

December 4, 2013

Mr. Dane Bauer
Daft, McCune & Walker, Inc.
200 E. Pennsylvania Ave.
Towson, Maryland 21286

SUBJECT: CRHC – Monthly Post-Remedial Progress Report for October 2013

Dear Mr. Bauer:

On October 21, 2013, monitoring and recovery wells at the Chester River Hospital Center (CRHC) (see Figure 1) were gauged in accordance with the monitoring modifications detailed in MDE-Oil Control Program's letter dated September 5, 2012. Using an oil/water interface probe, Earth Data personnel gauged 47 onsite wells (see Figure 2) to determine the depth to the water-table and the presence, if any, of liquid hydrocarbons on the surface of the water-table. Using the gauging data, a water-table contour map was prepared showing the groundwater flow direction (see Figure 3).

Following the gauging, eleven wells immediately downgradient of the remediation/containment system were sampled (MW-15, MW-16, MW-19, MW-20, MW-24, MW-33, MW-34, MW-35, MW-48, MW-49 and MW-50). These wells are located in and around the lower parking lot south of Brown Street.

Prior to sampling, each well was purged of at least three well volumes of water to ensure that the sample collected was representative of the water in the surrounding formation. The purge water was filtered through granular activated carbon before being discharged onsite. Using dedicated disposable bailers for each well, groundwater samples were collected in pre-labeled sample containers and immediately placed on ice in a laboratory supplied cooler while in the field. The samples were sent via courier to an EPA-approved laboratory and analyzed for total petroleum hydrocarbons – diesel range organics (TPH-DRO) using EPA Method 8015.

The water-table contour map, prepared with the gauging data collected on October 21, 2013, shows a depression in the upper parking lot (source area) created by the groundwater recovery system which was reactivated on June 14, 2013. Based on this data, it is not clear whether there is containment in downgradient portion of the dissolved hydrocarbon plume, i.e., the south end of the lower parking lot.

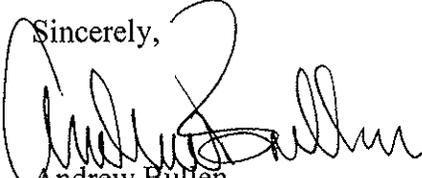
A measurable thickness of liquid phase hydrocarbon (fuel oil) was measured on the water-table in recovery/containment well RW-3B at a thickness of 0.11 feet. On October 25, 2013, the fuel oil skimmer pump installed in RW-3B was used to retrieve the liquid phase hydrocarbon from the well. Additionally, a petroleum sheen or film was observed on the water-table in 11 wells at the site. All 12 wells were all located north of Brown Street in the source area, i.e., the portion of the site impacted by liquid fuel oil. The Earth Data well gauging report and corresponding field report for the October 21, 2013 site visit may be found in Appendix A.

Of the 11 water samples collected from wells in the lower parking lot south of Brown Street, laboratory analytical results showed detectable concentrations of petroleum hydrocarbons in only one well (MW-20) (Table 1). The TPH-DRO concentrations in the MW-20 water sample were found to be 2.4 mg/L. No detectable concentrations of TPH-DRO were found in the samples collected from the remaining 10 wells. The May 2013 sampling showed detectable TPH-DRO in four downgradient monitoring wells and the June 2013 samples showed TPH-DRO in eight downgradient wells. The July 2013 samples showed detectable TPH-DRO in ten wells. The August sampling showed detectable concentrations in only one well. Prior to May 2013, TPH-DRO was regularly found in only two monitoring wells, MW-19 and MW-20. The absence of TPH-DRO in the majority of the downgradient wells during the August, September and October 2013 rounds of sampling may be attributed to the rapid reduction in the water-table elevation as a result of the reactivation of pumping wells in the remediation/containment system in June 2013. A site map depicting the groundwater quality for the October 2013 sampling event may be found in Figure 4. The September 2013 laboratory analytical report may be found in Appendix B.

The absence of TPH-DRO in the downgradient monitoring wells during the last three sampling events does not necessarily preclude the presence of dissolved DRO in the groundwater beneath the lower parking area. Dissolved TPH-DRO may be present at concentrations below the laboratory detection limit of 0.1 mg/l. The reduction in the TPH-DRO concentration over the previous sampling events may be attributed to the rapid decline in the water-table elevation, causing the dissolved petroleum hydrocarbons to become entrained in the surrounding soil matrix. The concentrations of dissolved TPH-DRO may return to previous levels or remain below detection limits.

Mr. Dane Bauer
Daft, McCune & Walker, Inc.
December 4, 2013
Page 3

Copies of this report should be forwarded to MDE and the Town of Chestertown.
If you have any question or require additional information, please do not hesitate to call.

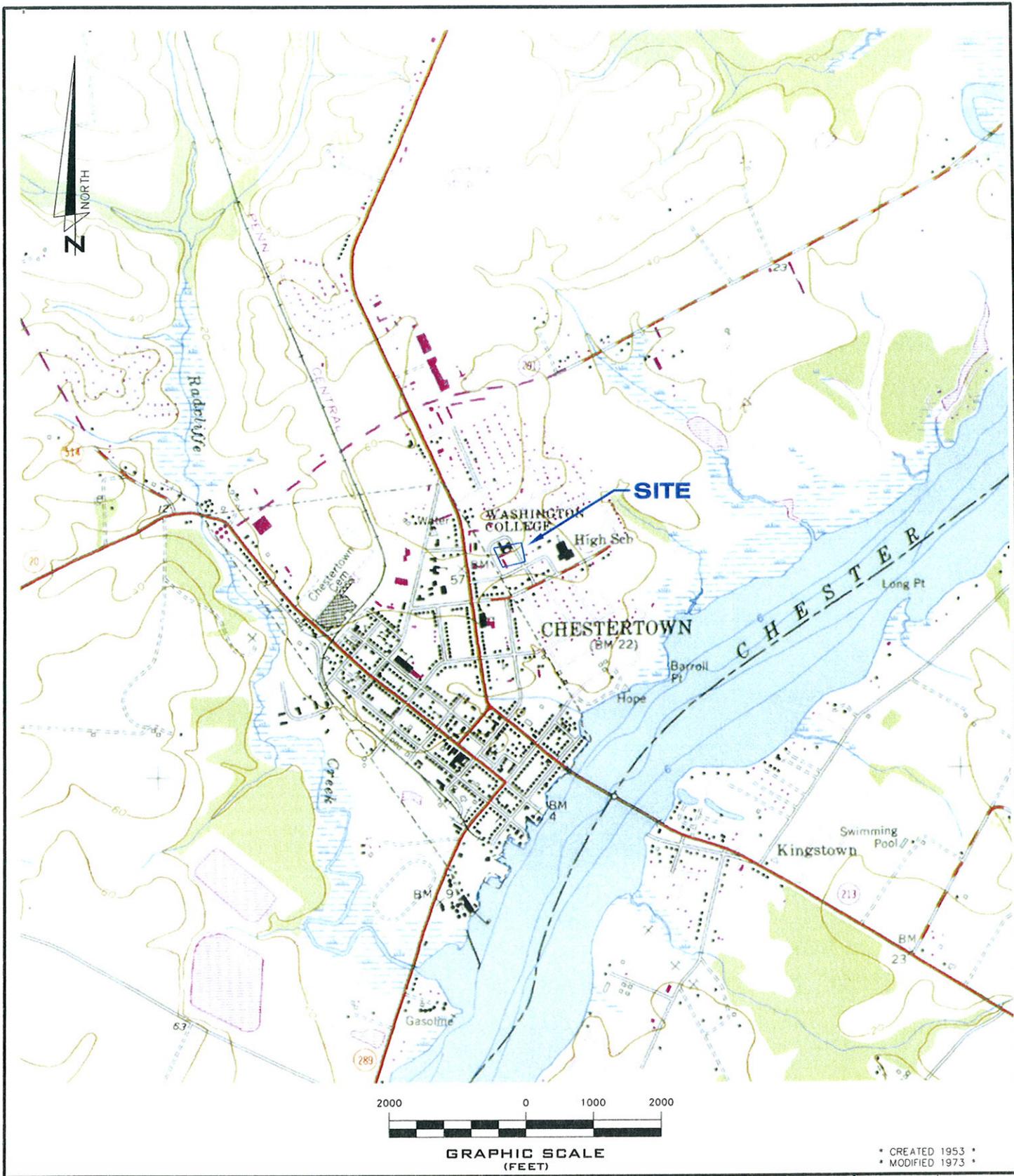
Sincerely,

Andrew Bullen
Senior Project Manager

AJB:tjl - 2781

cc: Mr. Kunal Gangopadhyay – EBA Engineering
Mr. Tucker Moorshead – Earth Data

Attachments

FIGURES



GRAPHIC SCALE
(FEET)

• CREATED 1953 •
• MODIFIED 1973 •

Earth Data
INCORPORATED

GROUNDWATER & ENVIRONMENTAL CONSULTANTS

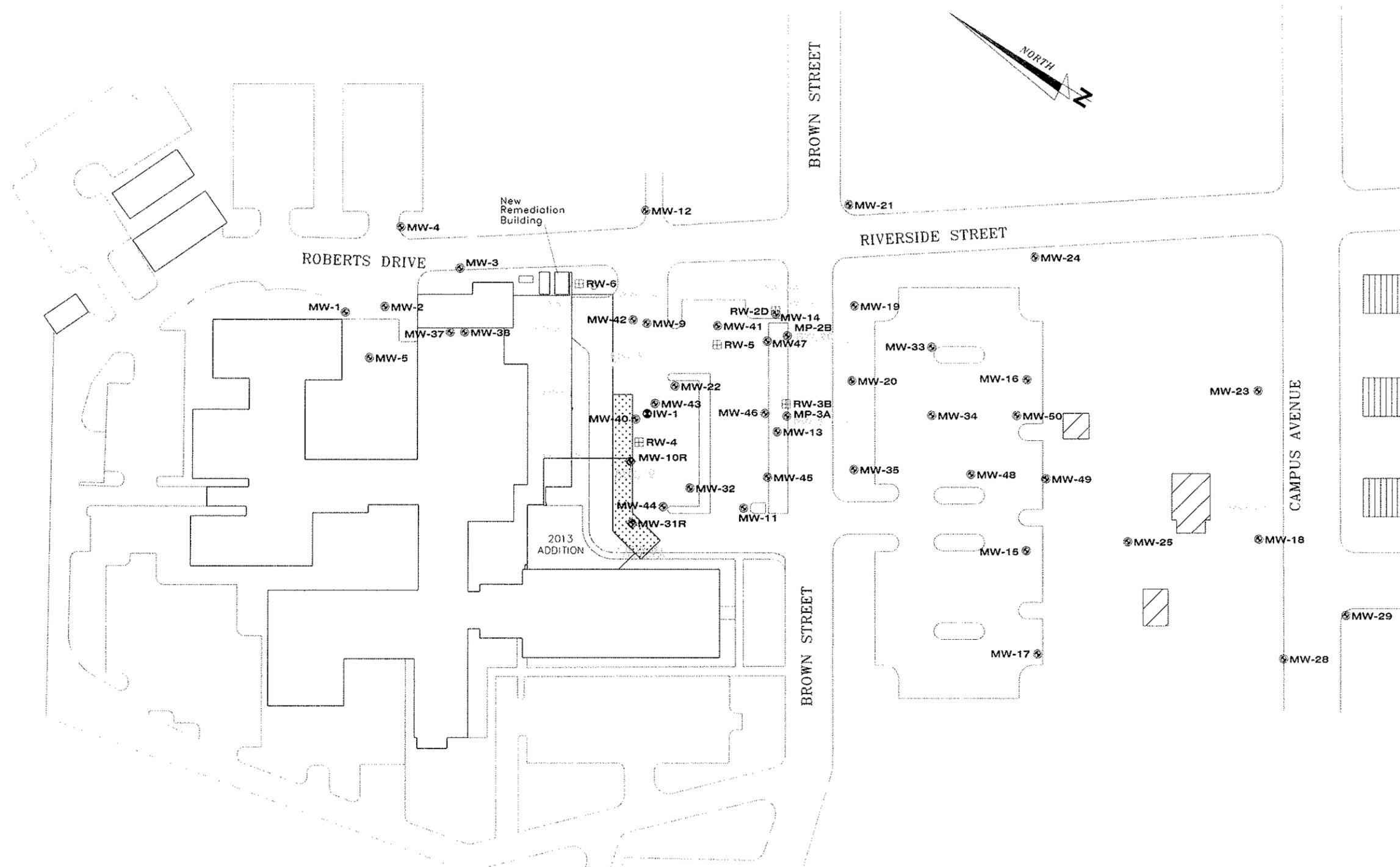
131 COMET DRIVE
CENTREVILLE, MARYLAND 21517
TEL 410.758.8180 / FAX 410.758.8168
www.earthdalainc.com

FIGURE 1
LOCATION MAP
FOR
CHESTER RIVER HOSPITAL CENTER
CHESTERTOWN, MARYLAND

PROJ. MGR.:	A BULLEN
DATE:	10/31/2011
SCALE:	AS SHOWN
EDI #:	2781
DRAWN BY:	T COCHRUN
PORTION OF USGS 7.5 MINUTE QUADRANGLE FOR CHESTERTOWN, MARYLAND	

Figure 1 - Portion of USGS Quadrangle for Chestertown showing the location of Chester River Hospital Center - Chestertown, Maryland.

J:_Job_Directories\current\2781 Hospital\CAD\2013\2781-SEPT 13.DWG



LEGEND

MW-40 MONITORING WELL
 RW-3B RECOVERY WELL
 IW-1 INJECTION WELL
 ABANDONED MONITORING WELL
 DATE OF ABANDONMENT
 ABANDONED RECOVERY WELL
 DATE OF ABANDONMENT

PROJ MGR A BULLEN	SCALE AS SHOWN	CADD FILE 2781-SEPT 13	BASE MAP
DRAWN BY J COCHRAN	DATE 10/04/2013	PROJECT 2781	SURVEY BY

FIGURE 2
 SITE MAP
 FOR
**CHESTER RIVER
 HOSPITAL CENTER**
 CHESTERTOWN, MARYLAND

Earth Data
 INCORPORATED

GROUNDWATER & ENVIRONMENTAL
 CONSULTANTS

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 CENTREVILLE, MARYLAND 21617
 TEL 410.758.2160 / FAX 410.758.0160
 www.earthdatainc.com

Figure 2 - Site map showing the location of monitoring wells and other pertinent features at Chester River Hospital Center, Chestertown, Maryland.

J:_Job_Directories\current\2781 Hospital\CAD\2013\2781-SEPT 13.DWG

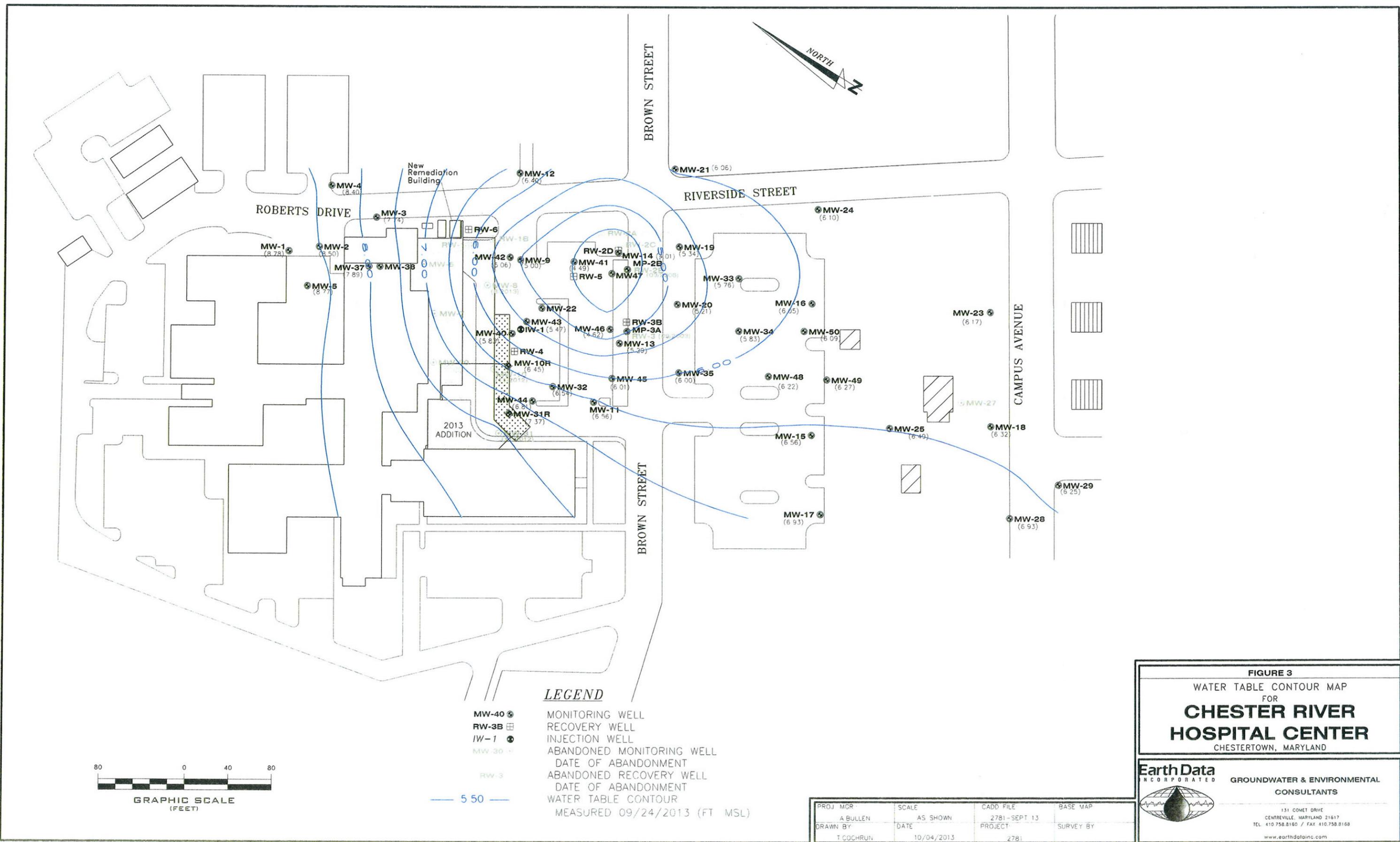


FIGURE 3
 WATER TABLE CONTOUR MAP
 FOR
**CHESTER RIVER
 HOSPITAL CENTER**
 CHESTERTOWN, MARYLAND

Earth Data
 INCORPORATED GROUNDWATER & ENVIRONMENTAL
 CONSULTANTS

131 CONET DRIVE
 CENTREVILLE, MARYLAND 21617
 TEL. 410.758.8160 / FAX 410.758.8168
 www.earthdatainc.com

PROJ MGR A BULLEN	SCALE AS SHOWN	CADD FILE 2781-SEPT 13	BASE MAP
DRAWN BY T. COCHRAN	DATE 10/04/2013	PROJECT 2781	SURVEY BY

Figure 3 - Water table contour map September 24, 2013 - Chester River Hospital Center, Chestertown, Maryland.

J:_Job_Directories\current\2781 Hospital\CAD\2013\2781-SEPT 13.DWG

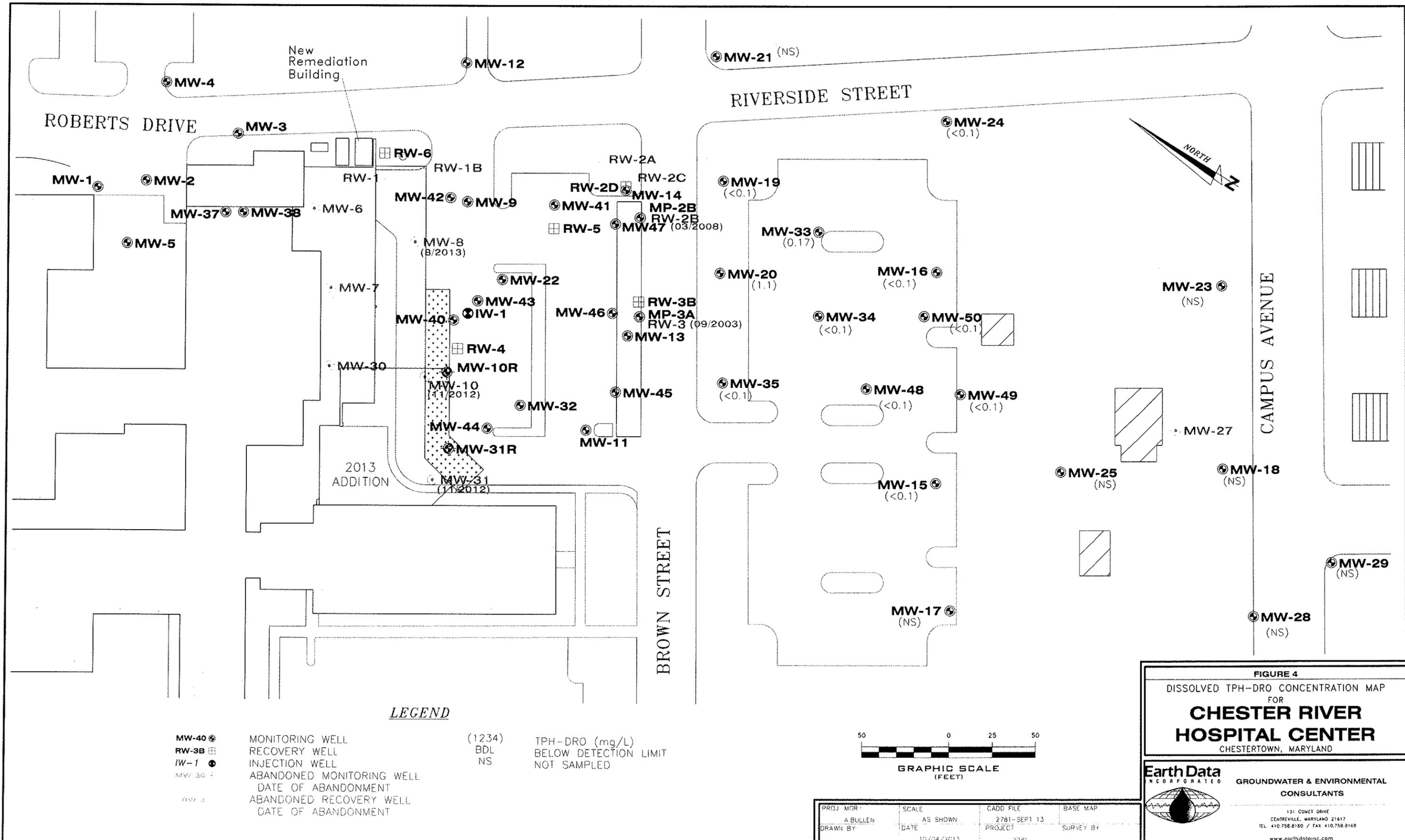


Figure 4- Water quality map showing total petroleum hydrocarbon (TPH) concentrations, September 24, 2013 Chester River Hospital Center, Chestertown, Maryland.

TABLE

APPENDIX A
Well Gauging Reports
&
Field Reports

PETROLEUM PRODUCT / WATER - LEVEL DATA SHEET

W.O. #: 2781
 PROJECT: Chester River Hospital Center
 LOCATION: Chestertown, Maryland

DATE: 21-Oct-2013
 WEATHER: 65 F
 COLLECTED BY: TL, RB
 ENTERED BY: TL

Type product: Fuel oil
 Petro correction factor: 0.80

Well ID	Depth (ft)	Product	Temperature (F)	Pressure (psi)	Water Content (%)	Notes
MW-1	Lip of Casing	57.05	47.94	9.11	9.11	
MW-2	Lip of Casing	56.37	47.49	8.88	8.88	seen
MW-3	Lip of Casing	50.55	42.25	8.30	8.30	
MW-4	Lip of Casing	53.40	44.59	8.81	8.81	
MW-5	Lip of Casing	61.08	51.95	9.13	9.13	
MW-6	Lip of Casing	-----	-----	-----	-----	well destroyed in building expansion Nov 2000
MW-7	Lip of Casing	-----	-----	-----	-----	well destroyed in building expansion Nov 2000
MW-8	Lip of Casing	-----	-----	-----	-----	well abandoned Jul 2013
MW-9	Lip of Casing	46.10	39.91	6.19	6.19	
MW-10	Lip of Casing	-----	-----	-----	-----	well abandoned Nov 2012
MW-10R	Lip of Casing	46.70	41.82	6.88	6.88	
MW-11	Lip of Casing	41.49	34.59	6.90	6.90	
MW-12	Lip of Casing	44.46	37.27	7.19	7.19	
MW-13	Lip of Casing	41.70	35.94	5.76	5.76	
MW-14	Lip of Casing	41.38	36.49	4.89	4.89	seen
MW-15	Lip of Casing	35.01	28.28	6.73	6.73	sampled
MW-16	Lip of Casing	35.55	29.17	6.38	6.38	sampled
MW-17	Lip of Casing	35.49	28.45	7.04	7.04	
MW-18	Lip of Casing	35.82	29.41	6.41	6.41	
MW-19	Lip of Casing	38.85	32.85	6.00	6.00	sampled
MW-20	Lip of Casing	38.72	32.91	5.81	5.81	sampled
MW-21	Lip of Casing	38.55	31.93	6.62	6.62	
MW-22	Lip of Casing	47.04	43.95	3.09	3.09	film
MW-23	Lip of Casing	35.95	29.64	6.31	6.31	
MW-24	Lip of Casing	36.56	30.14	6.42	6.42	sampled
MW-25	Lip of Casing	36.10	29.47	6.63	6.63	
MW-27	Lip of Casing	-----	-----	-----	-----	well abandoned Nov 2006
MW-28	Lip of Casing	35.90	28.94	6.96	6.96	
MW-29	Lip of Casing	35.15	28.83	6.32	6.32	
MW-30	Lip of Casing	-----	-----	-----	-----	well destroyed in building expansion Nov 2000
MW-31	Lip of Casing	-----	-----	-----	-----	well abandoned Nov 2012
MW-31R	Lip of Casing	47.40	39.72	7.68	7.68	
MW-32	Lip of Casing	47.41	40.47	6.94	6.94	
MW-33	Lip of Casing	36.52	30.28	6.24	6.24	sampled
MW-34	Lip of Casing	36.64	30.40	6.24	6.24	sampled
MW-35	Lip of Casing	38.62	32.23	6.39	6.39	sampled
MW-37	Lip of Casing	50.54	42.13	8.41	8.41	seen
MW-38	Lip of Casing	-----	-----	-----	-----	pump stuck in well - not able to gauge
RW-1B	Lip of Casing	-----	-----	-----	-----	well abandoned Sep 2013
RW-2D	Lip of Casing	40.54	42.23	-1.69	-1.69	seen
RW-3B	Lip of Casing	39.45	40.81	-1.36	-1.36	
MW-40	Lip of Casing	48.69	42.30	6.39	6.39	
MW-41	Lip of Casing	42.92	37.30	5.62	5.62	
RW-4	Lip of Casing	48.18	45.18	3.00	3.00	film
RW-5	Lip of Casing	43.34	41.73	1.61	1.61	film
RW-6	Lip of Casing	47.22	47.59	-0.37	-0.37	seen
RW-2A	Lip of Casing	-----	-----	-----	-----	well abandoned Mar 2008
RW-2B	Lip of Casing	-----	-----	-----	-----	well abandoned Mar 2008
MP-2B	Lip of Casing	-----	34.40	0.00	-----	seen; w/c approx. 1/2 sat'd. - left in well
RW-2C	Lip of Casing	-----	-----	-----	-----	well abandoned Sep 2003
RW-3A	Lip of Casing	-----	-----	-----	-----	well abandoned Sep 2003
MP-3A	Lip of Casing	-----	34.43	0.00	-----	seen
MW-42	Lip of Casing	46.15	39.85	6.30	6.30	seen
MW-43	Lip of Casing	47.80	41.78	6.12	6.12	
MW-44	Lip of Casing	47.20	40.02	7.18	7.18	
MW-45	Lip of Casing	40.91	34.49	6.42	6.42	
MW-46	Lip of Casing	41.08	35.85	5.23	5.23	
MW-47	Lip of Casing	40.74	-----	-----	-----	under construction equipment - not gauged
MW-48	Lip of Casing	36.22	29.71	6.51	6.51	sampled
MW-49	Lip of Casing	35.49	28.97	6.52	6.52	sampled
MW-50	Lip of Casing	35.64	29.25	6.39	6.39	sampled
RW-1	Lip of Casing	-----	-----	-----	-----	not accessible - not gauged

Project Name: Chester River Hospital Center		Date: 21-Oct-2013			
Project #: 2781		Time on - site: 8:30 AM			
Location: Chestertown, Maryland		Weather: 55 F			
Personnel present at site: TL, RB		Vehicle: 98 Ranger			
Reason for site visit:					
	yes	no	monthly sampling of 11 wells south of Brown St		
Surveying	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Monitoring	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Sampling	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Recovery system maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Recovery system repair	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Scheduled Activities	Checklist	yes	no	n/a	Exceptions (with explanation and comments)
Routine Monitoring	Measured water & petroleum levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Pumped petroleum from wells	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Emptied petro trap	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Installed, replaced, or inspected wics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Measured and recorded system data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Surveyed well elevations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Inspected system discharge at storm drain	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampling	Groundwater sampling(note which wells were sampled on petro form)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11 wells south of Brown Street and system discharge
	Petroleum sampling(note which wells were sampled on petro form)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Soil sampling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Vapor system sampling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Collected sample(s) in lab bottle(s) & chilled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Filled out labels and chain-of-custody	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other Activities	Recorded amount recovered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Completed site sketch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Recovery system repair	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Completed materials and equipment form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Comments Observations	<p>Gauged all wells and checked system Shut off and restarted RW-2D - pumping rate increased Absorbent wics in MP-2B inspected and left in well Replaced bag filters</p> <p>Monthly sampling of 11 downgradient wells for TPH-DRO; also sampled system discharge</p>				

APPENDIX B

Laboratory Analytical Reports

Analytical Report for

Earth Data, Inc

Certificate of Analysis No.: 13102203

Project Manager: Andrew Bullen

Project Name : Chester River Hospital Center

Project Location: Chestertown, MD

Project ID : 2781



October 29, 2013

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.



October 29, 2013

Andrew Bullen
Earth Data, Inc
131 Comet Drive
Centerville, MD 21617

Reference: PSS Work Order(s) No: **13102203**
Project Name: Chester River Hospital Center
Project Location: Chestertown, MD
Project ID.: 2781

Dear Andrew Bullen :

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 **13102203**.

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 November 26, 2013. 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.

Sincerely,

Dan Prucnal
Laboratory Manager



Sample Summary
Client Name: Earth Data, Inc
Project Name: Chester River Hospital Center

Work Order Number(s): 13102203

Project ID: 2781

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/22/2013 at 01:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13102203-001	MW-15	GROUND WATER	10/21/13 13:53
13102203-002	MW-16	GROUND WATER	10/21/13 11:58
13102203-003	MW-19	GROUND WATER	10/21/13 14:37
13102203-004	MW-20	GROUND WATER	10/21/13 14:52
13102203-005	MW-24	GROUND WATER	10/21/13 14:25
13102203-006	MW-33	GROUND WATER	10/21/13 12:25
13102203-007	MW-34	GROUND WATER	10/21/13 12:40
13102203-008	MW-35	GROUND WATER	10/21/13 14:08
13102203-009	MW-48	GROUND WATER	10/21/13 13:22
13102203-010	MW-49	GROUND WATER	10/21/13 13:04
13102203-011	MW-50	GROUND WATER	10/21/13 13:35
13102203-012	System Discharge	GROUND WATER	10/21/13 15:25

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.



Sample Summary
Client Name: Earth Data, Inc
Project Name: Chester River Hospital Center

Work Order Number(s): 13102203

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 MWAALD1997-0041-2015

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: 13102203
 Earth Data, Inc, Centerville, MD
 October 29, 2013

Project Name: Chester River Hospital Center
 Project Location: Chestertown, MD
 Project ID: 2781

Sample ID: System Discharge

Date/Time Sampled: 10/21/2013 15:25 PSS Sample ID: 13102203-012

Matrix: GROUND WATER

Date/Time Received: 10/22/2013 13:00

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: 3510C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/L	0.10		1	10/25/13	10/25/13 19:31	1029

BTEX MTBE TBA Naphthalene

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
tert-Butyl alcohol	ND	ug/L	20		1	10/23/13	10/23/13 17:58	1011
Methyl-t-butyl ether	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011
Benzene	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011
Toluene	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011
Ethylbenzene	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011
m,p-Xylenes	ND	ug/L	2.0		1	10/23/13	10/23/13 17:58	1011
o-Xylene	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011
Naphthalene	ND	ug/L	1.0		1	10/23/13	10/23/13 17:58	1011



Case Narrative Summary

Client Name: Earth Data, Inc

Project Name: Chester River Hospital Center

Work Order Number(s): 13102203

Project ID: 2781

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.

Sample Preparation:

Total Petroleum Hydrocarbons - DRO

Preparation Batch: 47940

'Matrix spike/ matrix spike duplicate analyses were not performed due to insufficient sample quantity.'

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

Form 2 - Surrogate Recoveries

Project Name: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109647

Sample: 47940-1-BLK / BLK

Matrix: Water

Units: mg/L

Date Analyzed: 10/25/2013 16:12

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.651	1.00	65	37-136	

Lab Batch #: 109647

Sample: 47940-1-BKS / BKS

Matrix: Water

Units: mg/L

Date Analyzed: 10/25/2013 16:35

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.744	1.00	74	37-136	

Lab Batch #: 109647

Sample: 47940-1-BSD / BSD

Matrix: Water

Units: mg/L

Date Analyzed: 10/25/2013 16:56

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.605	1.00	60	37-136	

Lab Batch #: 109647

Sample: 13102203-001 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 17:18

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.800	1.00	80	37-136	

* 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: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109647

Sample: 13102203-002 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 17:41

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.840	1.00	84	37-136	

Lab Batch #: 109647

Sample: 13102203-003 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:03

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.880	1.00	88	37-136	

Lab Batch #: 109647

Sample: 13102203-004 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:03

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.850	1.00	85	37-136	

Lab Batch #: 109647

Sample: 13102203-005 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:25

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.790	1.00	79	37-136	

* 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: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109647

Sample: 13102203-006 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:25

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.790	1.00	79	37-136	

Lab Batch #: 109647

Sample: 13102203-007 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:47

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.850	1.00	85	37-136	

Lab Batch #: 109647

Sample: 13102203-008 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 18:47

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.760	1.00	76	37-136	

Lab Batch #: 109647

Sample: 13102203-009 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 19:09

SURROGATE RECOVERY STUDY

Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.850	1.00	85	37-136	

* 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: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109647

Sample: 13102203-010 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 19:09

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.770	1.00	77	37-136	

Lab Batch #: 109647

Sample: 13102203-011 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 19:31

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	1.10	1.00	109	37-136	

Lab Batch #: 109647

Sample: 13102203-012 / SMP

Matrix: Ground Water

Units: mg/L

Date Analyzed: 10/25/2013 19:31

SURROGATE RECOVERY STUDY					
Total Petroleum Hydrocarbons - DRO	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Analytes					
o-Terphenyl	0.920	1.00	92	37-136	

* 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: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109596

Sample: 47924-1-BKS / BKS

Matrix: Water

Units: ug/L

Date Analyzed: 10/23/2013 10:05

SURROGATE RECOVERY STUDY					
BTEX MTBE TBA Naphthalene Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	46.1	50.00	92	83-108	
Toluene-D8	49.3	50.00	99	91-105	
4-Bromofluorobenzene	53.2	50.00	106	83-118	

Lab Batch #: 109596

Sample: 47924-1-BLK / BLK

Matrix: Water

Units: ug/L

Date Analyzed: 10/23/2013 12:02

SURROGATE RECOVERY STUDY					
BTEX MTBE TBA Naphthalene Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	46.2	50.00	92	83-108	
Toluene-D8	49.5	50.00	99	91-105	
4-Bromofluorobenzene	55.6	50.00	111	83-118	

Lab Batch #: 109596

Sample: 13102203-012 / SMP

Matrix: Ground Water

Units: ug/L

Date Analyzed: 10/23/2013 17:58

SURROGATE RECOVERY STUDY					
BTEX MTBE TBA Naphthalene Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	47.0	50.00	93	83-108	
Toluene-D8	50.0	50.00	99	91-105	
4-Bromofluorobenzene	55.0	50.00	111	83-118	

* Surrogate outside of Laboratory QC limits

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

Surrogate Recovery [C] = 100 * A / B

Form 2 - Surrogate Recoveries

Project Name: Chester River Hospital Center

10/29/2013

Work Order #: 13102203

Project ID: 2781

Lab Batch #: 109596

Sample: 13101812-002 S / MS

Matrix: Ground Water

Units: ug/L

Date Analyzed: 10/23/2013 19:26

SURROGATE RECOVERY STUDY

BTEX MTBE TBA Naphthalene Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	46.6	50.00	93	83-108	
Toluene-D8	49.6	50.00	99	91-105	
4-Bromofluorobenzene	56.1	50.00	112	83-118	

Lab Batch #: 109596

Sample: 13101812-002 SD / MSD

Matrix: Ground Water

Units: ug/L

Date Analyzed: 10/23/2013 19:55

SURROGATE RECOVERY STUDY

BTEX MTBE TBA Naphthalene Analytes	Amount Found [A]	True Amount [B]	Recovery %R [C]	Control Limits %R	Flags
Dibromofluoromethane	45.7	50.00	91	83-108	
Toluene-D8	49.2	50.00	98	91-105	
4-Bromofluorobenzene	55.5	50.00	111	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



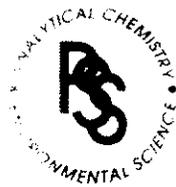
SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

1 *CLIENT: <i>Earth Data Inc.</i>		*OFFICE LOC: <i>Centreville, MD</i>		PSS Work Order #: <i>13102203</i>		PAGE <i>1</i> OF <i>2</i>		
*PROJECT MGR: <i>A. Bullen</i>		*PHONE NO.: <i>(410) 758-8160</i>		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe				
EMAIL:		FAX NO.: <i>(410) 758-8168</i>		No. CONTAINERS	C = COMP G = GRAB	Preservatives Used: <i>HCL</i>		
*PROJECT NAME: <i>Chester River Hospital Center</i>		PROJECT NO.: <i>2781</i>				Analyses/Method Required	③ * <i>TPH-DRO</i>	
SITE LOCATION: <i>Chesertown, MD</i>		P.O. NO.:						
SAMPLER(S): <i>T. Lee / R. Bean</i>		DW CERT NO.:						
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)			REMARKS	
1	<i>MW-15</i>	<i>10-21-13</i>	<i>1353</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
2	<i>MW-16</i>	<i>10-21-13</i>	<i>1158</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
3	<i>MW-19</i>	<i>10-21-13</i>	<i>1437</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
4	<i>MW-20</i>	<i>10-21-13</i>	<i>1452</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
5	<i>MW-24</i>	<i>10-21-13</i>	<i>1425</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
6	<i>MW-33</i>	<i>10-21-13</i>	<i>1225</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
7	<i>MW-34</i>	<i>10-21-13</i>	<i>1240</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
8	<i>MW-35</i>	<i>10-21-13</i>	<i>1408</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
9	<i>MW-48</i>	<i>10-21-13</i>	<i>1322</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
10	<i>MW-49</i>	<i>10-21-13</i>	<i>1304</i>	<i>GW</i>	<i>1</i>	<i>G</i>		
5 Relinquished By: (1) <i>T. Lee</i>		Date: <i>10-22-13</i>	Time: <i>1115</i>	Received By: <i>D. Toome</i>		*Requested TAT (One TAT per LOC) <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		
Relinquished By: (2) <i>D. Toome</i>		Date: <i>n</i>	Time: <i>1300</i>	Received By: <i>R. Bean</i>		Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>		
Relinquished By: (3)		Date:	Time:	Received By:		Special Instructions:		
Relinquished By: (4)		Date:	Time:	Received By:		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"/>		

3630 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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

1 *CLIENT: <i>Earth Data Inc</i> *OFFICE LOC: <i>Centreville, MD</i>		PSS Work Order #: <i>13102203</i>		PAGE <i>2</i> OF <i>2</i>		
*PROJECT MGR: <i>A. Bullem</i> *PHONE NO.: <i>(410) 758-8160</i>		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe				
EMAIL: _____ FAX NO.: <i>(410) 758-8168</i>		No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used: <i>HCP</i> →		
*PROJECT NAME: <i>Chester River Hospital/Centre</i> PROJECT NO.: <i>2781</i>				Analysis/Method Required ③	<i>TPH-DRD</i>	
SITE LOCATION: <i>Chestertown, MD</i> P.O. NO.: _____					<i>BTEX</i>	
SAMPLER(S): <i>T. Lee / R. Beam</i> DW CERT NO.: _____					<i>MTBE</i>	
				<i>TBA</i>		
				<i>Naphthalene</i>		
2						
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	REMARKS	
<i>11</i>	<i>MW-50</i>	<i>10-21-13</i>	<i>1335</i>	<i>GW</i>	<i>1 G</i>	
<i>12</i>	<i>System Discharge</i>	<i>10-21-13</i>	<i>1525</i>	<i>GW</i>	<i>4 G</i>	
5						
Relinquished By: (1)	Date	Time	Received By:	4 *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		
<i>T. Lee</i>	<i>10-22-13</i>	<i>0615</i>	<i>S. Koome</i>	# of Coolers: _____ Custody Seal: <i>ABS</i>		
Relinquished By: (2)	Date	Time	Received By:	Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER _____		
<i>S. Koome</i>	<i>n</i>	<i>1300</i>	<i>[Signature]</i>	Ice Present: <i>YES</i> Temp: <i>30c</i> Shipping Carrier: <i>TTE</i>		
Relinquished By: (3)	Date	Time	Received By:	Special Instructions: _____		
Relinquished By: (4)	Date	Time	Received By:	DW COMPLIANCE? YES <input type="checkbox"/> EDD FORMAT TYPE _____ 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 _____		

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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

Work Order #	13102203	Received By	Rachel Davis
Client Name	Earth Data, Inc	Date Received	10/22/2013 01:00:00 PM
Project Name	Chester River Hospital Center	Delivered By	Trans Time Express
Project Number	2781	Tracking No	Not Applicable
Disposal Date	11/26/2013	Logged In By	Lynn Moran

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>Tracy Lee</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 12

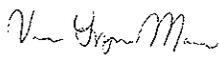
Total No. of Containers Received 15

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: 
Lynn Moran

Date: 10/22/2013

PM Review and Approval: 
Simon Crisp

Date: 10/23/2013