACHMENT C**

**Air Stripper MTBE Concentration Graph Over Time**

# Air Stripper Influent MTBE Concentration Over Time



**ATTACHMENT D**

**Potable Well Laboratory Report**

# Analytical Report for

**AECOM**

**Certificate of Analysis No.: 14011402**

**Project Manager: John Canzeri**  
**Project Name : 7-11 Store 32785**  
**Project Location: Hampstead, MD**  
**Project ID : 60144916**



**January 21, 2014**  
**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**  
**Phone: (410) 747-8770**  
**Fax: (410) 788-8723**

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# PHASE SEPARATION SCIENCE, INC.



January 21, 2014

**John Canzeri**  
**AECOM**  
8320 Guilford Road, Ste. L  
Columbia, MD 21046

Reference: PSS Work Order(s) No: **14011402**  
Project Name: 7-11 Store 32785  
Project Location: Hampstead, MD  
Project ID.: 60144916

Dear John Canzeri :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **14011402**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on February 18, 2014. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'. The signature is written in a cursive style.

---

**Dan Prucnal**  
Laboratory Manager





**Sample Summary**  
**Client Name: AECOM**  
**Project Name: 7-11 Store 32785**

**Work Order Number(s): 14011402**

**Project ID: 60144916**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/14/2014 at 10:00 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
14011402-001	124 Hanover INF	GROUND WATER	01/13/14 15:01
14011402-002	124 Hanover GAC1	GROUND WATER	01/13/14 14:58
14011402-003	124 Hanover GAC2	GROUND WATER	01/13/14 14:55
14011402-004	124 Hanover Final GAC	GROUND WATER	01/13/14 14:52

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

**Notes:**

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. The following analytical results are never reported on a dry weight basis: pH, flashpoint, moisture and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.
6. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.

**Standard Flags/Abbreviations:**

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.  
An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

**Certifications:**

NELAP Certifications: PA 68-03330, VA 2200  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBA MWAA LD1997-0041-2015

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover INF**      **Date/Time Sampled: 01/13/2014 15:01**      **PSS Sample ID: 14011402-001**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Bromobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Bromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Bromodichloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Bromoform	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014
Bromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
tert-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
sec-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
n-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Chlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Chloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Chloroform	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Chloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
2-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
4-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014
Dibromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Dibromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover INF**      **Date/Time Sampled: 01/13/2014 15:01**      **PSS Sample ID: 14011402-001**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,3-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
2,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
cis-1,3-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Ethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Isopropylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
4-Isopropyltoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Methylene Chloride	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014
Methyl-t-butyl ether	<b>7.2</b>	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Naphthalene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
n-Propylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Styrene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Diisopropyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Tetrachloroethylene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Toluene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/15/14	01/15/14 14:35	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Trichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2,3-Trichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,2,4-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
1,3,5-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
Vinyl Chloride	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
o-Xylene	ND	ug/L	0.50		1	01/15/14	01/15/14 14:35	1014
m,p-Xylenes	ND	ug/L	1.0		1	01/15/14	01/15/14 14:35	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014
tert-Butyl alcohol	ND	ug/L	20		1	01/15/14	01/15/14 14:35	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

<b>Sample ID: 124 Hanover INF</b>	<b>Date/Time Sampled: 01/13/2014 15:01</b>	<b>PSS Sample ID: 14011402-001</b>
<b>Matrix: GROUND WATER</b>	<b>Date/Time Received: 01/14/2014 10:00</b>	

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Amyl methyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 14:35	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover GAC1**      **Date/Time Sampled: 01/13/2014 14:58**      **PSS Sample ID: 14011402-002**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Bromobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Bromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Bromodichloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Bromoform	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014
Bromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
tert-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
sec-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
n-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Chlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Chloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Chloroform	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Chloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
2-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
4-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014
Dibromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Dibromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover GAC1**      **Date/Time Sampled: 01/13/2014 14:58**      **PSS Sample ID: 14011402-002**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,3-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
2,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
cis-1,3-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Ethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Isopropylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
4-Isopropyltoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Methylene Chloride	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014
Methyl-t-butyl ether	1.4	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Naphthalene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
n-Propylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Styrene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Diisopropyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Tetrachloroethylene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Toluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/15/14	01/15/14 15:16	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Trichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2,3-Trichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,2,4-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
1,3,5-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
Vinyl Chloride	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
o-Xylene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:16	1014
m,p-Xylenes	ND	ug/L	1.0		1	01/15/14	01/15/14 15:16	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014
tert-Butyl alcohol	ND	ug/L	20		1	01/15/14	01/15/14 15:16	1014



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

<b>Sample ID: 124 Hanover GAC1</b>	<b>Date/Time Sampled: 01/13/2014 14:58</b>	<b>PSS Sample ID: 14011402-002</b>
<b>Matrix: GROUND WATER</b>	<b>Date/Time Received: 01/14/2014 10:00</b>	

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
tert-Amyl methyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:16	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover GAC2**      **Date/Time Sampled: 01/13/2014 14:55**      **PSS Sample ID: 14011402-003**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Bromobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Bromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Bromodichloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Bromoform	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014
Bromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
tert-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
sec-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
n-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Chlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Chloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Chloroform	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Chloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
2-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
4-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014
Dibromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Dibromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014



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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover GAC2**      **Date/Time Sampled: 01/13/2014 14:55**      **PSS Sample ID: 14011402-003**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,3-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
2,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
cis-1,3-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Ethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Isopropylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
4-Isopropyltoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Methylene Chloride	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Naphthalene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
n-Propylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Styrene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Diisopropyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Tetrachloroethylene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Toluene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/15/14	01/15/14 15:57	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Trichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2,3-Trichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,2,4-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
1,3,5-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
Vinyl Chloride	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
o-Xylene	ND	ug/L	0.50		1	01/15/14	01/15/14 15:57	1014
m,p-Xylenes	ND	ug/L	1.0		1	01/15/14	01/15/14 15:57	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014
tert-Butyl alcohol	ND	ug/L	20		1	01/15/14	01/15/14 15:57	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
January 21, 2014

Project Name: 7-11 Store 32785  
Project Location: Hampstead, MD  
Project ID: 60144916

**Sample ID: 124 Hanover GAC2**      **Date/Time Sampled: 01/13/2014 14:55**      **PSS Sample ID: 14011402-003**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
tert-Amyl methyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 15:57	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover Final GAC**      **Date/Time Sampled: 01/13/2014 14:52**      **PSS Sample ID: 14011402-004**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Bromobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Bromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Bromodichloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Bromoform	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014
Bromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
tert-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
sec-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
n-Butylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Chlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Chloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Chloroform	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Chloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
2-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
4-Chlorotoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014
Dibromochloromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Dibromomethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
 January 21, 2014

Project Name: 7-11 Store 32785  
 Project Location: Hampstead, MD  
 Project ID: 60144916

**Sample ID: 124 Hanover Final GAC**      **Date/Time Sampled: 01/13/2014 14:52**      **PSS Sample ID: 14011402-004**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,3-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
2,2-Dichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
cis-1,3-Dichloropropene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Ethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Isopropylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
4-Isopropyltoluene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Methylene Chloride	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Naphthalene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
n-Propylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Styrene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Diisopropyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Tetrachloroethylene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Toluene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/15/14	01/15/14 16:38	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Trichloroethene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2,3-Trichloropropane	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,2,4-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
1,3,5-Trimethylbenzene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
Vinyl Chloride	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
o-Xylene	ND	ug/L	0.50		1	01/15/14	01/15/14 16:38	1014
m,p-Xylenes	ND	ug/L	1.0		1	01/15/14	01/15/14 16:38	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014
tert-Butyl alcohol	ND	ug/L	20		1	01/15/14	01/15/14 16:38	1014

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 14011402  
**AECOM, Columbia, MD**  
January 21, 2014

Project Name: 7-11 Store 32785  
Project Location: Hampstead, MD  
Project ID: 60144916

**Sample ID: 124 Hanover Final GAC**      **Date/Time Sampled: 01/13/2014 14:52**      **PSS Sample ID: 14011402-004**  
**Matrix: GROUND WATER**      **Date/Time Received: 01/14/2014 10:00**

VOC In Drinking Water plus Oxygenates      Analytical Method: EPA 524.2      Preparation Method: 524.2

	<u>Result</u>	<u>Units</u>	<u>RL</u>	<u>Flag</u>	<u>Dil</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>
tert-Amyl methyl ether	ND	ug/L	5.0		1	01/15/14	01/15/14 16:38	1014



# Case Narrative Summary

Client Name: AECOM

Project Name: 7-11 Store 32785

Work Order Number(s): 14011402

Project ID: 60144916

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

**Sample Receipt:**

All sample receipt conditions were acceptable.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**



## Analytical Data Package Information Summary

**Work Order(s): 14011402**

Report Prepared For: AECOM, Columbia, MD

Project Name: 7 Eleven - gen'l

Project Manager: John Canzeri

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 524.2</b>	124 Hanover INF	Initial	14011402-001	1014	W	48876	111271	01/13/2014	01/15/2014 00:00	01/15/2014 14:35
	124 Hanover GAC1	Initial	14011402-002	1014	W	48876	111271	01/13/2014	01/15/2014 00:00	01/15/2014 15:16
	124 Hanover GAC2	Initial	14011402-003	1014	W	48876	111271	01/13/2014	01/15/2014 00:00	01/15/2014 15:57
	124 Hanover Final GAC	Initial	14011402-004	1014	W	48876	111271	01/13/2014	01/15/2014 00:00	01/15/2014 16:38
	48876-1-BKS	BKS	48876-1-BKS	1014	W	48876	111271	-----	01/15/2014 00:00	01/15/2014 09:05
	48876-1-BLK	BLK	48876-1-BLK	1014	W	48876	111271	-----	01/15/2014 00:00	01/15/2014 11:10
	48876-1-BSD	BSD	48876-1-BSD	1014	W	48876	111271	-----	01/15/2014 00:00	01/15/2014 10:28

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011402

Project ID: 60144916

Lab Batch #: 111271

Sample: 48876-1-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 01/15/2014 09:05

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.45	10.00	85	83-115	
Dibromofluoromethane	9.79	10.00	98	89-106	
Toluene-D8	9.17	10.00	92	94-109	*

Lab Batch #: 111271

Sample: 48876-1-BSD / BSD

Matrix: Water

Units: ug/L

Date Analyzed: 01/15/2014 10:28

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.48	10.00	85	83-115	
Dibromofluoromethane	9.94	10.00	99	89-106	
Toluene-D8	9.18	10.00	92	94-109	*

Lab Batch #: 111271

Sample: 48876-1-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 01/15/2014 11:10

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.44	10.00	84	83-115	
Dibromofluoromethane	10.3	10.00	103	89-106	
Toluene-D8	9.43	10.00	94	94-109	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228



# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011402

Project ID: 60144916

Lab Batch #: 111271

Sample: 14011402-001 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/15/2014 14:35

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.40	10.00	84	83-115	
Dibromofluoromethane	10.0	10.00	102	89-106	
Toluene-D8	9.50	10.00	95	94-109	

Lab Batch #: 111271

Sample: 14011402-002 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/15/2014 15:16

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.50	10.00	85	83-115	
Dibromofluoromethane	10.0	10.00	101	89-106	
Toluene-D8	9.60	10.00	96	94-109	

Lab Batch #: 111271

Sample: 14011402-003 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/15/2014 15:57

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.50	10.00	85	83-115	
Dibromofluoromethane	10.0	10.00	101	89-106	
Toluene-D8	9.60	10.00	96	94-109	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Form 2 - Surrogate Recoveries

Project Name: 7-11 Store 32785

01/21/2014

Work Order #: 14011402

Project ID: 60144916

Lab Batch #: 111271

Sample: 14011402-004 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 01/15/2014 16:38

SURROGATE RECOVERY STUDY					
VOC In Drinking Water plus Oxygenates	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
4-Bromofluorobenzene	8.60	10.00	86	83-115	
Dibromofluoromethane	10.0	10.00	103	89-106	
Toluene-D8	9.60	10.00	96	94-109	

\* Surrogate outside of Laboratory QC limits

Surrogate Recovery [C] = 100 \* A / B

Phase Separation Science, Inc.  
6630 Baltimore National Pike  
Baltimore, MD 21228

# Blank Summary 14011402

AECOM, Columbia, MD

7-11 Store 32785

**Analytical Method: EPA 524.2**

Prep Method: E524.2PREP

Matrix: **WATER**

Sample Id: **48876-1-BLK**

Lab Sample Id: **48876-1-BLK**

Date Analyzed: Jan-15-14 11:10

Analyst: 1014

Date Prep: Jan-15-14 00:00

Tech: 1014

Seq Number: 111271

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
Benzene	71-43-2	ND	0.5000	0.5000	ug/L	U	1
Bromobenzene	108-86-1	ND	0.5000	0.5000	ug/L	U	1
Bromochloromethane	74-97-5	ND	0.5000	0.5000	ug/L	U	1
Bromodichloromethane	75-27-4	ND	0.5000	0.5000	ug/L	U	1
Bromoform	75-25-2	ND	5.000	5.000	ug/L	U	1
Bromomethane	74-83-9	ND	0.5000	0.5000	ug/L	U	1
tert-Butylbenzene	98-06-6	ND	0.5000	0.5000	ug/L	U	1
sec-Butylbenzene	135-98-8	ND	0.5000	0.5000	ug/L	U	1
n-Butylbenzene	104-51-8	ND	0.5000	0.5000	ug/L	U	1
Carbon Tetrachloride	56-23-5	ND	0.5000	0.5000	ug/L	U	1
Chlorobenzene	108-90-7	ND	0.5000	0.5000	ug/L	U	1
Chloroethane	75-00-3	ND	0.5000	0.5000	ug/L	U	1
Chloroform	67-66-3	ND	0.5000	0.5000	ug/L	U	1
Chloromethane	74-87-3	ND	0.5000	0.5000	ug/L	U	1
2-Chlorotoluene	95-49-8	ND	0.5000	0.5000	ug/L	U	1
4-Chlorotoluene	106-43-4	ND	0.5000	0.5000	ug/L	U	1
1,2-Dibromo-3-Chloropropane	96-12-8	ND	5.000	5.000	ug/L	U	1
Dibromochloromethane	124-48-1	ND	0.5000	0.5000	ug/L	U	1
1,2-Dibromoethane	106-93-4	ND	0.5000	0.5000	ug/L	U	1
Dibromomethane	74-95-3	ND	0.5000	0.5000	ug/L	U	1
1,2-Dichlorobenzene	95-50-1	ND	0.5000	0.5000	ug/L	U	1
1,3-Dichlorobenzene	541-73-1	ND	0.5000	0.5000	ug/L	U	1
1,4-Dichlorobenzene	106-46-7	ND	0.5000	0.5000	ug/L	U	1
Dichlorodifluoromethane	75-71-8	ND	0.5000	0.5000	ug/L	U	1
1,1-Dichloroethane	75-34-3	ND	0.5000	0.5000	ug/L	U	1
1,2-Dichloroethane	107-06-2	ND	0.5000	0.5000	ug/L	U	1
cis-1,2-Dichloroethene	156-59-2	ND	0.5000	0.5000	ug/L	U	1
trans-1,2-Dichloroethene	156-60-5	ND	0.5000	0.5000	ug/L	U	1
1,1-Dichloroethene	75-35-4	ND	0.5000	0.5000	ug/L	U	1
1,2-Dichloropropane	78-87-5	ND	0.5000	0.5000	ug/L	U	1
1,3-Dichloropropane	142-28-9	ND	0.5000	0.5000	ug/L	U	1
2,2-Dichloropropane	594-20-7	ND	0.5000	0.5000	ug/L	U	1
1,1-Dichloropropene	563-58-6	ND	0.5000	0.5000	ug/L	U	1
cis-1,3-Dichloropropene	10061-01-5	ND	0.5000	0.5000	ug/L	U	1
Ethylbenzene	100-41-4	ND	0.5000	0.5000	ug/L	U	1
Isopropylbenzene	98-82-8	ND	0.5000	0.5000	ug/L	U	1
4-Isopropyltoluene	99-87-6	ND	0.5000	0.5000	ug/L	U	1
Methylene Chloride	75-09-2	ND	5.000	5.000	ug/L	U	1
Methyl-t-butyl ether	1634-04-4	ND	0.5000	0.5000	ug/L	U	1
Naphthalene	91-20-3	ND	0.5000	0.5000	ug/L	U	1
n-Propylbenzene	103-65-1	ND	0.5000	0.5000	ug/L	U	1

# Blank Summary 14011402

AECOM, Columbia, MD

7-11 Store 32785

**Analytical Method: EPA 524.2**

Prep Method: E524.2PREP

Matrix: **WATER**

Sample Id: **48876-1-BLK**

Lab Sample Id: **48876-1-BLK**

Date Analyzed: Jan-15-14 11:10

Analyst: 1014

Date Prep: Jan-15-14 00:00

Tech: 1014

Seq Number: 111271

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
Styrene	100-42-5	ND	0.5000	0.5000	ug/L	U	1
1,1,1,2-Tetrachloroethane	630-20-6	ND	0.5000	0.5000	ug/L	U	1
Diisopropyl ether	108-20-3	ND	5.000	5.000	ug/L	U	1
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5000	0.5000	ug/L	U	1
Tetrachloroethylene	127-18-4	ND	0.5000	0.5000	ug/L	U	1
Toluene	108-88-3	ND	0.5000	0.5000	ug/L	U	1
1,2,3-Trichlorobenzene	87-61-6	ND	1.000	1.000	ug/L	U	1
1,2,4-Trichlorobenzene	120-82-1	ND	0.5000	0.5000	ug/L	U	1
1,1,1-Trichloroethane	71-55-6	ND	0.5000	0.5000	ug/L	U	1
1,1,2-Trichloroethane	79-00-5	ND	0.5000	0.5000	ug/L	U	1
Trichloroethene	79-01-6	ND	0.5000	0.5000	ug/L	U	1
1,2,3-Trichloropropane	96-18-4	ND	0.5000	0.5000	ug/L	U	1
1,2,4-Trimethylbenzene	95-63-6	ND	0.5000	0.5000	ug/L	U	1
1,3,5-Trimethylbenzene	108-67-8	ND	0.5000	0.5000	ug/L	U	1
Vinyl Chloride	75-01-4	ND	0.5000	0.5000	ug/L	U	1
o-Xylene	95-47-6	ND	0.5000	0.5000	ug/L	U	1
m,p-Xylenes	108-38-3	ND	1.000	1.000	ug/L	U	1
tert-Butyl ethyl ether	637-92-3	ND	5.000	5.000	ug/L	U	1
tert-Butyl alcohol	75-65-0	ND	20.00	20.00	ug/L	U	1
tert-Amyl methyl ether	994-05-8	ND	5.000	5.000	ug/L	U	1

# LCS/LCSD Recoveries

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011402

**Prep Batch #:** 48876

**Lab Batch ID:** 111271

**Units:** ug/L

**Date Prepared:** 01/15/2014 00:00

**Date Analyzed:** 01/15/2014 09:05

**Sample:** 48876-1-BKS

**Method:** E524.2PREP / E524.2

**Project ID:** 60144916

**Analyst:** 1014

**Matrix:** Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
VOC In Drinking Water plus Oxygenates	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.5000	10.00	8.500	85	10.00	8.750	88	3	70-130	30	
Bromobenzene	<0.5000	10.00	8.780	88	10.00	9.000	90	2	70-130	30	
Bromochloromethane	<0.5000	10.00	8.920	89	10.00	9.170	92	3	70-130	30	
Bromodichloromethane	<0.5000	10.00	9.170	92	10.00	9.340	93	2	70-130	30	
Bromoform	<5.000	20.00	19.85	99	20.00	19.79	99	0	70-130	30	
Bromomethane	<0.5000	10.00	8.160	82	10.00	8.210	82	1	70-130	30	
tert-Butylbenzene	<0.5000	10.00	8.580	86	10.00	8.880	89	3	70-130	30	
sec-Butylbenzene	<0.5000	10.00	8.650	87	10.00	8.990	90	4	70-130	30	
n-Butylbenzene	<0.5000	10.00	8.700	87	10.00	9.070	91	4	70-130	30	
Carbon Tetrachloride	<0.5000	10.00	7.930	79	10.00	8.190	82	3	70-130	30	
Chlorobenzene	<0.5000	10.00	8.530	85	10.00	8.700	87	2	70-130	30	
Chloroethane	<0.5000	10.00	8.350	84	10.00	8.350	84	0	70-130	30	
Chloroform	<0.5000	10.00	8.700	87	10.00	8.880	89	2	70-130	30	
Chloromethane	<0.5000	10.00	8.460	85	10.00	8.270	83	2	70-130	30	
2-Chlorotoluene	<0.5000	10.00	8.510	85	10.00	8.750	88	3	70-130	30	
4-Chlorotoluene	<0.5000	10.00	8.810	88	10.00	8.990	90	2	70-130	30	
1,2-Dibromo-3-Chloropropane	<5.000	50.00	50.17	100	50.00	51.86	104	3	70-130	30	
Dibromochloromethane	<0.5000	10.00	9.660	97	10.00	9.650	97	0	70-130	30	
1,2-Dibromoethane	<0.5000	10.00	9.170	92	10.00	9.280	93	1	70-130	30	
Dibromomethane	<0.5000	10.00	9.200	92	10.00	9.510	95	3	70-130	30	

Relative Percent Difference RPD = 200\*|(D-G)/(D+G)|

Laboratory Control Sample (LCS) Percent Recovery [D] = 100\*(C)/[B]

Laboratory Control Sample Duplicate (LCSD) Percent Recovery [G] = 100\*(F)/[E]

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits

F = RPD exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

# LCS/LCSD Recoveries

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011402

**Prep Batch #:** 48876

**Lab Batch ID:** 111271

**Units:** ug/L

**Date Prepared:** 01/15/2014 00:00

**Date Analyzed:** 01/15/2014 09:05

**Sample:** 48876-1-BKS

**Method:** E524.2PREP / E524.2

**Project ID:** 60144916

**Analyst:** 1014

**Matrix:** Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
VOC In Drinking Water plus Oxygenates	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
1,2-Dichlorobenzene	<0.5000	10.00	8.950	90	10.00	9.340	93	4	70-130	30	
1,3-Dichlorobenzene	<0.5000	10.00	8.740	87	10.00	9.050	91	3	70-130	30	
1,4-Dichlorobenzene	<0.5000	10.00	8.650	87	10.00	8.980	90	4	70-130	30	
Dichlorodifluoromethane	<0.5000	10.00	8.750	88	10.00	9.230	92	5	70-130	30	
1,1-Dichloroethane	<0.5000	10.00	8.640	86	10.00	8.850	89	2	70-130	30	
1,2-Dichloroethane	<0.5000	10.00	9.110	91	10.00	9.300	93	2	70-130	30	
cis-1,2-Dichloroethene	<0.5000	10.00	8.610	86	10.00	8.880	89	3	70-130	30	
trans-1,2-Dichloroethene	<0.5000	10.00	8.350	84	10.00	8.540	85	2	70-130	30	
1,1-Dichloroethene	<0.5000	10.00	8.190	82	10.00	8.310	83	1	70-130	30	
1,2-Dichloropropane	<0.5000	10.00	8.860	89	10.00	8.960	90	1	70-130	30	
1,3-Dichloropropane	<0.5000	10.00	9.120	91	10.00	9.380	94	3	70-130	30	
2,2-Dichloropropane	<0.5000	10.00	8.740	87	10.00	9.050	91	3	70-130	30	
1,1-Dichloropropene	<0.5000	10.00	8.440	84	10.00	8.670	87	3	70-130	30	
cis-1,3-Dichloropropene	<0.5000	10.00	9.260	93	10.00	9.430	94	2	70-130	30	
Ethylbenzene	<0.5000	10.00	8.580	86	10.00	8.740	87	2	70-130	30	
Isopropylbenzene	<0.5000	10.00	8.720	87	10.00	8.960	90	3	70-130	30	
4-Isopropyltoluene	<0.5000	10.00	8.660	87	10.00	9.000	90	4	70-130	30	
Methylene Chloride	<5.000	10.00	7.900	79	10.00	8.370	84	6	70-130	30	
Methyl-t-butyl ether	<0.5000	10.00	9.340	93	10.00	9.530	95	2	70-130	30	
Naphthalene	<0.5000	10.00	9.560	96	10.00	10.09	101	5	70-130	30	

Relative Percent Difference RPD = 200\*|(D-G)/(D+G)|

Laboratory Control Sample (LCS) Percent Recovery [D] = 100\*(C)/[B]

Laboratory Control Sample Duplicate (LCSD) Percent Recovery [G] = 100\*(F)/[E]

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits

F = RPD exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

# LCS/LCSD Recoveries

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011402

**Prep Batch #:** 48876

**Lab Batch ID:** 111271

**Units:** ug/L

**Date Prepared:** 01/15/2014 00:00

**Date Analyzed:** 01/15/2014 09:05

**Sample:** 48876-1-BKS

**Method:** E524.2PREP / E524.2

**Project ID:** 60144916

**Analyst:** 1014

**Matrix:** Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
VOC In Drinking Water plus Oxygenates	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
n-Propylbenzene	<0.5000	10.00	8.680	87	10.00	8.920	89	3	70-130	30	
Styrene	<0.5000	10.00	8.940	89	10.00	9.170	92	3	70-130	30	
1,1,1,2-Tetrachloroethane	<0.5000	10.00	9.130	91	10.00	9.170	92	0	70-130	30	
Diisopropyl ether	<5.0000	40.00	36.11	90	40.00	35.80	90	1	70-130	30	
1,1,2,2-Tetrachloroethane	<0.5000	10.00	9.570	96	10.00	9.740	97	2	70-130	30	
Tetrachloroethylene	<0.5000	10.00	8.170	82	10.00	8.490	85	4	70-130	30	
Toluene	<0.5000	10.00	8.480	85	10.00	8.630	86	2	70-130	30	
1,2,3-Trichlorobenzene	<1.0000	10.00	9.150	92	10.00	9.610	96	5	70-130	30	
1,2,4-Trichlorobenzene	<0.5000	10.00	8.990	90	10.00	9.390	94	4	70-130	30	
1,1,1-Trichloroethane	<0.5000	10.00	8.500	85	10.00	8.770	88	3	70-130	30	
1,1,2-Trichloroethane	<0.5000	10.00	9.180	92	10.00	9.450	95	3	70-130	30	
Trichloroethene	<0.5000	10.00	8.480	85	10.00	8.680	87	2	70-130	30	
1,2,3-Trichloropropane	<0.5000	10.00	9.030	90	10.00	9.200	92	2	70-130	30	
1,2,4-Trimethylbenzene	<0.5000	10.00	8.780	88	10.00	9.090	91	3	70-130	30	
1,3,5-Trimethylbenzene	<0.5000	10.00	8.750	88	10.00	9.000	90	3	70-130	30	
Vinyl Chloride	<0.5000	10.00	8.710	87	10.00	8.650	87	1	70-130	30	
o-Xylene	<0.5000	10.00	8.720	87	10.00	8.960	90	3	70-130	30	
m,p-Xylenes	<1.0000	20.00	17.06	85	20.00	17.47	87	2	70-130	30	
tert-Butyl ethyl ether	<5.0000	40.00	36.63	92	40.00	36.59	91	0	68-126	30	
tert-Butyl alcohol	<20.00	80.00	66.52	83	80.00	67.13	84	1	54-122	30	

Relative Percent Difference RPD = 200\*|(D-G)/(D+G)|

Laboratory Control Sample (LCS) Percent Recovery [D] = 100\*(C)/[B]

Laboratory Control Sample Duplicate (LCSD) Percent Recovery [G] = 100\*(F)/[E]

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits

F = RPD exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

# LCS/LCSD Recoveries

**Project Name: 7-11 Store 32785**

**Work Order #:** 14011402

**Prep Batch #:** 48876

**Lab Batch ID:** 111271

**Units:** ug/L

**Date Prepared:** 01/15/2014 00:00

**Date Analyzed:** 01/15/2014 09:05

**Sample:** 48876-1-BKS

**Method:** E524.2PREP / E524.2

**Project ID:** 60144916

**Analyst:** 1014

**Matrix:** Water

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
VOC In Drinking Water plus Oxygenates	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
tert-Amyl methyl ether	<5.000	40.00	36.67	92	40.00	36.57	91	0	67-124	30	

Relative Percent Difference RPD =  $200 * |(D-G)/(D+G)|$

Laboratory Control Sample (LCS) Percent Recovery [D] =  $100 * (C)/[B]$

Laboratory Control Sample Duplicate (LCSD) Percent Recovery [G] =  $100 * (F)/[E]$

**Phase Separation Science, Inc.**  
**6630 Baltimore National Pike**  
**Baltimore, MD 21228**

H= Recovery of BS,BSD or both exceeded the laboratory control limits

F = RPD exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits





# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

www.phaseonline.com  
email: info@phaseonline.com

## PHASE SEPARATION SCIENCE, INC.

<b>1</b> *CLIENT: <u>AECOM</u> *OFFICE LOC. <u>Columbia, MD</u>		PSS Work Order #: <u>14011402</u> PAGE <u>1</u> OF <u>1</u>					
*PROJECT MGR: <u>J. Canzeri</u> *PHONE NO.: <u>240.505.6106</u>		Matrix Codes: SW=Surface Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe					
EMAIL: ( ) FAX NO.: ( )		Preservatives Used: <u>None</u>					
*PROJECT NAME: <u>7-11 store 32785</u> PROJECT NO. <u>6044916</u>		Analysis/Method Required: <u>3</u>					
SITE LOCATION: <u>Hampstead, MD</u> P.O. NO.: <u>45314 ACM</u>		SAMPLE TYPE: <u>C = COMP</u>					
SAMPLER(S): <u>Mike Parsons</u> DW CERT NO.:		G = GRAB					
<b>2</b>							
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE	REMARKS
1	124 Hanover 1WF	7/3/14	1501	GW	3	G	
2	124 Hanover GAC1		1458	)	3	)	
3	124 Hanover GAC2		1455	)	3	)	
4	124 Hanover FINAC (AC)		1452	)	3	)	
				<b>4</b>			
Relinquished By: (1) <u>Mike Parsons</u> Date: <u>7/14/14</u> Time: <u>1000</u>		Received By: <u>[Signature]</u>					
Relinquished By: (2) <u>[Signature]</u>		Received By:					
Relinquished By: (3)		Received By:					
Relinquished By: (4)		Received By:					
*Requested TAT (One TAT per COC) <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other							
Data Deliverables Required: COA <input checked="" type="checkbox"/> SUMM <input type="checkbox"/> CLP LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>							
# of Coolers: _____ Custody Seal: <u>MS</u> Ice Present: <u>Pres</u> Temp: <u>25</u> Shipping Carrier: <u>Ches</u>							
Special Instructions:							
DW COMPLIANCE? YES <input type="checkbox"/>		EDD FORMAT TYPE: <u>AECOM</u>					
STATE RESULTS REPORTED TO: <input type="checkbox"/> MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER							

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (410) 932-9047 • Fax (410) 788-8723  
 The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. \* = REQUIRED



# Phase Separation Science, Inc

## Sample Receipt Checklist

<b>Work Order #</b>	14011402	<b>Received By</b>	Robyn Rhudy
<b>Client Name</b>	AECOM	<b>Date Received</b>	01/14/2014 10:00:00 AM
<b>Project Name</b>	7-11 Store 32785	<b>Delivered By</b>	Client
<b>Project Number</b>	60144916	<b>Tracking No</b>	Not Applicable
<b>Disposal Date</b>	02/18/2014	<b>Logged In By</b>	Robyn Rhudy

### Shipping Container(s)

No. of Coolers	1	Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	2
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

### Documentation

COC agrees with sample labels?	Yes
Chain of Custody	Yes

Sampler Name	<u>Mike Parsons</u>
MD DW Cert. No.	<u>N/A</u>

### Sample Container

Appropriate for Specified Analysis?	Yes
Intact?	Yes
Labeled and Labels Legible?	Yes

Custody Seal(s) Intact?	Not Applicable
Seal(s) Signed / Dated	Not Applicable

Total No. of Samples Received 4

Total No. of Containers Received 12

### Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Date: 01/14/2014

Robyn Rhudy

PM Review and Approval:

Date: 01/14/2014

Amy Friedlander

## **ATTACHMENT E**

**Potable Carbon Treatment System - Influent MTBE Concentrations**

Potable Carbon Treatment System - Influent MTBE Concentrations  
124 Hanover Pike  
Hampstead, MD  
April 1, 2010 - January 14, 2014

MTBE (µg/L)

