DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON
4551 LLEWELLYN AVENUE, SUITE 5000
FORT GEORGE G. MEADE, MARYLAND 20755-5000

REPLY TO ATTENTION OF:

December 22, 2014

Environmental Division

Ms. Elisabeth Green
Federal Facilities Division
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230

Dear Ms. Green:

Enclosed please find the *Annual Operation and Maintenance Report for the Phoenix Military Reservation* for your review and comment. Copies of the document have been furnished to John Burchette (U.S. Environmental Protection Agency), Francis Coulters (U.S. Army Environmental Command), and Kevin Koepenick (Baltimore County).

While the Federal Facility Agreement allows for a 30 calendar day review period, the Army requests expedited review and submission of comments on or before December 26, 2014. Written comments should be addressed to Fort. George. G. Meade, Attention: IMME-PWE (George Knight), 4216 Roberts Ave., Suite 5115, Fort Meade, Maryland 20755-7068 or george.b.knight7.civ@mail.mil.

If you have any questions, please feel free to contact Ms. Denise Tegtmeyer at (301) 677-9559 or me at (301) 677-7999.

Sincerely,

George B. Knight, PG
Acting Program Manager, Installation Restoration Program
Directorate of Public Works-Environmental Division

Enclosure

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ENVIRONMENT

Mr. George B. Knight, PG
U.S. Army Garrison Fort George G. Meade
Directorate of Public Works, Environment Division
4216 Roberts Ave., Suite 5115
Fort Meade, Maryland 20755-7068

Subject:
2014 Annual Operation and Maintenance Report
Phoenix Military Reservation
Jacksonville, Maryland

Date:
December 22, 2014

Contact:
Brian Stempowski

Phone:
410.923.7828

Email:
brian.stempowski@arcadis-us.com

Our ref:
GP09MEAD.PHOE

Dear Mr. Knight:

This Annual Operation and Maintenance Report summarizes full-scale remediation operations conducted during 2014 at the Phoenix Military Reservation (PMR), located in Jacksonville, Maryland. This report provides details on the routine operation and maintenance (O&M) activities conducted during the fourth quarter of 2014 (October – December 2014) including quarterly groundwater sampling and/or groundwater gauging completed at the Site. This report also provides contaminant trend analysis to quantify the directed groundwater recirculation (DGR) system performance since startup and shakedown initiated in June 2014. Quarterly groundwater monitoring results and summaries of O&M activities completed between July 1, 2014 through September 30, 2014 are detailed in the Third Quarter Groundwater Monitoring Results Report (ARCADIS, 2014b).

Startup and shakedown of the DGR system commenced the week of June 30, 2014, and full time operation began on July 8, 2014. Following implementation of the groundwater remedy at the PMR in June 2014, performance monitoring (PM) and system O&M was initiated in accordance with the program outlined in the Remedial Design (ARCADIS, 2014a). PM and monitored natural attenuation (MNA) sampling schedules are summarized in **Tables 1** and **2**, respectively.

Baseline trichloroethene (TCE) results collected prior to implementation of the remedy in April/May 2014, as well as results collected in 2014 following remedy implementation are presented in **Table 3**. **Table 4** presents comprehensive groundwater analytical results collected at the Site from 2006 through 2014.

The first annual MNA sampling event for VOCs, total organic carbon, anions, dissolved iron, and field parameters will be conducted at 12 wells (FCA-01, -03, -05, -07, -09, -13, -15, -17, -19, -21, -25, and -26) during the second quarter of 2015. It should be noted that existing data collected during the second quarter of 2011 and presented in the Remedial Investigation Report (ARCADIS, 2012) will serve as the baseline for MNA data collected annually at the Site to monitor the status of aquifer redox conditions over the course of the remedial action. Annual sampling in this case is taken to mean once per year of active operation, not once per calendar year.

Fourth Quarter 2014 Performance Monitoring Results and O&M Activities

During the fourth quarter of 2014 (October to December), a synoptic water level elevation survey was completed on October 11, 2014, at monitoring well locations included in the sampling program (**Figure 1**). Groundwater elevations ranged from 482.77 feet (ft) above mean sea level (amsl) at FCA-13 to 540.54 ft amsl at FCA-07. A comprehensive table summarizing groundwater elevation measurements collected in 2014 are provided in **Table 5.**

During the fourth quarter of 2014, quarterly performance monitoring was completed between October 14 and October 15, 2014. Groundwater samples were collected from seven monitoring wells (FCA-01, FCA-03, FCA-05, FCA-07, FCA-09, FCA-25, and FCA-26) and analyzed for VOCs via United States Environmental Protection Agency (USEPA) Method 8260B. All purge water generated during sampling activities was treated using the granular activated carbon vessels on the DGR system and re-injected back into the formation. Fourth quarter TCE results and water quality parameters are provided in **Table 3**. Comprehensive analytical results are summarized in **Table 4.** Groundwater sampling logs are included as **Attachment 1**. Analytical laboratory reports and data validation reports are included as **Attachments 2** and **3**, respectively. Maximum Contaminant Level (MCL) exceedances are summarized below.

- TCE exceeded its MCL of 5 micrograms per liter (µg/L) at three locations with concentrations ranging from 27 µg/L (FCA-03) to 110 µg/L (FCA-26).
- Cis-1,2-dichloroethene exceeded its MCL of 70 µg/L at one location at a concentration of 73 µg/L (FCA-26).

O&M activities and associated field notes (**Attachment 4**) completed during the fourth quarter of 2014 are summarized below. It should be noted that the air driven extraction pump does not pump/extract groundwater continuously, rather as the

water level in the extraction well (FCA-01) recharges, a float mechanism triggers the cycle and groundwater is pumped to the equalization tank. A transfer pump moves batches of groundwater through the granular activated carbon units and out to the injection wells. The extraction flow rate at FCA-01 is approximately 0.20 gallons per minute (GPM). This extraction flow rate is below the1.5 GPM dewatering flow rate presented in the Remedial Design. It is noted that this is the maximum yield of the extraction well and does not impact the operation of the system:

- October 14, 2014 – Routine Site visit to document system operational parameters, optimize settings, and record volume of groundwater extracted, treated, and re-injected. During O&M it was noted that the air compressor was not producing sufficient air to operate the extraction pump at FCA-01. The unit was removed from the treatment building for service.

- October 14, 2014 – October 15, 2014 - Completed quarterly PM sampling and gauging event.

- November 5, 2014 – Installed replacement air compressor to bring the DGR system back online.

- November 14, 2014 - Routine visit to document system operational parameters, optimize settings, and record volume of groundwater extracted, treated, and re-injected. Also installed a portable heater inside the DGR system building. Upon arrival to the Site the air compressor was not operating and was removed for service again. The low-pressure sensor on the influent line was adjusted to ensure the sensaphone dials out during future pump failures. As of November 14, 2014, the DGR system has extracted, treated and re-injected approximately 1,136 gallons since system startup/shakedown on June 30, 2014. Approximately 355, 398, and 383 gallons have been re-injected into IW-1, IW-2, and IW-3, respectively.

- November 17, 2014 – Site visit to reinstall a new air compressor. The DGR was brought back online with the installation of the new air compressor.

- November 20, 2014 –Adjusted the low-pressure sensor and verified the replacement air compressor was working and the DGR system was operational.

Contaminant Trend Analysis

TCE trend plots for FCA-01, FCA-03, and FCA-26 are included as **Attachment 5**. The trend plots display TCE concentrations detected during the baseline sampling

event (April/May 2014) prior to startup of the DGR system in June 2014 and concentrations observed during subsequent PM events completed during the third and fourth quarters of 2014. It is important to note, as of this report, two quarterly sampling events have been completed following startup/shakedown of the DGR system. Therefore, the preliminary data trends presented herein are presented with the caveat that additional sampling events are necessary to fully elucidate data trends within groundwater at the Site. Below is a summary of the trend plots at the three well locations.

- FCA-01 (Extraction Well) – TCE was detected above the MCL of 5 µg/L at a concentration of 220 µg/L during the baseline event in April 2014. Active pumping at this well effectively decreased TCE to a concentration of 1.6 µg/L during the first quarterly PM event completed in September 2014. The TCE concentration rebounded to 45 µg/L during the second PM event completed in October 2014. However, the air compressor malfunctioned sometime shortly after the September PM event which may have resulted in the TCE concentration rebound at this location. In order to collect a representative groundwater sample at FCA-01, the extraction pump was removed from the well, and the sample was collected using low-flow sampling methodology in accordance with applicable standard operating procedures presented in the site-wide Sampling and Analysis Plan (ARCADIS, 2011).

- FCA-03 (Nearby Monitoring Well) – TCE was detected above the MCL of 5 µg/L at a concentration of 22 µg/L during the baseline event in May 2014. No significant reductions in TCE have been observed to date as TCE was detected at a concentration of 26 µg/L and 27 µg/L during the first and second PM events completed in September and October 2014, respectively.

- FCA-26 (Nearby Monitoring Well) - TCE was detected above the MCL of 5 µg/L at a concentration of 160 µg/L during the baseline event in May 2014. TCE decreased to a concentration of 71 µg/L during the first quarterly PM event completed in September 2014. TCE was detected at a concentration of 110 µg/L during the second PM event completed in October 2014.

Figure 2 depicts groundwater elevation contours prior to the DGR system start up in April 2014 and following operation of the system in September 2014. Note, the system operated intermittently in October 2014 due to operational issues; thus, groundwater elevation measurements collected in September 2014 were used to evaluate pre- and post- system groundwater conditions. A marked decrease in

groundwater elevation was observed when comparing post- and pre- system operation contours. However, the general groundwater flow direction remained unchanged. Hydraulic capture in the vicinity of FCA-01 is also depicted on **Figure 2** and encompasses FCA-03, FCA-26, IW-01, IW-02, and IW-03.

Future Activities in 2015

As presented in the Remedial Design (ARCADIS, 2014a), the DGR system is anticipated to operate for a minimum of five years to meet remedial objectives. Future monitoring and reporting activities for 2015 defined in the Remedial Design (ARCADIS, 2014a) are summarized below:

- Six quarterly performance monitoring events for VOCs and field parameters will be conducted through the second quarter of 2016 at seven wells (FCA-01, -03, -05, -07, -09, -25, and -26), refer to **Table 1**;

- Annual MNA sampling for VOCs, total organic carbon, anions, dissolved iron, and field parameters will be conducted at 12 wells (FCA-01, -03, -05, -07, -09, -13, -15, -17, -19, -21, -25, and -26), refer to **Table 2**. The first annual MNA sampling event is scheduled for the second quarter of 2015; and

- Routine O&M visits to monitor the treatment system operational parameters.

Should you have any questions or comments, please contact the undersigned at your earliest convenience.

Sincerely,

ARCADIS U.S., Inc.

Brian R. Stempowski, PE, PMP
Phase Manager

Tim Llewellyn
Project Manager

Copies:
Francis Coulters – 1 hard copy and 1 CD

Tables:
Table 1 – Performance Monitoring Schedule
Table 2 – Monitored Natural Attenuation Schedule
Table 3 – 2014 TCE Concentrations in Groundwater
Table 4 – Comprehensive Groundwater Analytical Results (2006 through 2014)
Table 5 – Groundwater Elevations – 2014

Figures:
Figure 1 – Directed Groundwater Recirculation Layout
Figure 2 – Comparison of Groundwater Contours

Attachments:
Attachment 1 – Groundwater Sampling Logs
Attachment 2 – Laboratory Report (Provided on CD)
Attachment 3 – Data Validation Report (Provided on CD)
Attachment 4 – Field Notes
Attachment 5 – TCE Trend Plots for FCA-01, FCA-03, and FCA-26

References

ARCADIS. 2011. Sample and Analysis Plan for the Performance Based Acquisition at Fort George G. Meade. Final. March 2011.

ARCADIS. 2012. Remedial Investigation Report, Phoenix Military Reservation, Jacksonville, Maryland. Final. November 2012.

ARCADIS. 2014a. Remedial Design, Phoenix Military Reservation, Jacksonville, Maryland. Final. March 2013.

ARCADIS. 2014b. Third Quarter Groundwater Monitoring Results, Phoenix Military Reservation, Jacksonville, Maryland. November 2014.

Tables

Table 1
Performance Monitoring Schedule
Phoenix Military Reservation
Jacksonville, Maryland

		Sampling Parameters	
Well ID	**Monitoring Frequency**	**Field Parameters[2]**	**VOCs**
FCA-1	Quarterly[1]	X	X
FCA-3	Quarterly[1]	X	X
FCA-5	Quarterly[1]	X	X
FCA-7	Quarterly[1]	X	X
FCA-9	Quarterly[1]	X	X
FCA-25	Quarterly[1]	X	X
FCA-26	Quarterly[1]	X	X

Notes:

VOCs - volatile organic compounds

[1] - Quarterly Performance Monitoring sampling is planned for the first two years of the directed groundwater recirculation system operation.

[2]- Field parameters include pH, dissolved oxygen, oxidation reduction potential, specific conductivity, turbidity and temperature.

Table 2
Monitored Natural Attenuation Schedule
Phoenix Military Reservation
Jacksonville, Maryland

		Sampling Parameters				
Well ID	**Monitoring Frequency**	**Field Parameters[3]**	**VOCs**	**Total Organic Carbon**	**Anions[1]**	**Dissolved Iron**
FCA-1	Annually[2]	X	X	X	X	X
FCA-3	Annually[2]	X	X	X	X	X
FCA-5	Annually[2]	X	X	X	X	X
FCA-7	Annually[2]	X	X	X	X	X
FCA-9	Annually[2]	X	X	X	X	X
FCA-13	Annually[2]	X	X	X	X	X
FCA-15	Annually[2]	X	X	X	X	X
FCA-17	Annually[2]	X	X	X	X	X
FCA-19	Annually[2]	X	X	X	X	X
FCA-21	Annually[2]	X	X	X	X	X
FCA-25	Annually[2]	X	X	X	X	X
FCA-26	Annually[2]	X	X	X	X	X

Notes

VOCs - volatile organic compounds

[1] - Anions include sulfate (SO_4) and nitrate (NO_3).

[2] - Annual Monitored Natural Attenuation samping is scheduled to be completed 1 year after Directed Groundwater Recirculation system startup during the second quarter of 2015.

[3] - Field parameters include pH, dissolved oxygen, oxidation reduction potential, specific conductivity, turbidity,and temperature.

Table 3
2014 TCE Concentrations in Groundwater
Phoenix Military Reservation
Jacksonville, Maryland

		Location ID	FCA-1	FCA-1	FCA-1	FCA-1	FCA-3	FCA-3	FCA-3	FCA-3
		Sample Date	4/16/2014	4/16/2014	9/4/2014	10/15/2014	5/7/2014	5/7/2014	9/4/2014	10/14/2014
		Sample ID	PMR1-FCA01(041614)	PMR1-DUP01(041614)	PMR1FCA-01(090414)	PMR1FCA-1(101514)	PMR1-FCA03(050714)	DUP01(090414)	PMR1FCA-03(090414)	PMR1FCA-03(101414)
Analyte Group	**Units**	**MCL**								
Volatile Organic Compounds										
Trichloroethene	ug/l	5	220	230	1.6	45	22	25	26	27
Water Quality Parameters										
pH	S.U.		6.28	--	7.00	5.92	5.86	--	6.12	5.57
Specific Conductance	$mScm^{-1}$		0.23	--	0.12	0.21	0.14	--	0.11	0.17
Dissolved Oxygen	mg/L		1.15	--	0.14	0.44	0.40	--	0.44	0.58
Temperature	˚C		9.74	--	17.05	14.44	13.05	--	15.71	13.79
Oxidative Reduction Potential	mV		178.80	--	172.30	137.70	-67.70	--	168.20	130.20

Notes:
< U - analyte not detected above method detection limit
-- Not analyzed
MCL - Maximum Contaminant Level
DUP - field duplicate
N - normal
J - Estimated detection less than the practical quantation limit and greater than the method detection limit
ug/L - micrograms per liter
g/L - grams per liter
˚C - degrees Celcius
mV - millivolt
mg/L - milligrams per liter
$mScm^{-1}$ - miliSieman per centimeter
S.U. - Standard Units
MCL exceedances are shaded
Baseline data collected prior to system startup (April/May 2014)

Table 3
2014 TCE Concentrations in Groundwater
Phoenix Military Reservation
Jacksonville, Maryland

		Location ID	FCA-5	FCA-5	FCA-5	FCA-7	FCA-7	FCA-7
		Sample Date	4/17/2014	9/3/2014	10/14/2014	4/14/2014	9/3/2014	10/15/2014
		Sample ID	PMR1-FCA05(041714)	PMR1FCA-05(090314)	PMR1FCA-5(101414)	PMR1-FCA07(041414)	PMR1FCA-07(090314)	PMR1FCA-07(101514)
Analyte Group	**Units**	**MCL**						
Volatile Organic Compounds								
Trichloroethene	ug/l	5	3.5	2.9	3.2	5.5	3.6	4
Water Quality Parameters								
pH	S.U.		5.89	5.86	5.76	6.10	6.15	5.80
Specific Conductance	$mScm^{-1}$		0.13	0.09	0.09	0.17	0.13	0.17
Dissolved Oxygen	mg/L		0.27	0.20	0.20	0.26	1.62	0.71
Temperature	˚C		12.58	14.83	15.34	16.86	17.88	15.94
Oxidative Reduction Potential	mV		-76.10	111.90	-33.40	-51.10	104.50	40.40

Notes:
< U - analyte not detected above method detection limit
-- Not analyzed
MCL - Maximum Contaminant Level
DUP - field duplicate
N - normal
J - Estimated detection less than the practical quantation limit and greater than the method detection limit
ug/L - micrograms per liter
g/L - grams per liter
˚C - degrees Celcius
mV - millivolt
mg/L - milligrams per liter
$mScm^{-1}$ - miliSieman per centimeter
S.U. - Standard Units
MCL exceedances are shaded
Baseline data collected prior to system startup (April/May 2014)

Table 3
2014 TCE Concentrations in Groundwater
Phoenix Military Reservation
Jacksonville, Maryland

		Location ID	FCA-9	FCA-9	FCA-9	FCA-9	FCA-25	FCA-25	FCA-25	FCA-26	FCA-26	FCA-26
		Sample Date	5/6/2014	9/4/2014	10/15/2014	10/15/2014	5/6/2014	9/3/2014	10/14/2014	5/7/2014	9/3/2014	10/15/2014
		Sample ID	PMR1-FCA09(050614)	PMR1FCA-09(090414)	PMR1FCA-09(101514)	DUP-01(101514)	PMR1-FCA25(050614)	PMR1FCA-25(090314)	PMR1FCA-25(101414)	PMR1-FCA26(050714)	PMR1FCA-26(090314)	PMR1FCA-26(101514)
Analyte Group	**Units**	**MCL**										
Volatile Organic Compounds												
Trichloroethene	ug/l	5	0.30 J	0.43 J	0.63	0.57	< 0.50 U	< 0.50 U	< 0.50	160	71	110
Water Quality Parameters												
pH	S.U.		6.69	7.79	6.78	--	5.40	5.72	5.43	6.54	7.06	6.54
Specific Conductance	$mScm^{-1}$		0.18	0.19	0.23	--	0.34	0.09	0.34	0.30	0.23	0.28
Dissolved Oxygen	mg/L		7.47	3.10	1.21	--	0.56	0.70	1.89	1.89	1.11	0.21
Temperature	˚C		13.92	14.81	14.30	--	14.74	15.68	14.90	12.78	14.63	15.85
Oxidative Reduction Potential	mV		129.70	139.20	30.50	--	156.50	163.70	184.10	-55.00	27.90	-48.40

Notes:
< U - analyte not detected above method detection limit
-- Not analyzed
MCL - Maximum Contaminant Level
DUP - field duplicate
N - normal
J - Estimated detection less than the practical quantation limit and greater than the method detection limit
ug/L - micrograms per liter
g/L - grams per liter
˚C - degrees Celcius
mV - millivolt
mg/L - milligrams per liter
$mScm^{-1}$ - miliSieman per centimeter
S.U. - Standard Units
MCL exceedances are shaded
Baseline data collected prior to system startup (April/May 2014)

Table 4
Comprehensive Groundwater Analytical Results (2006 through 2014)
Phoenix Military Reservation
Jacksonville, Maryland

		Location ID	FCA-1	FCA-1	FCA-1	FCA-1	FCA-1	FCA-1	FCA-1	FCA-3	FCA-3	FCA-3	FCA-3	FCA-3	FCA-3	FCA-3	FCA-5	FCA-5	FCA-5	FCA-5	FCA-5	FCA-5	FCA-5	FCA-7	FCA-7	FCA-7
		Sample Date	6/16/2006	8/10/2006	5/26/2011	4/16/2014	4/16/2014	9/4/2014	10/15/2014	6/15/2006	8/10/2006	5/25/2011	5/7/2014	5/7/2014	9/4/2014	10/14/2014	6/14/2006	8/9/2006	5/31/2011	9/1/2011	4/17/2014	9/3/2014	10/14/2014	6/15/2006	8/9/2006	5/26/2011
		Sample ID	FCA-1-20060616	FCA-1-20060810	PMR1FCA01(052611)	PMR1-FCA01(041614)	PMR1-DUP01(041614)	PMR1FCA-01(090414)	PMR1FCA-1(101514)	FCA-3-20060615	FCA-3-20060810	PMR1FCA03(052511)	PMR1-FCA03(050714)	DUP01(090414)	PMR1FCA-03(090414)	PMR1FCA-03(101414)	FCA-5-20060614	FCA-5-20060809	PMR1FCA05(053111)	PMR1FCA05(090111)	PMR1-FCA05(041714)	PMR1FCA-05(090314)	PMR1FCA-5(101414)	FCA-7-20060615	FCA-7-20060809	PMR1FCA07(052611)
Volatile Organic Compounds	**Units**	**MCL**																								
1,1,1,2-Tetrachloroethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1,1-Trichloroethane	µg/L	200	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1,2,2-Tetrachloroethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1,2-Trichloroethane	µg/L	5	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1-Dichloroethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1-Dichloroethene	µg/L	7	--	--	< 20 U	0.37 J	0.41 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,1-Dichloropropene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2,3-Trichlorobenzene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2,3-Trichloropropane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2,4-Trichlorobenzene	µg/L	70	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2,4-Trimethylbenzene	µg/L	--	--	--	< 20 U	< 0.50 UJ	1.2 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2-Dibromoethane	µg/L	0.05	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2-Dichlorobenzene	µg/L	600	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2-Dichloroethane	µg/L	5	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,2-Dichloropropane	µg/L	5	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,3,5-Trimethylbenzene	µg/L	--	--	--	< 20 U	< 0.50 UJ	1.3 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,3-Dichlorobenzene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,3-Dichloropropane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
1,4-Dichlorobenzene	µg/L	75	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
2,2-Dichloropropane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
2-Butanone	µg/L	--	--	--	< 40 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U
2-Chlorotoluene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
4-Chlorotoluene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
4-Methyl-2-Pentanone	µg/L	--	--	--	< 40 U	< 10 UJ	< 10 UJ	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U
Acetone	µg/L	--	< 10 U	< 20 U	< 80 U	< 10 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 20 U	< 10 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 20 U	< 20 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 20 U
Benzene	µg/L	5	< 1 U	< 2 U	< 20 U	0.27 J	0.31 J	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	0.33 J	< 5.0 U	0.20 J	0.20 J	0.19 J	0.18	0.56 J	0.45 J	0.30 J
Bromobenzene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Bromodichloromethane	µg/L	80	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Bromoform	µg/L	80	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Bromomethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Carbon Disulfide	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Carbon Tetrachloride	µg/L	5	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
CFC-11	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
CFC-12	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Chlorobenzene	µg/L	100	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Chlorobromomethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Chlorodibromomethane	µg/L	80	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Chloroethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Chloroform	µg/L	80	< 1 U	< 2 U	< 20 U	< 0.50 UJ	0.17 J	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U
Chloromethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
cis-1,2-Dichloroethene	µg/L	70	38.2	31.9	33	27	30	0.18 J	5.6	7.6	6.8	4.3 J	2.9	3.2	3.3	3.4	0.73 J	2.1	0.99 J	1.1 J	0.83	0.72	0.81	2.4	2.1	1.6 J
cis-1,3-Dichloropropene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Cymene	µg/L	--	--	--	< 20 U	0.41 J	0.38 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Dibromomethane	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Dichloromethane	µg/L	3000	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Ethane	µg/L	--	< 0.1 U	< 0.1 U	--	--	--	--	--	< 0.1 U	< 0.1 U	--	--	--	--	--	1.1	5.7	--	--	--	--	--	8.54	8.1	--
Ethene	µg/L	--	< 0.1 U	< 0.1 U	--	--	--	--	--	< 0.1 U	< 0.1 U	--	--	--	--	--	< 0.1 U	< 0.1 U	--	--	--	--	--	< 0.1 U	< 0.1 U	--
Ethylbenzene	µg/L	5E+05	--	--	< 20 U	< 0.50 UJ	0.23 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Hexachloro-1,3-butadiene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Isopropylbenzene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Methane	µg/L	--	< 0.1 U	< 0.1 U	--	--	--	--	--	0.14	0.42	--	--	--	--	--	0.82	0.15	--	--	--	--	--	0.15	< 0.1 U	--
m,p-Xylene	µg/L	--	--	--	--	< 0.50 UJ	1.2 J	< 0.50 U	< 0.50	--	--	--	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	--	--	< 0.50 U	< 0.50 U	< 0.50	--	--	--
Methyl N-Butyl Ketone	µg/L	--	--	--	< 40 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10	--	--	< 10 U
Methyl-tert-butylether	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
m-Xylene	µg/L	--	--	--	< 20 U	--	--	--	--	--	--	< 5.0 U	--	--	--	--	--	--	< 5.0 U	< 5.0 U	--	--	--	--	--	< 5.0 U
Naphthalene	µg/L	--	--	--	3.0 J	2.6	2.8	< 0.50 U	< 0.50	--	--	0.92 J	0.47 J	0.81	0.93	< 1.3	--	--	1.0 J	0.95 J	0.98	0.76	< 0.99	--	--	0.32 J
N-Butylbenzene	µg/L	--	--	--	< 20 U	0.39 J	0.47 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	0.19 J	< 0.50 U	< 0.50	--	--	< 5.0 U
N-Propylbenzene	µg/L	--	--	--	< 20 U	< 0.50 UJ	0.10 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
o-Xylene	µg/L	--	--	--	1.3 J	1.2	1.3	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
sec-Butylbenzene	µg/L	--	--	--	1.4 J	1.6	1.9	< 0.50 U	< 0.50	--	--	0.61 J	0.47 J	0.71	0.8	1.3	--	--	1.7 J	0.95 J	1.7	1.1	1.6	--	--	2.2 J
Styrene (Monomer)	µg/L	100	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
tert-Butylbenzene	µg/L	--	--	--	< 20 U	< 0.50 U	0.52	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Tetrachloroethene	µg/L	5	< 1 U	< 2 U	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U
Toluene	µg/L	1000	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	0.34 J	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	0.25 J	0.39 J	0.38 J	0.20 J	0.24	--	--	0.44 J
Total VOC TICs	µg/L	--	0	14 J	--	--	--	--	--	32.3 J	5.1 J	--	--	--	--	--	0	0	--	--	--	--	--	85.9 J	64 J	--
Total Xylenes	µg/L	10000	0.89 J	1.8 J	1.3 J	1.2 J	2.5 J	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U
trans-1,2-Dichloroethene	µg/L	100	0.57 J	< 2 U	< 20 U	0.34 J	0.36 J	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U
trans-1,3-Dichloropropene	µg/L	--	--	--	< 20 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U
Trichloroethene	µg/L	5	153	295	250	220	230	1.6	45	48.9	41.2	25	22	25	26	27	11.2	7.8	3.9 J	3.4 J	3.5	2.9	3.2	14.3	9.1	7.4
Vinyl chloride	µg/L	2	--	--	< 8.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50	--	--	< 2.0 U

Notes:
< U - analyte not detected above method detection limit
-- Not analyzed
MCL - Maximum Contaminant Level
DUP - field duplicate
N - normal
J - Estimated detection less than the practical quantation limit and greater than the method detection
ug/L - micrograms per liter
g/L - grams per liter
˚C - degrees Celcius
mV - millivolt
mg/L - milligrams per liter
$mScm^{-1}$ - milliSieman per centimeter
S.U. - Standard Units
MCL exceedances are shaded
Baseline data collected prior to system startup (April/Ma

Table 4
Comprehensive Groundwater Analytical Results (2006 through 2014)
Phoenix Military Reservation
Jacksonville, Maryland

		Location ID	FCA-7	FCA-7	FCA-7	FCA-9	FCA-9	FCA-9	FCA-9	FCA-9	FCA-9	FCA-9	FCA-25	FCA-25	FCA-25	FCA-25	FCA-25	FCA-25	FCA-25	FCA-26	FCA-26	FCA-26
		Sample Date	4/14/2014	9/3/2014	10/15/2014	6/15/2006	8/11/2006	6/3/2011	5/6/2014	9/4/2014	10/15/2014	10/15/2014	5/27/2011	5/27/2011	9/1/2011	9/1/2011	5/6/2014	9/3/2014	10/14/2014	5/7/2014	9/3/2014	10/15/2014
		Sample ID	PMR1-FCA07(041414)	PMR1FCA-07(090314)	PMR1FCA-07(101514)	FCA-9-20060615	FCA-9-20060811	PMR1FCA09(060311)	PMR1-FCA09(050614)	PMR1FCA-09(090414)	PMR1FCA-09(101514)	DUP-01(101514)	PMR1DUP02(052711)	PMR1FCA25(052711)	PMR1DUP01090111)	PMR1FCA25(090111)	PMR1-FCA25(050614)	PMR1FCA-25(090314)	PMR1FCA-25(101414)	PMR1-FCA26(050714)	PMR1FCA-26(090314)	PMR1FCA-26(101514)
Volatile Organic Compounds	**Units**	**MCL**																				
1,1,1,2-Tetrachloroethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,1,1-Trichloroethane	µg/L	200	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,1,2,2-Tetrachloroethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,1,2-Trichloroethane	µg/L	5	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,1-Dichloroethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,1-Dichloroethene	µg/L	7	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	0.48 J	0.35 J	0.66
1,1-Dichloropropene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2,3-Trichlorobenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2,3-Trichloropropane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2,4-Trichlorobenzene	µg/L	70	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2,4-Trimethylbenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2-Dibromoethane	µg/L	0.05	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2-Dichlorobenzene	µg/L	600	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2-Dichloroethane	µg/L	5	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,2-Dichloropropane	µg/L	5	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,3,5-Trimethylbenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,3-Dichlorobenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,3-Dichloropropane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
1,4-Dichlorobenzene	µg/L	75	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
2,2-Dichloropropane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
2-Butanone	µg/L	--	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10	< 10	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 10
2-Chlorotoluene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
4-Chlorotoluene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
4-Methyl-2-Pentanone	µg/L	--	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10	< 10	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 10
Acetone	µg/L	--	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 20 U	< 10 U	< 10 U	< 10	< 10	< 20 U	< 20 U	< 20 U	< 20 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 10
Benzene	µg/L	5	0.30 J	0.23 J	0.22	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	0.14	0.27 J	0.12 J	0.13
Bromobenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Bromodichloromethane	µg/L	80	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Bromoform	µg/L	80	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Bromomethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Carbon Disulfide	µg/L	--	0.34 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	0.36 J	0.37 J	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	1.7	1.6
Carbon Tetrachloride	µg/L	5	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
CFC-11	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
CFC-12	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chlorobenzene	µg/L	100	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chlorobromomethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chlorodibromomethane	µg/L	80	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chloroethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 UJ	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chloroform	µg/L	80	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Chloromethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	0.51 J	0.66 J	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	0.29 J	0.18
cis-1,2-Dichloroethene	µg/L	70	1.4	0.95	0.95	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	0.38	0.41	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	25	45	73
cis-1,3-Dichloropropene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Cymene	µg/L	--	< 0.50 U	< 0.50 U	0.62	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Dibromomethane	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Dichloromethane	µg/L	3000	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	0.19 J	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Ethane	µg/L	--	--	--	--	0.23	1.1 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	µg/L	--	--	--	--	< 0.1 U	< 0.1 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	µg/L	5E+05	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Hexachloro-1,3-butadiene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Isopropylbenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Methane	µg/L	--	--	--	--	< 0.1 U	< 0.1 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	--	< 0.50 U	< 0.50 U	< 0.50	< 0.50	--	--	--	--	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Methyl N-Butyl Ketone	µg/L	--	< 10 U	< 10 U	< 10	--	--	< 10 U	< 10 U	< 10 U	< 10	< 10	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10	< 10 U	< 10 U	< 10
Methyl-tert-butylether	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
m-Xylene	µg/L	--	--	--	--	--	--	< 5.0 U	--	--	--	--	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	--	--	--	--	--	--
Naphthalene	µg/L	--	0.71	0.24 J	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	0.32 J	0.33 J	< 0.50 U	< 0.50 U	< 0.50	0.40 J	0.30 J	< 0.50
N-Butylbenzene	µg/L	--	0.23 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
N-Propylbenzene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
o-Xylene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
sec-Butylbenzene	µg/L	--	2.5	0.56	0.87	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Styrene (Monomer)	µg/L	100	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
tert-Butylbenzene	µg/L	--	0.29 J	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Tetrachloroethene	µg/L	5	< 0.50 U	< 0.50 U	< 0.50	< 1 U	0.54 J	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Toluene	µg/L	1000	0.83	0.25 J	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	0.39 J	0.34 J	0.22 J	0.19 J	< 0.50 U	< 0.50 U	< 0.50	0.96	< 0.50 U	< 0.50
Total VOC TICs	µg/L	--	--	--	--	5.3 J	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes	µg/L	10000	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
trans-1,2-Dichloroethene	µg/L	100	< 0.50 U	< 0.50 U	< 0.50	< 1 U	< 1 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 UJ	< 5.0 UJ	< 0.50 U	< 0.50 U	< 0.50	0.45 J	0.38 J	0.65
trans-1,3-Dichloropropene	µg/L	--	< 0.50 U	< 0.50 U	< 0.50	--	--	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 5.0 U	< 5.0 U	< 5.0 U	2.2 J	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	< 0.50 U	< 0.50
Trichloroethene	µg/L	5	5.5	3.6	4	0.65 J	< 1 U	0.82 J	0.30 J	0.43 J	0.63	0.57	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 0.50 U	< 0.50 U	< 0.50	160	71	110
Vinyl chloride	µg/L	2	< 0.50 U	< 0.50 U	< 0.50	--	--	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50	< 0.50 U	0.19 J	< 0.50

Notes:
< U - analyte not detected above method detection limit
-- Not analyzed
MCL - Maximum Contaminant Level
DUP - field duplicate
N - normal
J - Estimated detection less than the practical quantation limit and greater than the method detection
ug/L - micrograms per liter
g/L - grams per liter
°C - degrees Celcius
mV - millivolt
mg/L - milligrams per liter
$mScm^{-1}$ - milliSieman per centimeter
S.U. - Standard Units
MCL exceedances are shaded
Baseline data collected prior to system startup (April/Ma

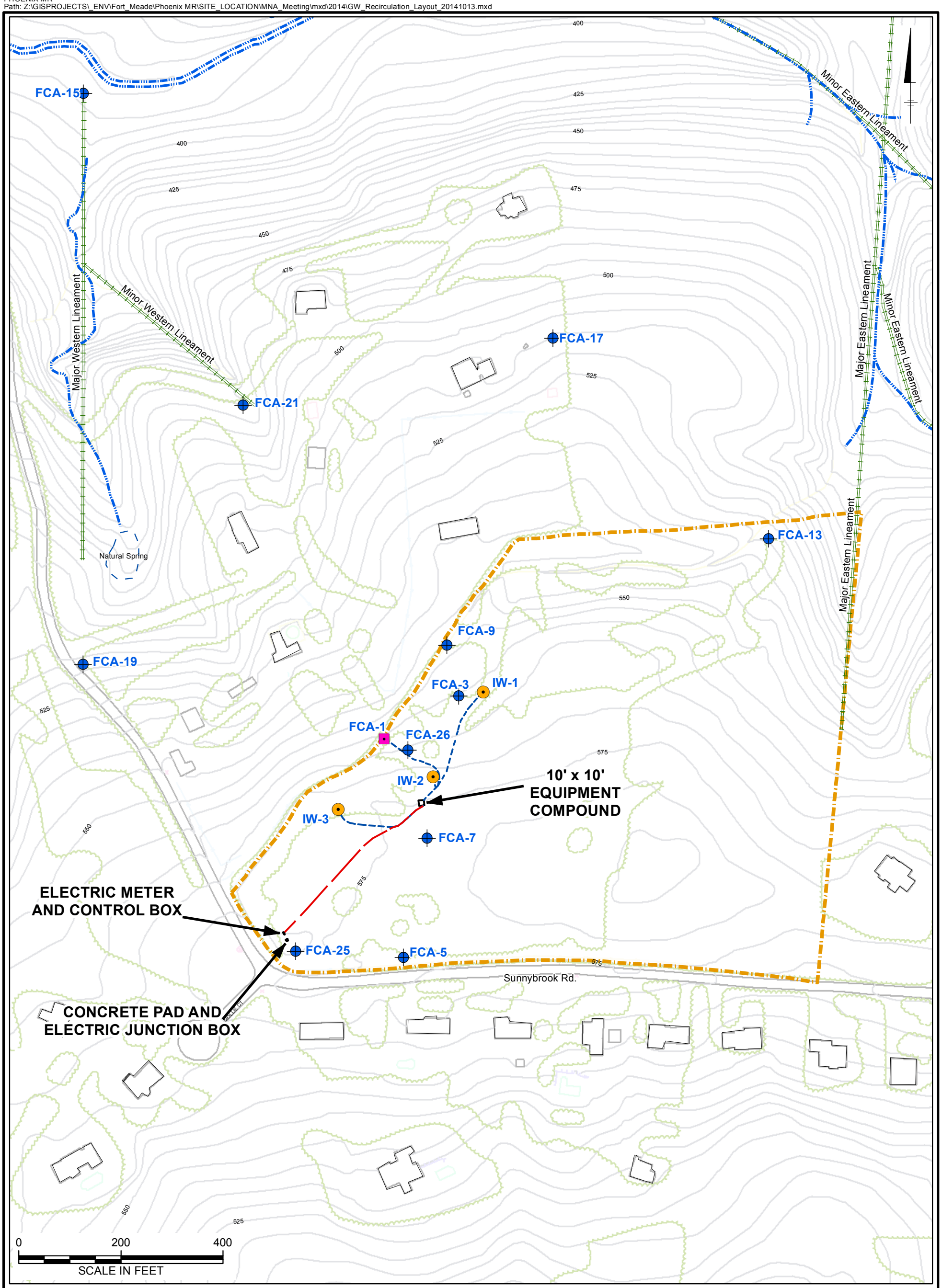
Table 5
Groundwater Elevations - 2014
Phoenix Military Reservation
Jacksonville, Maryland

Monitoring Well ID	Installation Date	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Top of Screen (ft amsl)	Bottom of screen (ft amsl)	Ground Elevation (ft amsl)	TOC Elevation (ft amsl)	April 2014		September 2014		October 2014	
								Sounded Depth (ft bTOC)	Corrected Elevation (ft amsl)	Sounded Depth (ft bTOC)	Corrected Elevation (ft amsl)	Sounded Depth (ft bTOC)	Corrected Elevation (ft amsl)
FCA-1	November-82	62	72	498.80	488.80	560.80	559.92	21.15	538.77	28.10	531.82	33.07	526.85
FCA-3	October-82 / May-06	70	80	490.60	480.60	560.60	563.19	16.88	546.31	27.53	535.66	29.08	534.11
FCA-5	October-82	65	75	512.13	502.13	577.13	577.85	34.48	543.37	36.06	541.79	38.20	539.65
FCA-7	October-82 / May-06	84	94	492.22	482.22	576.22	578.54	33.31	545.23	35.86	542.68	38.00	540.54
FCA-9	November-82	71	81	480.58	470.58	551.58	554.22	10.91	543.31	28.42	525.80	29.80	524.42
FCA-13	May-06	60	80	468.01	448.01	528.01	530.58	NG	NG	45.21	485.37	47.81	482.77
FCA-25	May-11	70	85	505.20	490.20	575.20	578.09	33.83	544.26	38.92	539.17	41.04	537.05
FCA-26	April-14	62.5	72.5	503.40	493.40	565.90	568.44	25.20	543.24	34.74	533.70	34.46	533.98

Notes:
ft bgs = feet below ground surface
ft bTOC = feet below top of casing
amsl = above mean sea level
TOC = Top of Casing
NG - Not gauged

Figures

CITY: MPLS DIV/GROUP: IM DB: MG LD: KS
PHOENIX MR
Path: Z:\GISPROJECTS_ENV\Fort_Meade\Phoenix MR\SITE_LOCATION\MNA_Meeting\mxd\2014\GW_Recirculation_Layout_20141013.mxd



Legend

- Deep Monitoring Well Location
- Extraction Well
- Recirculation Well
- Lineament
- Stream
- Electrical Feed
- Water Conveyance
- Natural Spring
- House
- Site Boundary

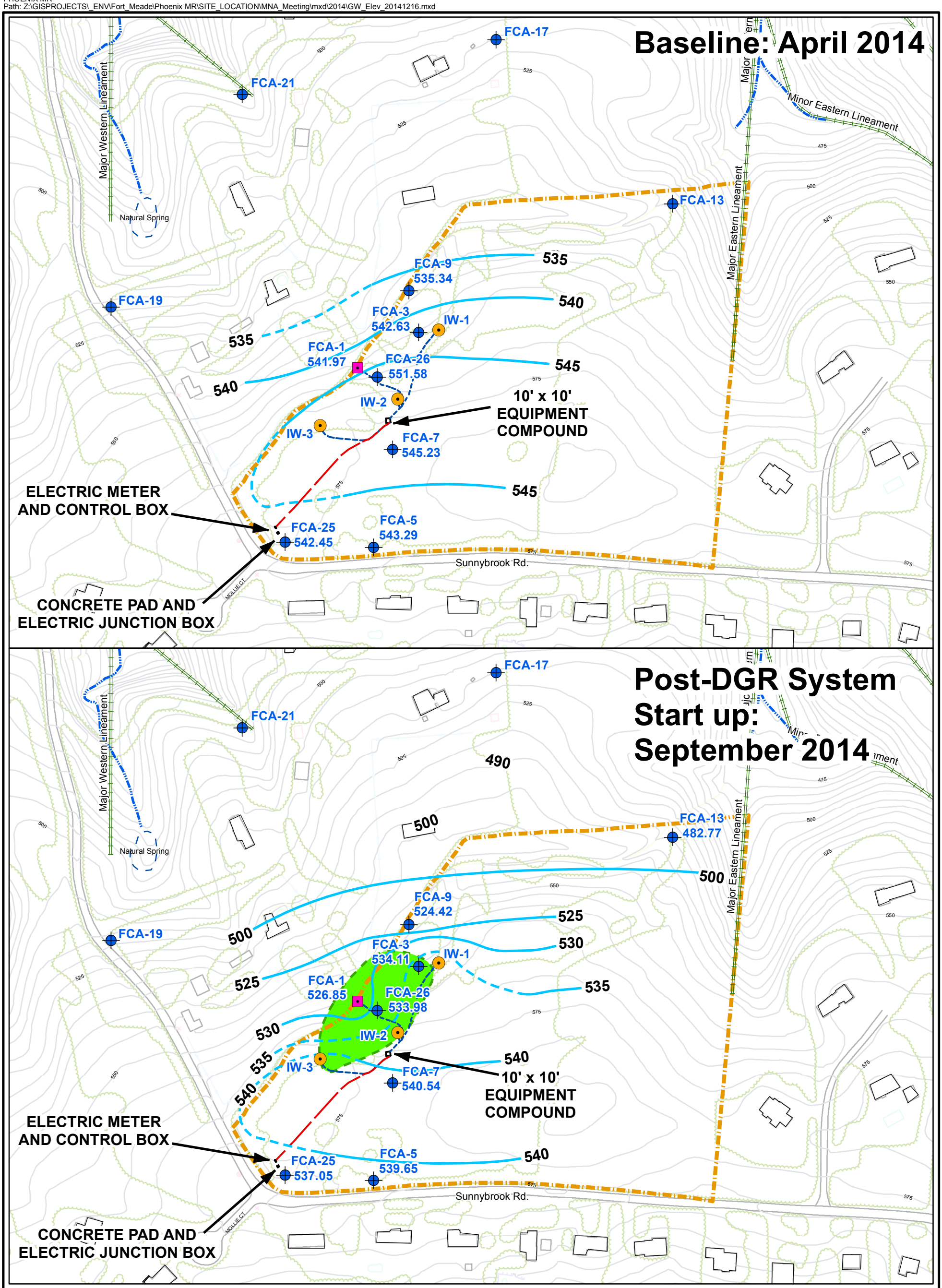
PHOENIX MILITARY RESERVATION
JACKSONVILLE, MARYLAND

DIRECTED GROUNDWATER RECIRCULATION LAYOUT

ARCADIS

FIGURE
1

CITY: MPLS DIV/GROUP: IM DB: MG LD: KS
PHOENIX MR
Path: Z:\GISPROJECTS_ENV\Fort_Meade\Phoenix MR\SITE_LOCATION\MNA_Meeting\mxd\2014\GW_Elev_20141216.mxd



Legend

- Deep Monitoring Well Location
- Extraction Well
- Recirculation Well
- 540 ft msl — Groundwater Elevation Contour (Dashed where inferred)
- Lineament
- Stream
- Electrical Feed
- Water Conveyance
- Natural Spring
- House
- Approximate Site Boundary
- Inferred Extent of Capture

Note:
msl = mean sea level

0 200 400
SCALE IN FEET

PHOENIX MILITARY RESERVATION
JACKSONVILLE, MARYLAND

COMPARISON OF GROUNDWATER ELEVATION CONTOURS

ARCADIS

FIGURE
2

Attachment 1

Groundwater Sampling Logs

ARCADIS

Water Level Measurement Form

Project Name: Phoenix Military Reservation

Project Number: GP09MEAD.PHOE

Field Personnel: J. Butkovsky / L. Lamp

Date: 10/14/14

Weather: 65°F Overcast

Well Casing Volumes

gallon/foot

1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

Well ID	Time	Measuring Point	TSD (ft)	DTP (ft)	DTW (ft)	Notes
FCA-01	0837	TOC	69.48	—	33.07	
FCA-03	0830	TOC	83.42	—	29.08	
FCA-05	0803	TOC	76.55	—	38.20	
FCA-07	0750	TOC	97.52	—	38.00	
FCA-09	0823	TOC	82.37	—	29.80	
FCA-13	0815	TOC	82.40	—	42.81	
FCA-25	0758	TOC	87.92	—	41.04	
FCA-26	SJ ~~0758~~ 0833	TOC	74.55	—	SJ ~~41.04~~ 34.46	

Notes:

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHCE.MD001 | Well ID FCA-1 | Date 10.15.14

Project Name/Location PMR | Weather Cloudy, 68F

Measuring Pt. Description TOC | Screen Setting (ft-bmp) 62-72 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-bmp) 69.48 | Static Water Level (ft-bmp) 29.18 | Water Column in Well 40.3 | Gallons in Well 6.448

Calc. Gallons Purged 1.32 | Pump Intake (ft-bmp) 67 | Purge Method: Low Flow | Sample Method GRAB

Gallons Purged ~1.75 | MP Elevation — | Centrifugal ___ Submersible BLADDER PUMP | Disp. Bailer ___ Other ___ | Pump On/Off 1040/

Sample Time: Label 1135 | Replicate/ Code No. — | Sampled by LAUREN LAMP

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH ✓	Cond. (µmhos) (mS/cm) ✓	Turbidity (NTU) ✓	Dissolved Oxygen (mg/L) ✓	Temp. (°C) (°F) ✓	Redox (mV)	Appearance Color	Appearance Odor
1050	10	100	29.36		5.99	0.204	17.4	1.30	15.28	106.2	CLEAR	NONE
1055	15	100	29.46		5.98	0.209	13.2	0.89	15.09	115.8	"	"
1100	20	100	29.58		5.97	0.208	9.17	0.67	14.89	121.4	"	"
1105	25	100	29.64		5.96	0.206	7.50	0.61	14.84	121.2	"	"
1110	30	100	29.76		5.95	0.208	6.54	0.53	14.67	127.1	"	"
1115	35	100	29.82		5.94	0.207	3.61	0.52	14.61	128.9	"	"
1120	40	100	29.93		5.92	0.206	2.78	0.48	14.55	136.3	"	"
1125	45	100	30.00		5.92	0.205	2.35	0.46	14.45	138.2	"	"
1130	50	100	30.07	1.32	5.92	0.206	2.49	0.44	14.44	137.7	"	"
1135	55	100	SAMPLE									

Constituents Sampled	Container	Number	Preservative
VOCs	40ML VOA	3	HCl

Well Information

Well Location: VERIFIED ON MAP | Well Locked at Arrival: ~~Yes~~ / No

Condition of Well: GOOD | Well Locked at Departure: ~~Yes~~ / No

Well Completion: Flush Mount / ~~Stick Up~~ | Key Number To Well: ~~A~~

NOTES: AN EXTRACTION WELL

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE.MD001 | Well ID FLA-03 | Date 10/14/14

Project Name/Location Ft. Meade PMR | Weather 65°F overcast

Measuring Pt. Description TOC | Screen Setting (ft-bmp) | Casing Diameter (in.) 2" | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-bmp) 83.42' | Static Water Level (ft-bmp) 28.13' | Water Column in Well 55.29' | Gallons in Well 8.85

Calc. Gallons Purged | Pump Intake (ft-bmp) 82' | Purge Method: Centrifugal ___ Submersible ✓ Bladder pump ___ Disp. Bailer ___ Other | Sample Method Low Flow

Gallons Purged ~5 gal | MP Elevation | Pump On/Off 1120/1330

Sample Time: Label 1325 | Replicate/ Code No. | Sampled by J. Butkovsky

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1120	0	—	28.13	—	—	—	—	—	—	—	—	—
1122	2	100	29.09		5.74	0.174		6.90	14.40	248.7	opaque	Slight
1124	4	100	29.79		4.95	0.178	24.5	3.36	14.32	224.4	"	"
1126	6	100	30.26		4.89	0.176	21.0	1.79	13.96	211.6	"	"
1128	8	100	30.58		4.89	0.175	18.2	1.44	13.91	209.7	clear	"
1130	10	100	30.89		4.90	0.175	18.8	1.13	13.82	207.9	"	"
1135	15	100	31.26		4.98	0.173	18.3	0.90	13.79	203.8	"	"
1140	20	100	32.22		5.05	0.172	17.3	0.78	13.65	192.3	"	"
1145	25	100	33.32		5.15	0.170	16.2	0.69	13.72	188.0	"	"
1150	30	100	33.78		5.23	0.170	14.8	0.65	13.86	184.6	"	"
1155	35	100	34.37		5.29	0.170	14.2	0.63	13.79	174.9	"	"
1200	40	100	34.98		5.27	0.170	15.8	0.56	13.65	170.5	"	"
1205	45	100	35.50		5.34	0.170	18.1	0.61	13.72	164.5	"	"

Constituents Sampled	Container	Number	Preservative
VOCs	40mL VOA	3	HCl

Well Information

Well Location: | Well Locked at Arrival: Yes / No

Condition of Well: Good | Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up | Key Number To Well: 5307

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE.MD001 Well ID FLA-03 Date 10/14/14

Project Name/Location Ft. Meade PMR Weather 65°F Overcast

Measuring Pt. Description TOC Screen Setting (ft-bmp) Casing Diameter (in.) 2" Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-bmp) Static Water Level (ft-bmp) Water Column in Well Gallons in Well

Calc.Gallons Purged Pump Intake (ft-bmp) Purge Method: Centrifugal Submersible Disp. Bailer Other Sample Method

Gallons Purged MP Elevation Pump On/Off

Sample Time: Label Replicate/ Code No. Sampled by

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1210	50	100	36.12		5.38	0.170	20.0	0.57	13.64	159.9	"	"
1215	55	100	36.49		5.39	0.170	23.3	0.62	13.66	157.3	"	"
1220	60	100	36.87		5.42	0.170	21.8	0.62	13.61	154.4	"	"
1230	70	100	37.50		5.45	0.170	23.7	0.60	13.65	149.6	"	"
1240	80	100	38.25		5.53	0.170	30.2	0.69	13.74	143.0	"	"
1250	90	100	38.58		5.57	0.170	40.3	0.67	13.78	139.3	"	"
1300	100	100	39.00		5.54	0.171	55.1	0.64	13.67	136.4	"	"
1310	110	100	39.29		5.57	0.171	57.6	0.64	13.78	132.8	"	"
1320	120	100	39.54	~5 gal	5.57	0.171		0.58	13.79	130.2	"	"

Constituents Sampled	Container	Number	Preservative

Well Information

Well Location: Well Locked at Arrival: Yes / No

Condition of Well: Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE

Well ID FCA-5

Date 10.14.14

Project Name/Location PMR QUARTERLY SAMPLING

Weather Cloudy, 67F

Measuring Pt. Description TOC

Screen Setting (ft-bmp) 65-75

Casing Diameter (in.) 2

Well Material X PVC ___ SS ___ Other

Total Depth (ft-bmp) 76.55

Static Water Level (ft-bmp) 37.53

Water Column in Well 39.02

Gallons in Well 6.24

Calc.Gallons Purged 3.17

Pump Intake (ft-bmp) 70

Purge Method: Low Flow

Sample Method GRAB

Gallons Purged ~3.25

MP Elevation —

Centrifugal ___ Submersible ___ Disp. Bailer ___ Other Bladder Pump

Pump On/Off 1210/1420

Sample Time: Label 1415

Replicate/ Code No. —

Sampled by LAUREN LAMP

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1220	10	100	39.04		5.75	0.090	13.5	2.31	14.82	14.1	CLEAR	NONE
1225	15	100	39.62		5.77	0.089	15.0	0.97	15.15	14.6	"	"
1230	20	100	40.64		5.75	0.089	14.4	0.57	14.82	16.4	"	"
1235	25	100	41.29		5.74	0.088	10.7	0.45	14.87	14.2	"	"
1240	30	100	41.68		5.77	0.088	12.2	0.39	15.14	14.9	"	"
1245	35	100	42.43		5.78	0.088	10.7	0.35	15.33	12.5	"	"
1250	40	100	43.06		5.78	0.088	10.2	0.31	15.42	6.1	"	"
1255	45	100	43.42		5.76	0.088	8.32	0.32	15.38	4.5	"	"
1300	50	100	43.95		5.76	0.088	7.79	0.31	15.17	-2.6	"	"
1305	55	100	44.63		5.75	0.088	7.33	0.29	15.09	-5.7	"	"
1310	60	100	45.26		5.75	0.088	6.81	0.26	15.04	-11.8	"	"
1315	65	100	45.83		5.75	0.088	6.45	0.25	15.07	-18.5	"	"
1320	70	100	46.54	✓	5.75	0.088	6.17	0.23	15.18	-21.1	"	"

Constituents Sampled	Container	Number	Preservative
VOCs	40ML VOA	3	HCl

Well Information

Well Location: VERIFIED ON MAP

Condition of Well: GOOD

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: ARBUS KEY

NOTES:

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sampling Form

Project No. _____ Well ID FCA-5 Date _____

Project Name/Location _____ Weather _____

Measuring Pt. Description _____ Screen Setting (ft-bmp) _____ Casing Diameter (in.) #1 _____ Well Material ___ PVC ___ SS ___ Other

Total Depth (ft-bmp) _____ Static Water Level (ft-bmp) _____ Water Column in Well _____ Gallons in Well _____

Calc.Gallons Purged _____ Pump Intake (ft-bmp) _____ Purge Method: Centrifugal _____ Submersible _____ Disp. Bailer _____ Other _____ Sample Method _____

Gallons Purged _____ MP Elevation _____ Pump On/Off _____

Sample Time: Label _____ Replicate/ Code No. _____ Sampled by _____

SEE PAGE

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1325	75	100	46.90		5.75	0.088	6.01	0.24	15.18	-23.6	CLEAR	NONE
1330	80	100	47.48		5.75	0.088	6.87	0.23	15.21	-26.6	"	"
1335	85	100	47.93		5.75	0.088	6.28	0.22	15.19	-28.0	"	"
1340	90	100	48.49		5.75	0.088	8.14	0.20	15.16	-31.7	"	"
1345	95	100	48.92		5.75	0.088	7.25	0.21	15.17	-33.2	"	"
1350	100	100	49.59		5.75	0.088	6.29	0.20	15.20	-24.4	"	"
1355	105	100	49.87		5.75	0.088	7.82	0.22	15.23	-24.1	"	"
1400	110	100	50.42		5.75	0.088	7.19	0.23	15.25	-23.5	"	"
1405	115	100	50.84		5.75	0.088	7.82	0.21	15.27	-27.4	"	"
1410	120	100	51.27	3.17	5.76	0.088	7.85	0.20	15.34	-33.4	"	"
1415	125	100		SAMPLE								

Constituents Sampled	Container	Number	Preservative

SEE PAGE #1

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE.MD001 | Well ID FLA-07 | Date 10/15/14

Project Name/Location Ft. Meade PMR | Weather 65°F overcast

Measuring Pt. Description TOC | Screen Setting (ft-bmp) | Casing Diameter (in.) 2" | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-bmp) 97.52 | Static Water Level (ft-bmp) 37.45 | Water Column in Well 60.07 | Gallons in Well 9.61

Calc. Gallons Purged | Pump Intake (ft-bmp) ~95 | Purge Method: Centrifugal ___ Submersible ✓ bladder pump Disp. Bailer ___ Other ___ | Sample Method Low Flow

Gallons Purged ~3 | MP Elevation —

Sample Time: Label 1240 | Replicate/ Code No. — | Pump On/Off 1130/1240

Sampled by J. Bertousky

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1130	—	—	37.45	—	—	—	—	—	—	—		
1132	2	200	37.81		5.72	0.180	308	7.11	15.68	36.2	Clearish	Slight
1134	4	175	38.04		5.56	0.179	297	5.26	15.71	38.0	"	"
1136	6	150	38.43		5.56	0.178	215	4.56	15.83	40.9	"	"
1140	8	125	39.06		5.54	0.176	180	3.25	15.82	39.9	"	"
1145	10	100	39.45		5.54	0.170	45.1	1.05	15.76	44.1	"	"
1150	15	100	39.61		5.57	0.170	29.0	0.88	15.71	43.8	"	"
1155	20	100	39.71		5.58	0.169	23.0	0.82	15.71	43.3	"	"
1200	25	100	39.77		5.60	0.168	20.1	0.85	15.63	44.9	"	"
1205	30	100	39.95		5.68	0.167	20.9	0.79	15.75	44.3	"	"
1210	35	100	40.16		5.69	0.167	20.1	0.59	15.63	45.7	"	"
1215	40	100	40.21		5.71	0.167	18.2	0.63	15.61	42.7	"	"
1220	45	100	40.24		5.82	0.166		0.66	15.81	40.1	"	"

Constituents Sampled	Container	Number	Preservative
VOCs	40mL VOA	3	HCl

Well Information

Well Location: | Well Locked at Arrival: (Yes) / No

Condition of Well: Good | Well Locked at Departure: (Yes) / No

Well Completion: Flush Mount / (Stick Up) | Key Number To Well: 5501

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. _____ Well ID FCA-07 Date _____

Project Name/Location _____ Weather _____

Measuring Pt. Description _____ Screen Setting (ft-bmp) _____ Casing Diameter (in.) _____ Well Material ___ PVC ___ SS ___ Other

Total Depth (ft-bmp) _____ Static Water Level (ft-bmp) _____ Water Column in Well _____ Gallons in Well _____

Calc.Gallons Purged _____ Pump Intake (ft-bmp) _____ Purge Method: Centrifugal _____ Submersible _____ Disp. Bailer _____ Other _____ Sample Method _____

Gallons Purged _____ MP Elevation _____

Sample Time: Label _____ Replicate/ Code No. _____ Pump On/Off _____

Sampled by _____

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1225	50	100	40.21		5.80	0.166	10.0	0.70	15.94	40.2	"	"
1230	55	100	40.22		5.80	0.166	8.81	0.72	15.95	40.6	"	"
1235	60	100	40.23		5.80	0.166	4.17	0.71	15.94	40.4	"	"
	70											
	80											
	90											
	100											
	110											
	120											

Constituents Sampled	Container	Number	Preservative

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE.MD001 | Well ID FLA-09 | Date 10/15/14

Project Name/Location Ft. Meade PMR | Weather

Measuring Pt. Description TOC | Screen Setting (ft-bmp) | Casing Diameter (in.) 2" | Well Material ✓ PVC ___ SS ___ Other

Total Depth (ft-bmp) 82.37 | Static Water Level (ft-bmp) 28.92 | Water Column in Well 53.45 | Gallons in Well 8.55

Calc. Gallons Purged | Pump Intake (ft-bmp) ~81' | Purge Method: Centrifugal ___ Submersible ✓ Bladder pump | Sample Method Low Flow

Gallons Purged ~3 | MP Elevation — | Disp. Bailer ___ Other ___ | Pump On/Off 0800/1040

Sample Time: Label 1035 | Replicate/ Code No. — | Sampled by J. Bukovsky

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
0800	—	—	28.92	—	—	—	—	—	—	—		
0830	0	125	33.18		6.43	0.243	45.2	1.07	14.01	53.1	Clear	None
0832	2	125	33.38		6.42	0.243	44.9	0.81	13.98	53.8		
0834	4	125	33.60		6.42	0.243	43.4	0.68	13.94	53.7		
0836	6	125	34.00		6.43	0.242	44.8	0.62	13.82	53.5		
0838	8	125	34.29		6.44	0.241	45.2	0.56	13.73	52.2		
0840	10	125	34.59		6.44	0.241	39.4	0.54	13.65	51.3		
0845	15	125	35.64		6.49	0.238	36.5	0.53	13.64	48.0		
0850	20	100	36.53		6.52	0.236	26.3	0.62	13.59	48.5		
0855	25	100	37.48		6.55	0.232	18.8	0.90	13.74	49.6		
0900	30	100	38.14		6.57	0.231	15.7	1.03	13.82	50.8		
0905	35	100	39.01		6.63	0.230	13.7	1.15	14.02	48.7		
0910	40	100	39.78		6.65	0.230	12.8	1.16	14.04	47.7		

Constituents Sampled	Container	Number	Preservative
VOCs	40mL Voa	3	HCl

Well Information

Well Location:

Condition of Well: Good

Well Completion: Flush Mount / (Stick Up)

Well Locked at Arrival: (Yes) / No

Well Locked at Departure: (Yes) / No

Key Number To Well: 5501

NOTES:

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

ARCADIS

Groundwater Sampling Form

Project No. _____ Well ID FCA-09 Date 10/15/14

Project Name/Location _____ Weather _____

Measuring Pt. Description _____ Screen Setting (ft-bmp) _____ Casing Diameter (in.) _____ Well Material ___ PVC ___ SS ___ Other

Total Depth (ft-bmp) _____ Static Water Level (ft-bmp) _____ Water Column in Well _____ Gallons in Well _____

Calc.Gallons Purged _____ Pump Intake (ft-bmp) _____ Purge Method: Centrifugal _____ Submersible _____ Disp. Bailer _____ Other _____ Sample Method _____

Gallons Purged _____ MP Elevation _____

Sample Time: Label _____ Replicate/ Code No. _____ Pump On/Off _____

Sampled by _____

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
0915	45	100	40.56		6.69	0.229	12.7	1.15	14.16	46.0		
0920	50	100	41.15		6.69	0.229	11.7	1.16	14.17	45.4		
0925	55	100	42.10		6.70	0.229	12.2	1.18	14.19	43.9		
~~1000~~ 0930	60	100	42.74		6.73	0.228	10.8	1.18	14.27	42.1		
0940	70	100	44.00		6.88	0.273	106	0.74	14.28	-19.4		
0950	80	100	45.54		6.81	0.243	14.7	1.02	14.16	18.6		
1000	90	100	46.98		6.78	0.231	11.6	1.14	14.25	29.6		
1010	100	100	48.47		6.77	0.229	9.26	1.17	14.30	31.2		
1020	110	100	49.95		6.77	0.228	8.83	1.20	14.26	30.7		
1030	120	100	50.80		6.78	0.228	8.30	1.21	14.30	30.5		

Constituents Sampled	Container	Number	Preservative

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE

Well ID FCA-25

Date 10.14.14

Project Name/Location PHOENIX MILITARY RESERVE (PMR)

Weather CLOUDY, 65F

Measuring Pt. Description TOC

Screen Setting (ft-bmp) 70-85

Casing Diameter (in.) 2

Well Material X PVC ___ SS ___ Other

Total Depth (ft-bmp) 87.90

Static Water Level (ft-bmp) 41.13

Water Column in Well 46.77

Gallons in Well 7.4832

Calc.Gallons Purged ___

Pump Intake (ft-bmp) ___

Purge Method: Low Flow; Centrifugal ___; Submersible ___; Disp. Bailer ___; Other BLADDER PUMP

Sample Method GRAB

Gallons Purged ~4

MP Elevation —

Pump On/Off 0940/1150

Sample Time: Label 1145

Replicate/ Code No. —

Sampled by LAUREN LAMP

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm) ✓	Turbidity (NTU) ✓	Dissolved Oxygen (mg/L) ✓	Temp. (°C) (°F)	Redox (mV) ✓	Appearance Color	Appearance Odor
0950	10	140	43.22		3.12	0.368	32.4	0.93	14.26	286.7	CLEAR	NONE
0955	15	140	44.47		4.12	0.354	27.4	0.75	14.36	236.1	"	"
1000	20	100	44.92		4.61	0.351	22.0	0.85	14.61	208.7	"	"
1005	25	100	46.00		4.88	0.351	20.3	0.84	14.40	197.8	"	"
1010	30	100	46.72		4.98	0.348	13.6	1.00	14.42	196.6	"	"
1015	35	100	47.64		5.04	0.347	12.1	1.06	14.39	197.8	"	"
1020	40	100	48.46		5.10	0.345	10.5	1.17	14.44	201.1	"	"
1025	45	100	49.07		5.19	0.344	9.91	1.21	14.64	200.0	"	"
1030	50	100	49.69		5.25	0.343	9.28	1.19	14.75	198.5	"	"
1035	55	100	50.31		5.28	0.342	8.42	1.23	14.77	196.9	"	"
1040	60	100	51.11		5.30	0.341	7.66	1.21	14.82	194.8	"	"
1045	65	100	51.36		5.31	0.340	7.01	1.26	14.80	194.3	"	"
1050	70	100	51.88		5.32	0.340	6.33	1.28	14.86	193.7	"	"

Constituents Sampled	Container	Number	Preservative
VOCs	VOA 40 mL	3	HCl

Well Information

Well Location: VERIFIED ON MAP

Condition of Well: GOOD

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: ALBUS KEY

NOTES:

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

FCA-25

READINGS CONTINUED: X

TIME	MIN ELAPSED	RATE mL/MIN	DTW DTOC	GAL PURGED	pH ✓	Sp. CON ✓	TURBIDITY NTU ✓	DO mg/L ✓	TEMP °C ✓	Redox mV ✓	APPEARANCE COLOR	APPEARANCE ODOR
1055	75	100	52.58		5.33	0.339	5.96	1.29	14.93	192.4	CLEAR	NONE
1100	80	100	53.18		5.34	0.338	5.83	1.33	14.92	191.5	"	"
1105	85	100	53.77		5.35	0.337	5.81	1.37	14.91	189.9	"	"
1110	90	100	54.07		5.35	0.337	5.72	1.38	14.84	190.3	"	"
1115	95	100	54.63		5.36	0.336	5.69	1.44	14.83	189.2	"	"
1120	100	100	55.09		5.36	0.336	5.65	1.46	14.78	188.2	"	"
1125	105	100	55.46		5.37	0.336	5.57	1.54	14.78	187.7	"	"
1130	110	100	56.07		5.40	0.335	5.50	1.73	14.84	186.4	"	"
1135	115	100	56.49		5.42	0.335	5.23	1.90	14.89	184.4	"	"
1140	120	100	57.08		5.43	0.335	5.18	1.89	14.90	184.1	"	"
1145	125	100	SAMPLE		COLLECTED							

WELL DID NOT STABILIZE. COLLECT SAMPLE AFTER 2 HOURS of LOW FLOW AT 100ML/MIN PER THE AUS SOP.
SAMPLE @ 1145

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD. PHCE. MD001 | Well ID FCA-26 | Date 10.15.14

Project Name/Location PMR QUARTERLY SAMPLING | Weather CLOUDY, 71°F

Measuring Pt. Description TOC | Screen Setting (ft-bmp) 62-72 | Casing Diameter (in.) 2 | Well Material X PVC ___ SS ___ Other

Total Depth (ft-bmp) 74.55 | Static Water Level (ft-bmp) 34.28 | Water Column in Well 40.27 | Gallons in Well 6.44

Calc. Gallons Purged 3.30 | Pump Intake (ft-bmp) 67 | Purge Method: Low Flow | Sample Method Low Flow

Gallons Purged ~3.75 | MP Elevation — | Centrifugal ___ Submersible BLADDER PUMP | Disp. Bailer ___ Other ___

Sample Time: Label 1000 | Replicate/ Code No. MS/MSD | Pump On/Off 0755/1005 | Sampled by LAUREN LAMP

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
0805	10	125	35.47	↓	6.38	0.336	127	0.99	15.37	-96.9	clear	None
0810	15	125	36.68	↓	6.46	0.338	114	0.59	14.94	-116.5	"	"
0815	20	125	38.42	0.66	6.46	0.317	71.4	0.39	14.71	-116.7	"	"
0820	25	100	39.09	↓	6.45	0.304	52.3	0.33	15.30	-114.0	"	"
0825	30	100	39.59	↓	6.58	0.293	49.3	0.35	16.14	-99.0	"	"
0830	35	100	40.13	↓	6.58	0.288	47.1	0.34	16.43	-90.2	"	"
0835	40	100	40.82	↓	6.55	0.284	47.0	0.35	16.60	-83.9	"	"
0840	45	100	41.57	↓	6.55	0.284	45.2	0.38	16.56	-80.2	"	"
0845	50	100	41.93	↓	6.55	0.286	45.0	0.37	16.53	-76.8	"	"
0850	55	100	42.18	↓	6.56	0.288	44.8	0.32	16.76	-75.0	"	"
0855	60	100	42.79	↓	6.61	0.326	40.7	0.34	15.60	-91.6	"	"
0900	65	↓	43.39	↓	6.64	0.375	104	0.32	15.48	-115.9	"	"
0905	70	125	44.03	↓	6.69	0.392	126	0.25	15.49	-127.5	"	"

Constituents Sampled	Container	Number	Preservative
VOCs (MS/MSD)	40ML VOA	9	HCl

Well Information

Well Location: VERIFIED ON MAP | Well Locked at Arrival: Yes / No

Condition of Well: GOOD | Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up - BLACK OUTER CASING | Key Number To Well: AIBUS KEY

NOTES:

Well Casing Volumes

Gallons/Foot					
	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

ARCADIS

Groundwater Sampling Form

Project No. GP09MEAD.PHOE

Well ID FCA-26

Date 10.15.14

Project Name/Location

Weather Cloudy, 72°F

Measuring Pt. Description

Screen Setting (ft-bmp)

Casing Diameter (in.)

Well Material ___ PVC ___ SS ___ Other

SEE PAGE #1

Total Depth (ft-bmp)

Static Water Level (ft-bmp)

Water Column in Well

Gallons in Well

Calc.Gallons Purged

Pump Intake (ft-bmp)

Purge Method: Centrifugal ___ Submersible ___ Disp. Bailer ___ Other ___

Sample Method

Gallons Purged

MP Elevation

Pump On/Off

Sample Time: Label

Replicate/ Code No.

Sampled by

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (µmhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
0910	75	100	44.52		6.70	0.480	132	0.23	15.65	-121.9	clear	NONE
0915	80	100	45.21		6.73	0.400	123	0.19	15.90	-117.6	"	"
0920	85	100	46.11		6.69	0.324	99.9	0.19	15.91	-101.3	"	"
0925	90	100	46.53		6.66	0.324	86.6	0.18	15.65	-90.2	"	"
0930	95	100	47.18		6.60	0.300	85.3	0.18	15.76	-75.5	"	"
0935	100	100	47.72		6.58	0.289	71.2	0.19	15.80	-64.3	"	"
0940	105	100	48.09		6.57	0.288	64.8	0.19	15.76	-62.7	"	"
0945	110	100	48.66		6.55	0.284	60.6	0.20	15.75	-53.3	"	"
0950	115	100	49.47		6.54	0.282	47.3	0.20	15.82	-49.8	"	"
0955	120	100	50.12	3.30	6.54	0.283		0.21	15.85	-48.4	"	"
1000	125	100	50.51	SAMPLE								

Constituents Sampled	Container	Number	Preservative
VOCs MS/MSD	40mL VOA	9	HCl

Well Information

Well Location: SEE PAGE 1

Condition of Well:

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well:

NOTES:

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Attachment 2

Laboratory Reports (Provided on CD)

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Arcadis
1114 Benfield Blvd
Suite A
Millersville, MD 21108
Attention: Keith Shepherd

Project Name: **Phoenix Military Reservation**

Project Number: **GP09MEAD.PHOE.MD001**

Lot Number: **PJ16015**

Date Completed: **10/24/2014**

Nisreen Saikaly
Project Manager

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* P J 1 6 0 1 5 *

Case Narrative
Arcadis
Lot Number: PJ16015

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

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

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

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

Sample Summary
Arcadis
Lot Number: PJ16015

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	PMR1FCA-03(101414)	Aqueous	10/14/2014 1325	10/16/2014
002	PMR1FCA-25(101414)	Aqueous	10/14/2014 1145	10/16/2014
003	PMR1FCA-5(101414)	Aqueous	10/14/2014 1415	10/16/2014
004	PMR1FCA-26(101514)	Aqueous	10/15/2014 1000	10/16/2014
005	PMR1FCA-1(101514)	Aqueous	10/15/2014 1135	10/16/2014
006	RB01(101514)	Aqueous	10/15/2014 1200	10/16/2014
007	RB-01(101414)	Aqueous	10/14/2014 1500	10/16/2014
008	PMR1FCA-09(101514)	Aqueous	10/15/2014 1035	10/16/2014
009	PMR1FCA-07(101514)	Aqueous	10/15/2014 1240	10/16/2014
010	DUP-01(101514)	Aqueous	10/15/2014 1200	10/16/2014
011	TRIP BLANK	Aqueous	10/15/2014	10/16/2014

(11 samples)

Executive Summary
Arcadis
Lot Number: PJ16015

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	PMR1FCA-03(101414)	Aqueous	sec-Butylbenzene	8260B	1.3		ug/L	5
001	PMR1FCA-03(101414)	Aqueous	cis-1,2-Dichloroethene	8260B	3.4		ug/L	5
001	PMR1FCA-03(101414)	Aqueous	Naphthalene	8260B	1.3	B	ug/L	6
001	PMR1FCA-03(101414)	Aqueous	Trichloroethene	8260B	27		ug/L	6
002	PMR1FCA-25(101414)	Aqueous	Benzene	8260B	0.14	J	ug/L	7
003	PMR1FCA-5(101414)	Aqueous	Benzene	8260B	0.18	J	ug/L	9
003	PMR1FCA-5(101414)	Aqueous	sec-Butylbenzene	8260B	1.6		ug/L	9
003	PMR1FCA-5(101414)	Aqueous	cis-1,2-Dichloroethene	8260B	0.81		ug/L	9
003	PMR1FCA-5(101414)	Aqueous	Naphthalene	8260B	0.99	B	ug/L	10
003	PMR1FCA-5(101414)	Aqueous	Toluene	8260B	0.24	J	ug/L	10
003	PMR1FCA-5(101414)	Aqueous	Trichloroethene	8260B	3.2		ug/L	10
004	PMR1FCA-26(101514)	Aqueous	Benzene	8260B	0.13	J	ug/L	11
004	PMR1FCA-26(101514)	Aqueous	Carbon disulfide	8260B	1.6		ug/L	11
004	PMR1FCA-26(101514)	Aqueous	Chloromethane (Methyl chloride)	8260B	0.18	J	ug/L	11
004	PMR1FCA-26(101514)	Aqueous	1,1-Dichloroethene	8260B	0.66		ug/L	11
004	PMR1FCA-26(101514)	Aqueous	cis-1,2-Dichloroethene	8260B	73		ug/L	11
004	PMR1FCA-26(101514)	Aqueous	trans-1,2-Dichloroethene	8260B	0.65		ug/L	11
004	PMR1FCA-26(101514)	Aqueous	Naphthalene	8260B	0.46	BJ	ug/L	12
004	PMR1FCA-26(101514)	Aqueous	Trichloroethene	8260B	110		ug/L	12
005	PMR1FCA-1(101514)	Aqueous	cis-1,2-Dichloroethene	8260B	5.6		ug/L	13
005	PMR1FCA-1(101514)	Aqueous	Naphthalene	8260B	0.27	BJ	ug/L	14
005	PMR1FCA-1(101514)	Aqueous	Trichloroethene	8260B	45		ug/L	14
008	PMR1FCA-09(101514)	Aqueous	cis-1,2-Dichloroethene	8260B	0.38	J	ug/L	19
008	PMR1FCA-09(101514)	Aqueous	Trichloroethene	8260B	0.63		ug/L	20
009	PMR1FCA-07(101514)	Aqueous	Benzene	8260B	0.22	J	ug/L	21
009	PMR1FCA-07(101514)	Aqueous	sec-Butylbenzene	8260B	0.87		ug/L	21
009	PMR1FCA-07(101514)	Aqueous	cis-1,2-Dichloroethene	8260B	0.95		ug/L	21
009	PMR1FCA-07(101514)	Aqueous	p-Isopropyltoluene	8260B	0.62		ug/L	21
009	PMR1FCA-07(101514)	Aqueous	Naphthalene	8260B	0.32	BJ	ug/L	22
009	PMR1FCA-07(101514)	Aqueous	Trichloroethene	8260B	4.0		ug/L	22
010	DUP-01(101514)	Aqueous	cis-1,2-Dichloroethene	8260B	0.41	J	ug/L	23
010	DUP-01(101514)	Aqueous	Trichloroethene	8260B	0.57		ug/L	24

(32 detections)

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-001**
Description: **PMR1FCA-03(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1325**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0508	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	**135-98-8**	**8260B**	**1.3**		**0.50**	**0.010**	**ug/L**	**1**
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**3.4**		**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-001**
Description: **PMR1FCA-03(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1325**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0508	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**1.3**	**B**	**0.50**	**0.12**	**ug/L**	**1**
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**27**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-120
Toluene-d8		109	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-002**
Description: **PMR1FCA-25(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1145**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0206	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	**71-43-2**	**8260B**	**0.14**	**J**	**0.50**	**0.027**	**ug/L**	**1**
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		0.50	0.087	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-002**
Description: **PMR1FCA-25(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1145**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0206	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	79-01-6	8260B	ND		0.50	0.024	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-120
Toluene-d8		107	85-120
Bromofluorobenzene		104	75-120

PQL = Practical quantitation limit
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E = Quantitation of compound exceeded the calibration range
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Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-003**
Description: **PMR1FCA-5(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1415**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0229	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	**71-43-2**	**8260B**	**0.18**	**J**	**0.50**	**0.027**	**ug/L**	**1**
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	**135-98-8**	**8260B**	**1.6**		**0.50**	**0.010**	**ug/L**	**1**
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**0.81**		**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-003**
Description: **PMR1FCA-5(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1415**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0229	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**0.99**	**B**	**0.50**	**0.12**	**ug/L**	**1**
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	**108-88-3**	**8260B**	**0.24**	**J**	**0.50**	**0.17**	**ug/L**	**1**
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**3.2**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		109	70-120
Toluene-d8		107	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-004**
Description: **PMR1FCA-26(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1000**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0252	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	**71-43-2**	**8260B**	**0.13**	**J**	**0.50**	**0.027**	**ug/L**	**1**
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND	S	0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	**75-15-0**	**8260B**	**1.6**		**0.50**	**0.097**	**ug/L**	**1**
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	**74-87-3**	**8260B**	**0.18**	**J**	**0.50**	**0.17**	**ug/L**	**1**
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	**75-35-4**	**8260B**	**0.66**		**0.50**	**0.094**	**ug/L**	**1**
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**73**		**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	**156-60-5**	**8260B**	**0.65**		**0.50**	**0.079**	**ug/L**	**1**
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-004**
Description: **PMR1FCA-26(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1000**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0252	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**0.46**	**BJ**	**0.50**	**0.12**	**ug/L**	**1**
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**110**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		109	70-120
Toluene-d8		107	85-120
Bromofluorobenzene		105	75-120

PQL = Practical quantitation limit
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H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-005**
Description: **PMR1FCA-1(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1135**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0315	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**5.6**		**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-005**
Description: **PMR1FCA-1(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1135**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0315	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**0.27**	**BJ**	**0.50**	**0.12**	**ug/L**	**1**
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**45**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-120
Toluene-d8		108	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-006**
Description: **RB01(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1200**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0338	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		0.50	0.087	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-006**
Description: **RB01(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1200**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0338	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	79-01-6	8260B	ND		0.50	0.024	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-120
Toluene-d8		109	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-007**
Description: **RB-01(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1500**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0118	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		0.50	0.087	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-007**
Description: **RB-01(101414)**
Matrix: **Aqueous**
Date Sampled: **10/14/2014 1500**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0118	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	79-01-6	8260B	ND		0.50	0.024	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		105	70-120
Toluene-d8		106	85-120
Bromofluorobenzene		104	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-008**
Description: **PMR1FCA-09(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1035**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0401	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**0.38**	**J**	**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-008**
Description: **PMR1FCA-09(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1035**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0401	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**0.63**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-120
Toluene-d8		108	85-120
Bromofluorobenzene		105	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-009**
Description: **PMR1FCA-07(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1240**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0423	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	**71-43-2**	**8260B**	**0.22**	**J**	**0.50**	**0.027**	**ug/L**	**1**
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	**135-98-8**	**8260B**	**0.87**		**0.50**	**0.010**	**ug/L**	**1**
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**0.95**		**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	**99-87-6**	**8260B**	**0.62**		**0.50**	**0.018**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-009**
Description: **PMR1FCA-07(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1240**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0423	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**0.32**	**BJ**	**0.50**	**0.12**	**ug/L**	**1**
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**4.0**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		110	70-120
Toluene-d8		109	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-010**
Description: **DUP-01(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1200**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0446	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	**156-59-2**	**8260B**	**0.41**	**J**	**0.50**	**0.087**	**ug/L**	**1**
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-010**
Description: **DUP-01(101514)**
Matrix: **Aqueous**
Date Sampled: **10/15/2014 1200**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0446	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	**79-01-6**	**8260B**	**0.57**		**0.50**	**0.024**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		109	70-120
Toluene-d8		107	85-120
Bromofluorobenzene		104	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-011**
Description: **TRIP BLANK**
Matrix: **Aqueous**
Date Sampled: **10/15/2014**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0144	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acetone	67-64-1	8260B	ND		10	3.3	ug/L	1
Benzene	71-43-2	8260B	ND		0.50	0.027	ug/L	1
Bromobenzene	108-86-1	8260B	ND		0.50	0.027	ug/L	1
Bromochloromethane	74-97-5	8260B	ND		0.50	0.055	ug/L	1
Bromodichloromethane	75-27-4	8260B	ND		0.50	0.17	ug/L	1
Bromoform	75-25-2	8260B	ND		0.50	0.010	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		0.50	0.20	ug/L	1
2-Butanone (MEK)	78-93-3	8260B	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260B	ND		0.50	0.017	ug/L	1
sec-Butylbenzene	135-98-8	8260B	ND		0.50	0.010	ug/L	1
tert-Butylbenzene	98-06-6	8260B	ND		0.50	0.037	ug/L	1
Carbon disulfide	75-15-0	8260B	ND		0.50	0.097	ug/L	1
Carbon tetrachloride	56-23-5	8260B	ND		0.50	0.085	ug/L	1
Chlorobenzene	108-90-7	8260B	ND		0.50	0.17	ug/L	1
Chloroethane	75-00-3	8260B	ND		0.50	0.17	ug/L	1
Chloroform	67-66-3	8260B	ND		0.50	0.17	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		0.50	0.17	ug/L	1
2-Chlorotoluene	95-49-8	8260B	ND		0.50	0.059	ug/L	1
4-Chlorotoluene	106-43-4	8260B	ND		0.50	0.019	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		0.50	0.069	ug/L	1
Dibromochloromethane	124-48-1	8260B	ND		0.50	0.17	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		0.50	0.061	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260B	ND		0.50	0.094	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		0.50	0.17	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		0.50	0.17	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		0.50	0.17	ug/L	1
Dichlorodifluoromethane	75-71-8	8260B	ND		0.50	0.071	ug/L	1
1,1-Dichloroethane	75-34-3	8260B	ND		0.50	0.054	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		0.50	0.023	ug/L	1
1,1-Dichloroethene	75-35-4	8260B	ND		0.50	0.094	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		0.50	0.087	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		0.50	0.079	ug/L	1
1,2-Dichloropropane	78-87-5	8260B	ND		0.50	0.081	ug/L	1
1,3-Dichloropropane	142-28-9	8260B	ND		0.50	0.019	ug/L	1
2,2-Dichloropropane	594-20-7	8260B	ND		0.50	0.060	ug/L	1
1,1-Dichloropropene	563-58-6	8260B	ND		0.50	0.074	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		0.50	0.090	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		0.50	0.18	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		0.50	0.17	ug/L	1
Hexachlorobutadiene	87-68-3	8260B	ND		0.50	0.17	ug/L	1
2-Hexanone	591-78-6	8260B	ND		10	0.27	ug/L	1
Isopropylbenzene	98-82-8	8260B	ND		0.50	0.029	ug/L	1
p-Isopropyltoluene	99-87-6	8260B	ND		0.50	0.018	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		0.50	0.019	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: **Arcadis**
Laboratory ID: **PJ16015-011**
Description: **TRIP BLANK**
Matrix: **Aqueous**
Date Sampled: **10/15/2014**
Date Received: **10/16/2014**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/23/2014 0144	JJG		58950

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
4-Methyl-2-pentanone	108-10-1	8260B	ND		10	0.31	ug/L	1
Methylene chloride	75-09-2	8260B	ND		0.50	0.17	ug/L	1
Naphthalene	91-20-3	8260B	ND		0.50	0.12	ug/L	1
n-Propylbenzene	103-65-1	8260B	ND		0.50	0.024	ug/L	1
Styrene	100-42-5	8260B	ND		0.50	0.015	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260B	ND		0.50	0.057	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		0.50	0.013	ug/L	1
Tetrachloroethene	127-18-4	8260B	ND		0.50	0.014	ug/L	1
Toluene	108-88-3	8260B	ND		0.50	0.17	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260B	ND		0.50	0.17	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		0.50	0.17	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		0.50	0.029	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		0.50	0.031	ug/L	1
Trichloroethene	79-01-6	8260B	ND		0.50	0.024	ug/L	1
Trichlorofluoromethane	75-69-4	8260B	ND		0.50	0.051	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260B	ND		0.50	0.33	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260B	ND		0.50	0.17	ug/L	1
1,3,5-Trimethylbenzene	108-67-8	8260B	ND		0.50	0.17	ug/L	1
Vinyl chloride	75-01-4	8260B	ND		0.50	0.065	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		0.50	0.17	ug/L	1
m+p - Xylenes	179601-23-1	8260B	ND		0.50	0.17	ug/L	1
o - Xylenes	95-47-6	8260B	ND		0.50	0.17	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-120
Toluene-d8		108	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
Q = Surrogate failure
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
S = MS/MSD failure

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ58950-001
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acetone	ND		1	10	3.3	ug/L	10/22/2014 2355
Benzene	ND		1	0.50	0.027	ug/L	10/22/2014 2355
Bromobenzene	ND		1	0.50	0.027	ug/L	10/22/2014 2355
Bromochloromethane	ND		1	0.50	0.055	ug/L	10/22/2014 2355
Bromodichloromethane	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Bromoform	ND		1	0.50	0.010	ug/L	10/22/2014 2355
Bromomethane (Methyl bromide)	ND		1	0.50	0.20	ug/L	10/22/2014 2355
2-Butanone (MEK)	ND		1	10	2.0	ug/L	10/22/2014 2355
tert-Butylbenzene	ND		1	0.50	0.037	ug/L	10/22/2014 2355
sec-Butylbenzene	ND		1	0.50	0.010	ug/L	10/22/2014 2355
n-Butylbenzene	ND		1	0.50	0.017	ug/L	10/22/2014 2355
Carbon disulfide	ND		1	0.50	0.097	ug/L	10/22/2014 2355
Carbon tetrachloride	ND		1	0.50	0.085	ug/L	10/22/2014 2355
Chlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Chloroethane	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Chloroform	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Chloromethane (Methyl chloride)	ND		1	0.50	0.17	ug/L	10/22/2014 2355
4-Chlorotoluene	ND		1	0.50	0.019	ug/L	10/22/2014 2355
2-Chlorotoluene	ND		1	0.50	0.059	ug/L	10/22/2014 2355
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.069	ug/L	10/22/2014 2355
Dibromochloromethane	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,2-Dibromoethane (EDB)	ND		1	0.50	0.061	ug/L	10/22/2014 2355
Dibromomethane (Methylene bromide)	ND		1	0.50	0.094	ug/L	10/22/2014 2355
1,4-Dichlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,2-Dichlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,3-Dichlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Dichlorodifluoromethane	ND		1	0.50	0.071	ug/L	10/22/2014 2355
1,2-Dichloroethane	ND		1	0.50	0.023	ug/L	10/22/2014 2355
1,1-Dichloroethane	ND		1	0.50	0.054	ug/L	10/22/2014 2355
trans-1,2-Dichloroethene	ND		1	0.50	0.079	ug/L	10/22/2014 2355
1,1-Dichloroethene	ND		1	0.50	0.094	ug/L	10/22/2014 2355
cis-1,2-Dichloroethene	ND		1	0.50	0.087	ug/L	10/22/2014 2355
2,2-Dichloropropane	ND		1	0.50	0.060	ug/L	10/22/2014 2355
1,2-Dichloropropane	ND		1	0.50	0.081	ug/L	10/22/2014 2355
1,3-Dichloropropane	ND		1	0.50	0.019	ug/L	10/22/2014 2355
trans-1,3-Dichloropropene	ND		1	0.50	0.18	ug/L	10/22/2014 2355
1,1-Dichloropropene	ND		1	0.50	0.074	ug/L	10/22/2014 2355
cis-1,3-Dichloropropene	ND		1	0.50	0.090	ug/L	10/22/2014 2355
Ethylbenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Hexachlorobutadiene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
2-Hexanone	ND		1	10	0.27	ug/L	10/22/2014 2355
Isopropylbenzene	ND		1	0.50	0.029	ug/L	10/22/2014 2355
p-Isopropyltoluene	ND		1	0.50	0.018	ug/L	10/22/2014 2355
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.019	ug/L	10/22/2014 2355

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ58950-001
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
4-Methyl-2-pentanone	ND		1	10	0.31	ug/L	10/22/2014 2355
Methylene chloride	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Naphthalene	**0.31**	**J**	**1**	**0.50**	**0.12**	**ug/L**	**10/22/2014 2355**
n-Propylbenzene	ND		1	0.50	0.024	ug/L	10/22/2014 2355
Styrene	ND		1	0.50	0.015	ug/L	10/22/2014 2355
1,1,1,2-Tetrachloroethane	ND		1	0.50	0.057	ug/L	10/22/2014 2355
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.013	ug/L	10/22/2014 2355
Tetrachloroethene	ND		1	0.50	0.014	ug/L	10/22/2014 2355
Toluene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,2,3-Trichlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,2,4-Trichlorobenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,1,1-Trichloroethane	ND		1	0.50	0.029	ug/L	10/22/2014 2355
1,1,2-Trichloroethane	ND		1	0.50	0.031	ug/L	10/22/2014 2355
Trichloroethene	ND		1	0.50	0.024	ug/L	10/22/2014 2355
Trichlorofluoromethane	ND		1	0.50	0.051	ug/L	10/22/2014 2355
1,2,3-Trichloropropane	ND		1	0.50	0.33	ug/L	10/22/2014 2355
1,3,5-Trimethylbenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
1,2,4-Trimethylbenzene	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Vinyl chloride	ND		1	0.50	0.065	ug/L	10/22/2014 2355
o - Xylenes	ND		1	0.50	0.17	ug/L	10/22/2014 2355
m+p - Xylenes	ND		1	0.50	0.17	ug/L	10/22/2014 2355
Xylenes (total)	ND		1	0.50	0.17	ug/L	10/22/2014 2355

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		107	75-120
1,2-Dichloroethane-d4		109	70-120
Toluene-d8		109	85-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ58950-002
Batch: 58950
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	100	90		1	90	40-140	10/22/2014 2247
Benzene	50	52		1	104	80-120	10/22/2014 2247
Bromobenzene	50	51		1	101	75-125	10/22/2014 2247
Bromochloromethane	50	51		1	102	75-120	10/22/2014 2247
Bromodichloromethane	50	53		1	106	75-120	10/22/2014 2247
Bromoform	50	44		1	89	70-130	10/22/2014 2247
Bromomethane (Methyl bromide)	50	52		1	105	30-145	10/22/2014 2247
2-Butanone (MEK)	100	95		1	95	30-150	10/22/2014 2247
tert-Butylbenzene	50	52		1	103	70-130	10/22/2014 2247
sec-Butylbenzene	50	52		1	104	70-130	10/22/2014 2247
n-Butylbenzene	50	54		1	107	70-130	10/22/2014 2247
Carbon disulfide	50	60		1	119	35-160	10/22/2014 2247
Carbon tetrachloride	50	55		1	110	65-140	10/22/2014 2247
Chlorobenzene	50	51		1	102	80-120	10/22/2014 2247
Chloroethane	50	54		1	108	60-135	10/22/2014 2247
Chloroform	50	53		1	106	65-135	10/22/2014 2247
Chloromethane (Methyl chloride)	50	57		1	114	40-125	10/22/2014 2247
4-Chlorotoluene	50	51		1	102	75-130	10/22/2014 2247
2-Chlorotoluene	50	51		1	102	75-125	10/22/2014 2247
1,2-Dibromo-3-chloropropane (DBCP)	50	50		1	99	50-130	10/22/2014 2247
Dibromochloromethane	50	54		1	109	60-135	10/22/2014 2247
1,2-Dibromoethane (EDB)	50	51		1	103	80-120	10/22/2014 2247
Dibromomethane (Methylene bromide)	50	51		1	102	75-125	10/22/2014 2247
1,4-Dichlorobenzene	50	50		1	101	75-125	10/22/2014 2247
1,2-Dichlorobenzene	50	50		1	100	70-120	10/22/2014 2247
1,3-Dichlorobenzene	50	51		1	102	75-125	10/22/2014 2247
Dichlorodifluoromethane	50	67		1	134	30-155	10/22/2014 2247
1,2-Dichloroethane	50	53		1	105	70-130	10/22/2014 2247
1,1-Dichloroethane	50	52		1	105	70-135	10/22/2014 2247
trans-1,2-Dichloroethene	50	53		1	106	60-140	10/22/2014 2247
1,1-Dichloroethene	50	55		1	110	70-130	10/22/2014 2247
cis-1,2-Dichloroethene	50	52		1	105	70-125	10/22/2014 2247
2,2-Dichloropropane	50	58		1	117	70-130	10/22/2014 2247
1,2-Dichloropropane	50	52		1	104	75-125	10/22/2014 2247
1,3-Dichloropropane	50	51		1	102	75-125	10/22/2014 2247
trans-1,3-Dichloropropene	50	56		1	113	55-140	10/22/2014 2247
1,1-Dichloropropene	50	52		1	105	75-130	10/22/2014 2247
cis-1,3-Dichloropropene	50	55		1	111	70-130	10/22/2014 2247
Ethylbenzene	50	52		1	104	75-125	10/22/2014 2247
Hexachlorobutadiene	50	57		1	113	70-130	10/22/2014 2247
2-Hexanone	100	96		1	96	55-130	10/22/2014 2247
Isopropylbenzene	50	51		1	103	75-125	10/22/2014 2247
p-Isopropyltoluene	50	53		1	105	70-130	10/22/2014 2247
Methyl tertiary butyl ether (MTBE)	50	51		1	101	65-125	10/22/2014 2247

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ58950-002
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
4-Methyl-2-pentanone	100	97		1	97	60-135	10/22/2014 2247
Methylene chloride	50	49		1	98	55-140	10/22/2014 2247
Naphthalene	50	47		1	95	55-140	10/22/2014 2247
n-Propylbenzene	50	52		1	105	70-130	10/22/2014 2247
Styrene	50	52		1	105	65-135	10/22/2014 2247
1,1,1,2-Tetrachloroethane	50	52		1	104	80-130	10/22/2014 2247
1,1,2,2-Tetrachloroethane	50	51		1	102	65-130	10/22/2014 2247
Tetrachloroethene	50	53		1	106	45-150	10/22/2014 2247
Toluene	50	52		1	103	75-120	10/22/2014 2247
1,2,3-Trichlorobenzene	50	53		1	106	70-130	10/22/2014 2247
1,2,4-Trichlorobenzene	50	52		1	105	65-135	10/22/2014 2247
1,1,1-Trichloroethane	50	55		1	109	65-130	10/22/2014 2247
1,1,2-Trichloroethane	50	49		1	98	75-125	10/22/2014 2247
Trichloroethene	50	53		1	105	70-125	10/22/2014 2247
Trichlorofluoromethane	50	58		1	115	60-145	10/22/2014 2247
1,2,3-Trichloropropane	50	49		1	97	75-125	10/22/2014 2247
1,3,5-Trimethylbenzene	50	51		1	102	75-130	10/22/2014 2247
1,2,4-Trimethylbenzene	50	51		1	102	75-130	10/22/2014 2247
Vinyl chloride	50	56		1	112	50-145	10/22/2014 2247
o - Xylenes	50	52		1	104	80-120	10/22/2014 2247
m+p - Xylenes	50	52		1	105	75-130	10/22/2014 2247
Xylenes (total)	100	100		1	104	80-120	10/22/2014 2247

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	75-120
1,2-Dichloroethane-d4		106	70-120
Toluene-d8		109	85-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ58950-003
Batch: 58950
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	100	86		1	86	5.2	40-140	30	10/22/2014 2310
Benzene	50	51		1	102	2.1	80-120	30	10/22/2014 2310
Bromobenzene	50	50		1	100	1.7	75-125	20	10/22/2014 2310
Bromochloromethane	50	51		1	102	0.016	75-120	20	10/22/2014 2310
Bromodichloromethane	50	52		1	104	1.7	75-120	30	10/22/2014 2310
Bromoform	50	43		1	87	2.4	70-130	30	10/22/2014 2310
Bromomethane (Methyl bromide)	50	53		1	106	0.99	30-145	30	10/22/2014 2310
2-Butanone (MEK)	100	99		1	99	3.2	30-150	30	10/22/2014 2310
tert-Butylbenzene	50	51		1	101	2.1	70-130	20	10/22/2014 2310
sec-Butylbenzene	50	51		1	101	2.1	70-130	20	10/22/2014 2310
n-Butylbenzene	50	52		1	105	2.2	70-130	20	10/22/2014 2310
Carbon disulfide	50	58		1	116	2.5	35-160	30	10/22/2014 2310
Carbon tetrachloride	50	53		1	106	4.4	65-140	30	10/22/2014 2310
Chlorobenzene	50	50		1	101	1.7	80-120	30	10/22/2014 2310
Chloroethane	50	52		1	105	3.2	60-135	30	10/22/2014 2310
Chloroform	50	52		1	103	2.2	65-135	30	10/22/2014 2310
Chloromethane (Methyl chloride)	50	55		1	109	4.6	40-125	30	10/22/2014 2310
4-Chlorotoluene	50	50		1	99	2.7	75-130	20	10/22/2014 2310
2-Chlorotoluene	50	50		1	99	3.2	75-125	20	10/22/2014 2310
1,2-Dibromo-3-chloropropane (DBCP)	50	48		1	97	2.5	50-130	30	10/22/2014 2310
Dibromochloromethane	50	52		1	105	3.8	60-135	30	10/22/2014 2310
1,2-Dibromoethane (EDB)	50	50		1	101	1.6	80-120	30	10/22/2014 2310
Dibromomethane (Methylene bromide)	50	50		1	101	1.4	75-125	20	10/22/2014 2310
1,4-Dichlorobenzene	50	49		1	99	1.9	75-125	30	10/22/2014 2310
1,2-Dichlorobenzene	50	49		1	97	3.0	70-120	30	10/22/2014 2310
1,3-Dichlorobenzene	50	50		1	100	1.9	75-125	30	10/22/2014 2310
Dichlorodifluoromethane	50	65		1	129	3.9	30-155	30	10/22/2014 2310
1,2-Dichloroethane	50	52		1	104	0.57	70-130	30	10/22/2014 2310
1,1-Dichloroethane	50	51		1	102	2.1	70-135	30	10/22/2014 2310
trans-1,2-Dichloroethene	50	52		1	104	1.8	60-140	30	10/22/2014 2310
1,1-Dichloroethene	50	53		1	107	3.1	70-130	30	10/22/2014 2310
cis-1,2-Dichloroethene	50	51		1	102	2.7	70-125	30	10/22/2014 2310
2,2-Dichloropropane	50	54		1	108	7.6	70-130	20	10/22/2014 2310
1,2-Dichloropropane	50	51		1	102	2.2	75-125	30	10/22/2014 2310
1,3-Dichloropropane	50	50		1	101	1.5	75-125	20	10/22/2014 2310
trans-1,3-Dichloropropene	50	56		1	111	0.94	55-140	30	10/22/2014 2310
1,1-Dichloropropene	50	52		1	104	0.31	75-130	20	10/22/2014 2310
cis-1,3-Dichloropropene	50	54		1	108	2.5	70-130	30	10/22/2014 2310
Ethylbenzene	50	51		1	102	1.8	75-125	30	10/22/2014 2310
Hexachlorobutadiene	50	53		1	107	6.2	70-130	20	10/22/2014 2310
2-Hexanone	100	97		1	97	0.70	55-130	30	10/22/2014 2310
Isopropylbenzene	50	50		1	101	1.7	75-125	30	10/22/2014 2310
p-Isopropyltoluene	50	52		1	104	1.3	70-130	20	10/22/2014 2310
Methyl tertiary butyl ether (MTBE)	50	52		1	103	1.6	65-125	30	10/22/2014 2310

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ58950-003
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
4-Methyl-2-pentanone	100	96		1	96	1.3	60-135	30	10/22/2014 2310
Methylene chloride	50	48		1	95	2.4	55-140	30	10/22/2014 2310
Naphthalene	50	46		1	93	1.9	55-140	30	10/22/2014 2310
n-Propylbenzene	50	52		1	104	1.1	70-130	20	10/22/2014 2310
Styrene	50	52		1	104	1.1	65-135	30	10/22/2014 2310
1,1,1,2-Tetrachloroethane	50	50		1	100	3.7	80-130	20	10/22/2014 2310
1,1,2,2-Tetrachloroethane	50	49		1	99	3.1	65-130	30	10/22/2014 2310
Tetrachloroethene	50	52		1	105	0.96	45-150	30	10/22/2014 2310
Toluene	50	50		1	100	3.2	75-120	30	10/22/2014 2310
1,2,3-Trichlorobenzene	50	52		1	103	2.4	70-130	20	10/22/2014 2310
1,2,4-Trichlorobenzene	50	50		1	100	4.3	65-135	30	10/22/2014 2310
1,1,1-Trichloroethane	50	53		1	105	3.8	65-130	30	10/22/2014 2310
1,1,2-Trichloroethane	50	48		1	97	0.96	75-125	30	10/22/2014 2310
Trichloroethene	50	52		1	104	1.5	70-125	30	10/22/2014 2310
Trichlorofluoromethane	50	55		1	110	4.9	60-145	30	10/22/2014 2310
1,2,3-Trichloropropane	50	49		1	97	0.0021	75-125	20	10/22/2014 2310
1,3,5-Trimethylbenzene	50	50		1	99	2.6	75-130	20	10/22/2014 2310
1,2,4-Trimethylbenzene	50	50		1	100	1.9	75-130	20	10/22/2014 2310
Vinyl chloride	50	54		1	109	2.9	50-145	30	10/22/2014 2310
o - Xylenes	50	51		1	102	1.7	80-120	20	10/22/2014 2310
m+p - Xylenes	50	51		1	103	1.9	75-130	20	10/22/2014 2310
Xylenes (total)	100	100		1	102	1.8	80-120	30	10/22/2014 2310

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	75-120
1,2-Dichloroethane-d4		104	70-120
Toluene-d8		108	85-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MS

Sample ID: PJ16015-004MS
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	ND	100	97		1	97	40-140	10/23/2014 0748
Benzene	0.13	50	56		1	111	80-120	10/23/2014 0748
Bromobenzene	ND	50	52		1	105	75-125	10/23/2014 0748
Bromochloromethane	ND	50	52		1	104	75-120	10/23/2014 0748
Bromodichloromethane	ND	50	52		1	105	75-120	10/23/2014 0748
Bromoform	ND	50	34	N	1	67	70-130	10/23/2014 0748
Bromomethane (Methyl bromide)	ND	50	52		1	104	30-145	10/23/2014 0748
2-Butanone (MEK)	ND	100	110		1	107	30-150	10/23/2014 0748
n-Butylbenzene	ND	50	53		1	106	70-130	10/23/2014 0748
sec-Butylbenzene	ND	50	54		1	108	70-130	10/23/2014 0748
tert-Butylbenzene	ND	50	54		1	107	70-130	10/23/2014 0748
Carbon disulfide	1.6	50	64		1	126	35-160	10/23/2014 0748
Carbon tetrachloride	ND	50	56		1	111	65-140	10/23/2014 0748
Chlorobenzene	ND	50	54		1	107	80-120	10/23/2014 0748
Chloroethane	ND	50	57		1	114	60-135	10/23/2014 0748
Chloroform	ND	50	55		1	110	65-135	10/23/2014 0748
Chloromethane (Methyl chloride)	0.18	50	60		1	119	40-125	10/23/2014 0748
2-Chlorotoluene	ND	50	53		1	106	75-125	10/23/2014 0748
4-Chlorotoluene	ND	50	53		1	106	75-130	10/23/2014 0748
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	50		1	99	50-130	10/23/2014 0748
Dibromochloromethane	ND	50	49		1	97	60-135	10/23/2014 0748
1,2-Dibromoethane (EDB)	ND	50	54		1	107	80-120	10/23/2014 0748
Dibromomethane (Methylene bromide)	ND	50	53		1	106	75-125	10/23/2014 0748
1,2-Dichlorobenzene	ND	50	51		1	102	70-120	10/23/2014 0748
1,3-Dichlorobenzene	ND	50	52		1	104	75-125	10/23/2014 0748
1,4-Dichlorobenzene	ND	50	51		1	102	75-125	10/23/2014 0748
Dichlorodifluoromethane	ND	50	72		1	144	30-155	10/23/2014 0748
1,1-Dichloroethane	ND	50	55		1	110	70-135	10/23/2014 0748
1,2-Dichloroethane	ND	50	55		1	110	70-130	10/23/2014 0748
1,1-Dichloroethene	0.66	50	60		1	118	70-130	10/23/2014 0748
cis-1,2-Dichloroethene	73	50	130		1	105	70-125	10/23/2014 0748
trans-1,2-Dichloroethene	0.65	50	57		1	112	60-140	10/23/2014 0748
1,2-Dichloropropane	ND	50	54		1	108	75-125	10/23/2014 0748
1,3-Dichloropropane	ND	50	53		1	106	75-125	10/23/2014 0748
2,2-Dichloropropane	ND	50	48		1	97	70-130	10/23/2014 0748
1,1-Dichloropropene	ND	50	56		1	112	75-130	10/23/2014 0748
cis-1,3-Dichloropropene	ND	50	51		1	102	70-130	10/23/2014 0748
trans-1,3-Dichloropropene	ND	50	50		1	100	55-140	10/23/2014 0748
Ethylbenzene	ND	50	54		1	109	75-125	10/23/2014 0748
Hexachlorobutadiene	ND	50	49		1	98	70-130	10/23/2014 0748
2-Hexanone	ND	100	110		1	108	55-130	10/23/2014 0748
Isopropylbenzene	ND	50	54		1	108	75-125	10/23/2014 0748
p-Isopropyltoluene	ND	50	54		1	108	70-130	10/23/2014 0748
Methyl tertiary butyl ether (MTBE)	ND	50	51		1	103	65-125	10/23/2014 0748

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MS

Sample ID: PJ16015-004MS
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
4-Methyl-2-pentanone	ND	100	110		1	105	60-135	10/23/2014 0748
Methylene chloride	ND	50	50		1	101	55-140	10/23/2014 0748
Naphthalene	0.46	50	45		1	89	55-140	10/23/2014 0748
n-Propylbenzene	ND	50	55		1	110	70-130	10/23/2014 0748
Styrene	ND	50	50		1	101	65-135	10/23/2014 0748
1,1,1,2-Tetrachloroethane	ND	50	52		1	103	80-130	10/23/2014 0748
1,1,2,2-Tetrachloroethane	ND	50	54		1	107	65-130	10/23/2014 0748
Tetrachloroethene	ND	50	56		1	112	45-150	10/23/2014 0748
Toluene	ND	50	54		1	109	75-120	10/23/2014 0748
1,2,3-Trichlorobenzene	ND	50	47		1	94	70-130	10/23/2014 0748
1,2,4-Trichlorobenzene	ND	50	46		1	93	65-135	10/23/2014 0748
1,1,1-Trichloroethane	ND	50	57		1	113	65-130	10/23/2014 0748
1,1,2-Trichloroethane	ND	50	51		1	101	75-125	10/23/2014 0748
Trichloroethene	110	50	170		1	111	70-125	10/23/2014 0748
Trichlorofluoromethane	ND	50	63		1	125	60-145	10/23/2014 0748
1,2,3-Trichloropropane	ND	50	53		1	106	75-125	10/23/2014 0748
1,2,4-Trimethylbenzene	ND	50	51		1	102	75-130	10/23/2014 0748
1,3,5-Trimethylbenzene	ND	50	50		1	101	75-130	10/23/2014 0748
Vinyl chloride	ND	50	61		1	123	50-145	10/23/2014 0748
Xylenes (total)	ND	100	110		1	108	80-120	10/23/2014 0748
m+p - Xylenes	ND	50	54		1	108	75-130	10/23/2014 0748
o - Xylenes	ND	50	54		1	107	80-120	10/23/2014 0748

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		105	70-120
Toluene-d8		109	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MSD

Sample ID: PJ16015-004MD
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	100	67	+	1	67	36	40-140	30	10/23/2014 0811
Benzene	0.13	50	54		1	108	2.7	80-120	30	10/23/2014 0811
Bromobenzene	ND	50	51		1	103	1.9	75-125	20	10/23/2014 0811
Bromochloromethane	ND	50	50		1	100	3.5	75-120	20	10/23/2014 0811
Bromodichloromethane	ND	50	53		1	105	0.26	75-120	30	10/23/2014 0811
Bromoform	ND	50	34	N	1	67	0.31	70-130	30	10/23/2014 0811
Bromomethane (Methyl bromide)	ND	50	53		1	107	3.0	30-145	30	10/23/2014 0811
2-Butanone (MEK)	ND	100	90		1	90	17	30-150	30	10/23/2014 0811
n-Butylbenzene	ND	50	54		1	109	2.7	70-130	20	10/23/2014 0811
sec-Butylbenzene	ND	50	54		1	108	0.45	70-130	20	10/23/2014 0811
tert-Butylbenzene	ND	50	54		1	108	0.23	70-130	20	10/23/2014 0811
Carbon disulfide	1.6	50	65		1	128	1.4	35-160	30	10/23/2014 0811
Carbon tetrachloride	ND	50	56		1	111	0.00	65-140	30	10/23/2014 0811
Chlorobenzene	ND	50	53		1	106	1.2	80-120	30	10/23/2014 0811
Chloroethane	ND	50	58		1	117	2.8	60-135	30	10/23/2014 0811
Chloroform	ND	50	54		1	107	2.1	65-135	30	10/23/2014 0811
Chloromethane (Methyl chloride)	0.18	50	61		1	122	2.0	40-125	30	10/23/2014 0811
2-Chlorotoluene	ND	50	52		1	104	2.2	75-125	20	10/23/2014 0811
4-Chlorotoluene	ND	50	51		1	103	2.9	75-130	20	10/23/2014 0811
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	52		1	104	4.1	50-130	30	10/23/2014 0811
Dibromochloromethane	ND	50	48		1	96	1.5	60-135	30	10/23/2014 0811
1,2-Dibromoethane (EDB)	ND	50	53		1	105	2.0	80-120	30	10/23/2014 0811
Dibromomethane (Methylene bromide)	ND	50	54		1	107	1.1	75-125	20	10/23/2014 0811
1,2-Dichlorobenzene	ND	50	51		1	102	0.45	70-120	30	10/23/2014 0811
1,3-Dichlorobenzene	ND	50	53		1	105	0.53	75-125	30	10/23/2014 0811
1,4-Dichlorobenzene	ND	50	51		1	101	0.87	75-125	30	10/23/2014 0811
Dichlorodifluoromethane	ND	50	74		1	148	2.8	30-155	30	10/23/2014 0811
1,1-Dichloroethane	ND	50	54		1	108	1.9	70-135	30	10/23/2014 0811
1,2-Dichloroethane	ND	50	51		1	102	7.9	70-130	30	10/23/2014 0811
1,1-Dichloroethene	0.66	50	60		1	120	1.2	70-130	30	10/23/2014 0811
cis-1,2-Dichloroethene	73	50	130		1	104	0.47	70-125	30	10/23/2014 0811
trans-1,2-Dichloroethene	0.65	50	57		1	112	0.63	60-140	30	10/23/2014 0811
1,2-Dichloropropane	ND	50	54		1	108	0.14	75-125	30	10/23/2014 0811
1,3-Dichloropropane	ND	50	52		1	104	1.9	75-125	20	10/23/2014 0811
2,2-Dichloropropane	ND	50	51		1	102	5.4	70-130	20	10/23/2014 0811
1,1-Dichloropropene	ND	50	57		1	115	2.6	75-130	20	10/23/2014 0811
cis-1,3-Dichloropropene	ND	50	53		1	105	3.2	70-130	30	10/23/2014 0811
trans-1,3-Dichloropropene	ND	50	51		1	103	2.6	55-140	30	10/23/2014 0811
Ethylbenzene	ND	50	54		1	109	0.14	75-125	30	10/23/2014 0811
Hexachlorobutadiene	ND	50	57		1	115	16	70-130	20	10/23/2014 0811
2-Hexanone	ND	100	110		1	105	2.9	55-130	30	10/23/2014 0811
Isopropylbenzene	ND	50	53		1	107	1.2	75-125	30	10/23/2014 0811
p-Isopropyltoluene	ND	50	54		1	109	1.0	70-130	20	10/23/2014 0811
Methyl tertiary butyl ether (MTBE)	ND	50	48		1	97	5.9	65-125	30	10/23/2014 0811

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MSD

Sample ID: PJ16015-004MD
Batch: 58950
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
4-Methyl-2-pentanone	ND	100	100		1	104	0.78	60-135	30	10/23/2014 0811
Methylene chloride	ND	50	49		1	98	2.6	55-140	30	10/23/2014 0811
Naphthalene	0.46	50	50		1	100	12	55-140	30	10/23/2014 0811
n-Propylbenzene	ND	50	54		1	107	2.0	70-130	20	10/23/2014 0811
Styrene	ND	50	50		1	100	0.62	65-135	30	10/23/2014 0811
1,1,1,2-Tetrachloroethane	ND	50	51		1	102	1.8	80-130	20	10/23/2014 0811
1,1,2,2-Tetrachloroethane	ND	50	52		1	103	3.6	65-130	30	10/23/2014 0811
Tetrachloroethene	ND	50	55		1	111	0.58	45-150	30	10/23/2014 0811
Toluene	ND	50	54		1	107	1.2	75-120	30	10/23/2014 0811
1,2,3-Trichlorobenzene	ND	50	55		1	110	16	70-130	20	10/23/2014 0811
1,2,4-Trichlorobenzene	ND	50	53		1	106	13	65-135	30	10/23/2014 0811
1,1,1-Trichloroethane	ND	50	59		1	118	3.8	65-130	30	10/23/2014 0811
1,1,2-Trichloroethane	ND	50	49		1	98	3.1	75-125	30	10/23/2014 0811
Trichloroethene	110	50	170		1	112	0.33	70-125	30	10/23/2014 0811
Trichlorofluoromethane	ND	50	65		1	130	4.0	60-145	30	10/23/2014 0811
1,2,3-Trichloropropane	ND	50	51		1	102	4.2	75-125	20	10/23/2014 0811
1,2,4-Trimethylbenzene	ND	50	51		1	101	0.33	75-130	20	10/23/2014 0811
1,3,5-Trimethylbenzene	ND	50	49		1	99	1.7	75-130	20	10/23/2014 0811
Vinyl chloride	ND	50	63		1	127	3.1	50-145	30	10/23/2014 0811
Xylenes (total)	ND	100	110		1	107	0.37	80-120	30	10/23/2014 0811
m+p - Xylenes	ND	50	54		1	107	0.58	75-130	20	10/23/2014 0811
o - Xylenes	ND	50	54		1	107	0.16	80-120	20	10/23/2014 0811

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		100	70-120
Toluene-d8		109	85-120
Bromofluorobenzene		106	75-120

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

SHEALY ENVIRONMENTAL SERVICES, INC.

Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

Number 41466

Client: ARCADIS
Address: 1114 Benfield Blvd
City: Millersville, ~~MD~~ | State: MD | Zip Code: 21108
Project Name: Phoenix, ~~AZ~~ Military Reservation
Project No.: GP09MEAD.PHOE.M0001
P.O. No.:

Report to Contact: Keith Shepherd
Sampler's Signature: X
Printed Name: Jordan Bukovsky

Telephone No. / E-mail: 410-923-7826/keith.shepherd@arcadis-us.com
Quote No.:
Analysis (Attach list if more space is needed)
Page 1 of 2

PJ16015

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Grab/Composite	Aqueous	Solid	Non-Aqueous	Unpres.	HNO3	HCl	NaOH	Zn Acet. Kit	VOCs		Remarks / Cooler I.D.
PMR1FCA-03(101414)	10/14/14	1325	G	X					3			X		
PMR1FCA-25(101414)	10/14/14	1145	G	X					3			X		Labeled "FCA-25"
PMR1FCA-5(101414)	10/14/14	1415	G	X					3			X		Labeled "FCA-5"
PMR1FCA-26(101514)	10/15/14	1000	G	X					9			X	Perform MS/MSD	Labeled "FCA-26"
PMR1FCA-1(101514)	10/15/14	1135	G	X					3			X		Labeled "FCA-1"
RB01(101514)	10/15/14	1200	G	X					3			X		
RB-01(101414)	10/14/14	1500	G	X					3			X		
PMR1FCA-09(101515)	10/15/14	1035	G	X					3			X		
PMR1FCA-07(101515)	10/15/14	1240	G	X					3			X		
Dup-01(101514)	10/15/14	1200	G	X					3			X		

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client X Disposal by Lab

Possible Hazard Identification: X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished by: Jordan Bukovsky	10/15/14	1500	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	10/16/14	0910	4. Laboratory received by	10/16/14	0910

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 2.2 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

SHEALY ENVIRONMENTAL SERVICES, INC.

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Chain of Custody Record

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106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.shealylab.com

Number 41467

Client	ARCADIS
Address	1114 Benfield Blvd
City / State / Zip Code	Millersville / MD / 21108
Project Name	Phoenix Military Reservation
Project No.	GP09MEAD.PHOE.MD001
P.O. No.	
Report to Contact	Keith Shepherd
Sampler's Signature	X
Printed Name	Jordan Bukovsky
Telephone No. / E-mail	410-923-7826/keith.shepherd@arcadis-us.com
Quote No.	
Analysis (Attach list if more space is needed)	
Page	2 of 2
	PJ16015

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	HNO3	HAZ99	HCl	NaOH	SOS Kit	VOCs	Remarks / Cooler I.D.
Trip Blank	10/15/14			X						2			X	

Turn Around Time Required (Prior lab approval required for expedited TAT.)	Sample Disposal	Possible Hazard Identification	QC Requirements (Specify)
X Standard ☐ Rush (Specify)	☐ Return to Client X Disposal by Lab	X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by: Jordan Bukovsky	10/15/14	1500	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEX	10/16/14	0910	4. Laboratory received by	10/16/14	0910

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack Receipt Temp. 2.8 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 15

Page 1 of 1
Replaces Date: 03/07/14
Effective Date: 07/15/14

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: mcm / 10/16/14 Lot #: P316015

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☑ FedEx ☐ Airborne Exp ☐ Other			
Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?
Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt: /2.4/2.2 °C / / °C / / °C / / °C Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: #3 IR Gun Correction Factor: 0.4 °C Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes ☑	No ☐	NA ☐	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☑	NA ☐	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed on the COC?
Yes ☑	No ☐		7. Were sample IDs listed on all sample containers?
Yes ☑	No ☐		8. Was collection date & time listed on the COC?
Yes ☑	No ☐		9. Was collection date & time listed on all sample containers?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with the COC?
Yes ☑	No ☐		11. Were tests to be performed listed on the COC?
Yes ☑	No ☐		12. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		13. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		14. Was adequate sample volume available?
Yes ☑	No ☐		15. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		16. Were any samples containers missing?
Yes ☐	No ☑		17. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	18. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	19. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	20. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	21. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	22. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	23. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
Yes ☑	No ☐	16845	24. Was the quote number used taken from the container label?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s)_____were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) using SR #_____.			
Sample(s)_____were received with bubbles >6 mm in diameter.			
Sample(s)_____were received with TRC >0.2 mg/L. (If #21 is No)			
SC Drinking Water Project Sample(s) pH verified to be > 2 by _____ Date: _____ Sample(s)_____were not received at a pH of <2 and were adjusted accordingly using SR#_____			
Sample labels applied by: mcm Verified by: mcm Date: 10/16/14			

Comments:

Attachment 3

Data Validation Report (Provided on CD)

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

ARCADIS U.S., Inc.
630 Plaza Drive, Suite 100
Highlands Ranch, CO 80129
ATTN: Mr. Keith Shepherd

November 10, 2014

SUBJECT: Fort Meade, Phoenix Military Reservation, Data Validation

Dear Mr. Shepherd,

Enclosed is the final validation report for the fraction listed below. This SDG was received on October 31, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #33021:

SDG #	**Fraction:**
PJ16015	Volatiles

The data validation was performed under EPA Level II guidelines. The analyses were validated using the following documents, as applicable to each method:

- Fort Meade Site-wide Quality Assurance Project Plan, Rev. 0.0, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng

Pei Geng
Project Manager/Senior Chemist

37 pages-SF

Attachment 1

Level II EDD

LDC #33021 (Arcadis-Highlands Ranch, CO / Fort Meade, Phoenix Military Reservation)

LDC	SDG#	DATE REC'D	(2) DATE DUE	VOA (8260B)																																	
Matrix:	Air/Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	PJ16015	10/31/14	11/14/14	11	0																																
Total	A/PG			11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11

Shaded cells indicate Level IV validation (all other cells are Level II validation). These sample counts do not include MS/MSD, and DUPs

33021ST.wpd

LDC Report# 33021A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Fort Meade, Phoenix Military Reservation
Collection Date:	October 14 through October 15, 2014
LDC Report Date:	November 7, 2014
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level II
Laboratory:	Shealy Environmental Services, Inc.
Sample Delivery Group (SDG):	PJ16015

Sample Identification

PMR1FCA-03(101414)
PMR1FCA-25(101414)
PMR1FCA-5(101414)
PMR1FCA-26(101514)
PMR1FCA-1(101514)
RB01(101514)
RB-01(101414)
PMR1FCA-09(101514)
PMR1FCA-07(101514)
DUP-01(101514)
TRIP BLANK
PMR1FCA-26(101514)MS
PMR1FCA-26(101514)MSD

Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Fort Meade Site-wide Quality Assurance Project Plan (Rev. 0.0, April 2010) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level II.

III. Initial Calibration

Initial calibration data were not reviewed for Level II.

IV. Continuing Calibration

Continuing calibration data were not reviewed for Level II.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
58950MB	10/22/14	Naphthalene	0.31 ug/L	All samples in SDG PJ16015

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
PMR1FCA-03(101414)	Naphthalene	1.3 ug/L	1.3U ug/L
PMR1FCA-5(101414)	Naphthalene	0.99 ug/L	0.99U ug/L
PMR1FCA-26(101514)	Naphthalene	0.46 ug/L	0.50U ug/L
PMR1FCA-1(101514)	Naphthalene	0.27 ug/L	0.50U ug/L
PMR1FCA-07(101514)	Naphthalene	0.32 ug/L	0.50U ug/L

Sample TRIP BLANK was identified as a trip blank. No volatile contaminants were found.

Samples RB01(101514) and RB-01(101414) were identified as rinsate blanks. No volatile contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
PMR1FCA-26(101514)MS/MSD (PMR1FCA-26(101514))	Bromoform	67 (70-130)	67 (70-130)	-	J (all detects) UJ (all non-detects)	A
PMR1FCA-26(101514)MS/MSD (PMR1FCA-26(101514))	Acetone	-	-	36 (≤30)	J (all detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

Internal standards data were not reviewed for Level II.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples PMR1FCA-09(101514) and DUP-01(101514) were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	PMR1FCA-09(101514)	DUP-01(101514)			
cis-1,2-Dichloroethene	0.38	0.41	8 (≤50)	-	-
Trichloroethene	0.63	0.57	10 (≤50)	-	-

Fort Meade, Phoenix Military Reservation
Volatiles - Data Qualification Summary - SDG PJ16015

SDG	Sample	Compound	Flag	A or P	Reason
PJ16015	PMR1FCA-26(101514)	Bromoform	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
PJ16015	PMR1FCA-26(101514)	Acetone	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD)

Fort Meade, Phoenix Military Reservation
Volatiles - Laboratory Blank Data Qualification Summary - SDG PJ16015

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
PJ16015	PMR1FCA-03(101414)	Naphthalene	1.3U ug/L	A
PJ16015	PMR1FCA-5(101414)	Naphthalene	0.99U ug/L	A
PJ16015	PMR1FCA-26(101514)	Naphthalene	0.50U ug/L	A
PJ16015	PMR1FCA-1(101514)	Naphthalene	0.50U ug/L	A
PJ16015	PMR1FCA-07(101514)	Naphthalene	0.50U ug/L	A

Fort Meade, Phoenix Military Reservation
Volatiles - Field Blank Data Qualification Summary - SDG PJ16015

No Sample Data Qualified in this SDG

LDC #: 33021A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/06/14

SDG #: PJ16015 Level II Page: 1 of 1

Laboratory: Shealy Environmental Services Inc. Reviewer: JR

2nd Reviewer: A

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/14 - 15/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 8/10
XVII.	Field blanks	ND	RB = 6, 7 TB = 11

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

Water

1	PMR1FCA-03(101414)	11	TRIP BLANK	21	58950 MB	31	
2	PMR1FCA-25(101414)	12	PMR1FCA-26(101514)MS	22		32	
3	PMR1FCA-5(101414)	13	PMR1FCA-26(101514)MSD	23		33	
4	PMR1FCA-26(101514)	14		24		34	
5	PMR1FCA-1(101514)	15		25		35	
6	RB01(101514)	16		26		36	
7	RB-01(101414)	17		27		37	
8	PMR1FCA-09(101514)	18		28		38	
9	PMR1FCA-07(101514)	19		29		39	
10	DUP-01(101514)	20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 33021 A1

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a method blank associated with every sample in this SDG?
Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 10/22/14
Conc. units: ug/L
Associated Samples: All

Compound	Blank ID	Sample Identification								
	58950 MB	1	3	4	5	9				
(5x) 1.55 MMM	0.31	1.3/U	0.99/U	0.46/0.50U	0.27/0.50U	0.32/0.50U				

Blank analysis date:
Conc. units:
Associated Samples:

Compound	Blank ID	Sample Identification								

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 33021A1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JVG
2nd Reviewer: ✓

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	12/13	X	67 (70-130)	67 (70-130)	( )	4 (ND)	J/UJ/A
		F	( )	( )	36 (30)	↓ ↓	J dets/A
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

LDC #: 33021 A1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤ 50 %)	Qualifications (Parent only)
	8	10		
QQQ	0.38	0.41	8	
S	0.63	0.57	10	

Compound	Concentration ( )		RPD (≤ %	Qualifications (Parent only)

Compound	Concentration ( )		RPD (≤ %	Qualifications (Parent only)

Attachment 4

Field Notes

Location Jacksonville, MD Date 9/2/14

Project / Client Ft Meade PMR

90°F Partly Cloudy 1 of 2

0800 - J. Butovsky & S. McGrane (AUS) onsite
0820 - Completed tailgated safety meeting
0830 - S. McGrane started to show J. Butovsky around to different well locations
- Gauge FCA-13
0900 - S. McGrane shows J. Butovsky treatment system & wells used for Injection & Extraction
0930 - S. McGrane offsite
0937 - Gauge FCA-25
1003 - Gauge FCA-05
1035 - Gauge FCA-07
1056 - Gauge FCA-26
1122 - Gauge FCA-03
1145 - Gauge FCA-09
1200 - Call K. Shepherd (AUS) to see if pump should be pull to gauge FCA-01 (Extraction well)
- Determined to conduct O&M on system first

JB

Location Jacksonville, MD Date 9/2/14

Project / Client Ft. Meade PMR

90°F Partly Cloudy 2 of 2

1210 - Begon System O&M
- Influent Totalizer - 10.3x100 - 1030 gal
- IW-1 Totalizer - 3.7x100 - 370 gal
- IW-2 Totalizer - 3.4x100 - 340 gal
- IW-3 Totalizer - 3.7x100 - 370 gal
- High pressure Switch after transfer pump - 16.16
- After Ball valve - 7.5 psi
- Bag filter - 9 psi
- Pre GAC Drum - 6.5 psi
- In between GAC Drums - 2.5 psi
- IW-1 well head - ~~2.5~~ JB 1.0 psi
- IW-2 well head - 2.5 psi
- IW-3 well head - 0.5 psi
1300 - Sampled DGRINFLUENT(090214)
1305 - System kicked off since tank had pumped down
- Waited for system to refill.
1500 Tank did not totally refill on its own
1510 Turned tank pump (#2) into hand
1515 Sampled DGREFFLUENT(090214)
1520 Sampled DGRMIDGAC(090214)
1600 Packed up & left the Site

JB

Location Jacksonville, MD Date 9/3/14

Project / Client Ft. Meade PMR

85°F Partly Cloudy 1 of 2

0830	- J. Butkovsky + M. Good (AES) onsite
	- Conducted TGSM
	- Calibrated equipment
0930	- Set up on FCA-07
0945	- Started low flow sampling
1025	- Finished sampling FCA-07 + took sample
	- Heard a loud bang sounded like a gun shot
1030	- Found power to be out in remediation shed. Possible transformer blown
1100	- Set up on FCA-25
1120	- Started low flow sampling
1320	- Took sample at FCA-25
1330	- Moved on to FCA-05
1400	- Started low flow
1600	- Sampled FCA-05
1610	- Moved to FCA-26
1615	- Set up on well
1630	- Started low flow
1830	- Sampled FCA-26

JB

Location Jacksonville, MD Date 9/3/14

Project / Client Ft. Meade PMR

2 of 2

1840	Started break down
	Stored equipment in shed
	Compressor was running for system
	Power was restored
1925	J. Butkovsky + M. Good offsite

JB

Location Jacksonville, MD Date 9/4/14

Project / Client Ft. Meade PMR

80°F Sunny 1 of 2

0830 J. Bultousky & M. Good (AMS) onsite
Conduct TGSM & calibrate equipment
0900 Set up on FLA-09
0910 Started low flow ~~system~~ JB
1110 Sampled FLA-09
Moved onto next well
1148 Started low flow on FLA-~~09~~ 03 JB
1348 Sampled FLA-03
took Dup & MS/MSD
Moved onto FLA-01
1430 pulled pump & wanted to gauge well
Interface probe did not work
Called K. Shepherd & was told to continue sampling without probe
1450 Started low flow
1650 Sampled FLA-01
1700 Packed up & headed to system shed

JB

Location Ft. Meade PMR Date 9/4/14

Project / Client Jacksonville, MD

2 of 2

1715 Loaded truck up, tried starting system but it seemed to already be running
1730 Put drum in shed & finished loading equipment
1745 All offsite

JB

Location Ft. Meade PMR Date 10/14/14

Project / Client Jacksonville, MD Ft. Meade

1 of 2

0700 - J. Burkowsky + L. Lamp (AES) onsite
- Conduct TGSM + complete all other H&S paperwork

0730 - Found System compressor running upon arrival
- Went to check system reading numbers + they were the same as last visit
- Called Heath to talk about it no answer left message
- Seems that compressor is running but not compressing air

-0750 - Gauge FCA-07 - DTW - 38.00' TSD - 97.50'
-0758 - Gauge FCA-25 - DTW - 41.04' TSD - 87.92'
-0803 - Gauged FCA-05 - DTW - 38.20' TSD - 76.55'
-0815 - Gauged FCA-13 - DTW - 47.81' TSD - 82.40'
-0823 - Gauged FCA-09 - DTW - 29.80' TSD - 82.37'
-0830 - Gauged FCA-03 DTW - 29.08' TSD - 83.42'
-0833 - Gauged FCA-26 DTW - 34.46' TSD - 74.55'
-0837 - Gauged FCA-01 DTW - 33.07 TSD - 69.48'

0842 - Called Rich Buckmaster to try + figure out system. No answer

JB

Location Ft. Meade PMR Date 10/14/14

Project / Client Jacksonville, MD

2 of 2

-0852 Talked w/ K. Shepherd about what to do with system/compressor Said to call doug Hamilton from Envirotech

-0900 Spoke with D. Hamilton (Envirotech) + said it sounds like the compressor part of the compressor went bad + to take it to Jacks small engine repair in Jacksonville

-1000 Dropped compressor off at Jacks Small engine repair

1035 Back onsite

1130 Started sampling FCA-03

1320 Finished sampling FCA-03

1415 L. Lamp finished sampling FCA-05

1500 All offsite

JB

Location Ft. Meade PMR Date 10/5/14

Project / Client Jacksonville, MD

1 of 1

0700 J. Butkovsky + L. Lamp (AWS) onsite
Conducted TGSM + Completed H+S paperwork
Calibrated YSIs that will be used for groundwater monitoring
0800 J. Butkovsky Started Sampling FCA-09
1030 Finished Sampling FCA-09
1130 Started sampling FCA-07
1235 Finished Sampling FCA-07
1310 Packed up equipment, Locked up Shed + left site
1330 All offsite

JB

Location Phoenix MD Date 11-14-14

Project / Client Ft Meade PMR O&M

0845 - ARCADIS onsite: R Buckmaster
Tailgate H&S Meeting
weather // 35-40°F, sunny, snow cover
objective // system O&M, sample carbon, troubleshoot alarms
0900 - install oil-filled heater
0915 - pump GW sample IDW into treatment tank
0930 - inspection checklist
1000 - Air compressor isn't working seems faulty, hums in motor
Call Keith Shepherd, discuss approach - end O&M activities
1020 - pump IDW through GAC to injection wells
1030 - change low pressure alarm to 4 psi from 0.3 psi
1130 - Mob offsite

11-14-14

1/1

Location Ft Meade, MD Date 11-14-14

Project / Client OU4 AS/SVE O&M

1215 - ARCADIS onsite: R. Buckmaster
Tailgate H&S Meeting
weather // 35°F-40°F, sunny, breezy
objective // fix sensaphone, sample GAC

1230 - set clock on sensaphone, remove J. Radford, add R. Buckmaster
1300 - sample ASSVE GAC-EFF (11/14/14)
- GAC is leaking a lot at bottom edge/underneath
1345 - mob offsite

11-14-14

1/1

Table of Routine Maintenance Activities for the Directed Groundwater Recirculation System Phoenix Military Reservation, Jacksonville, Maryland			
Task	**Completed (Date/Initials)**	**Reference**	**Notes:**
Each Site Visit			
Pipe Manifolds: 1. Check for leaks from pipes and fittings. Repair and replace as necessary	11-14-14 RB		ok
Bag Filter Housing: 1. Inspect for leaks. 2.. Check for trapped air by opening upper vent valve and allow small amount of liquid to flow out. 3. Change out bag filter if sediment has accumulated.	11-14-14 RB		Ok
LGAC Drums: 1. Inspect for leaks or bulging of the drums.	11-14-14 RB		OK
System Operational Parameters: Record the following: 1. Total gallons on the influent totalizer 2. Total gallons on IW-1, IW-2, and IW-3 totalizers. 3. Record pressures while transfer pump is actively moving water through the treatment system at the following locations: -High pressure switch after transfer pump -After ball valve (after transfer pump on effluent line) -On top of bag filer housing -Pre carbon drum and Mid-carbon drum -IW-1, IW-1, and IW-3 effluent lines	11-14-14 RB		Total Inf: 10955.42 IW1: 3553.12 IW2: 3984.97 IW3: 3835.35 system off No Pressure
Extraction/injection Well Vaults: 1. Pull extraction pump (FCA-01) and check for solids build up and fouling and clean as necessary. 2. Open man holes at extraction well (FCA-01) and injection wells (IW01-IW03) and remove water from vault to surface with sump pump, inspect the inside of vault for leaks.	11-14-14 RB		OK
Transfer Pump: 1. Inspect for leaks and record effluent pressure	11-14-14 RB		OK - system off
LGAC Samples: 1. Collect total Influent, Mid-carbon drum, and total effluent VOC GW samples. Sample IDs are: DGRINFLUENT(date) ~~1000~~ DGRMIDGAC(date) ~~1001~~ DGREFFLUENT(date) ~~1002~~	11-14-14 RB		Not Sampled ~~OK~~
Photos: Photo document O&M activities and document any potential issues.	N/A		
Flow Meters: Confirm they are operating as intended and are free of debris, remove and flush as necessary.	11-14-14		ok

RB - Richard Buckmaster

Table of Routine Maintenance Activities for the Directed Groundwater Recirculation System Phoenix Military Reservation, Jacksonville, Maryland			
Task	**Completed (Date/Initials)**	**Reference**	**Notes:**
Air Compressor: 1. Change crankcase oil as necessary. See manual for details on oil specifications. 2. Check entire system for air leakage around fittings, connections, and gaskets, using soap solution and brush. 3. Tighten nuts and cap screws as required. 4. Check and clean compressor valves, replace springs, discs, and seats if worn or damaged. 5. Pull ring on all pressure relief valves to assure proper operation.	11-14-14 RB		oil-less ~~ok~~ broken - doesn't start
Monitoring Well Gauging: 1. Gauge monitoring wells included in the monitoring program.	N/A		
Portable Heater: 1. Ensure the unit is plugged in and operational during the winter months.	11-14-14 RB		OK

RB - Richard Buckmaster

Location Phoenix MD Date 11-20-14

Project / Client Ft Meade PMR OEM

0845- ARCADIS onsite: R. Buckmaster
Tailgate H&S meeting
0900- change low pressure alarm
to 4.0psi - verified
- reset alarm & verify compressor
works
1000- mob offsite
1500- back onsite, reset alarm
- change low pressure to
1.0 psi, verify system
operation
1600- mob offsite

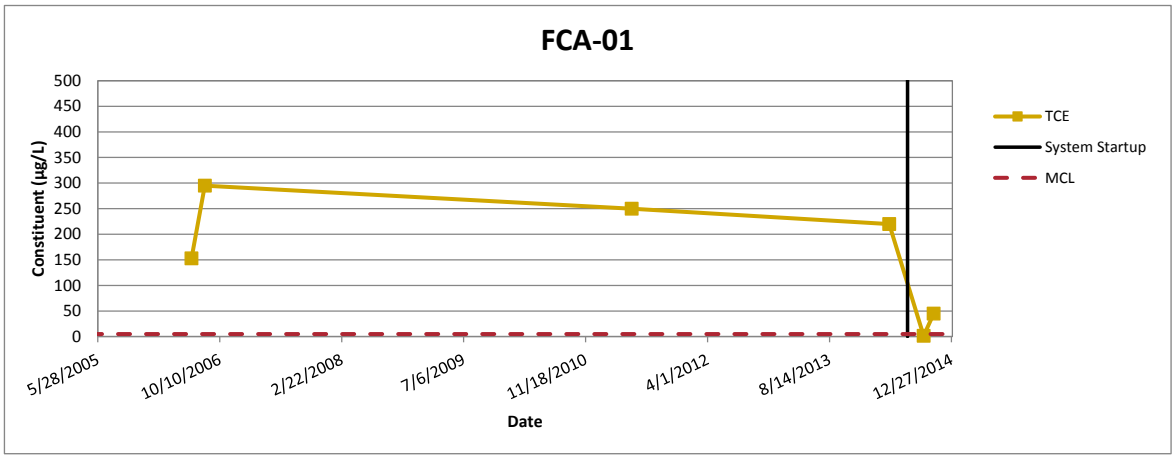
11-20-14

1/1

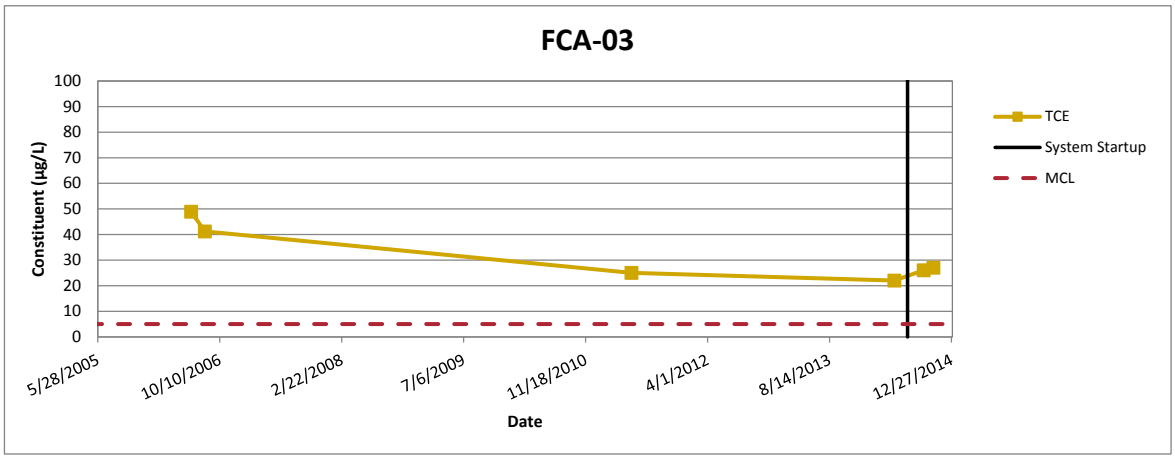
Attachment 5

TCE Trend Plots for FCA-01, FCA-03, and FCA-26

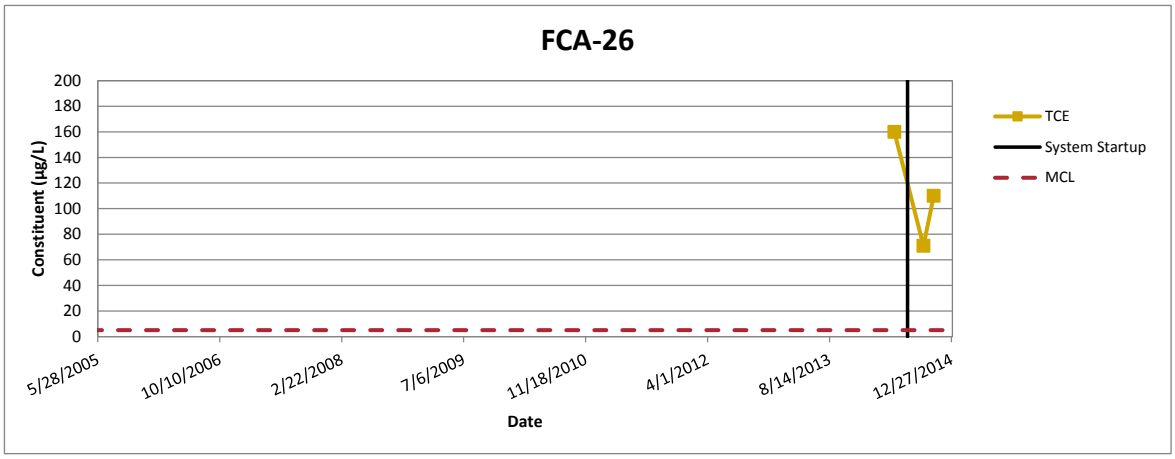
Attachment 5
TCE Trend Plots for FCA-01, FCA-03, and FCA-26
Phoenix Military Reservation
Jacksonville, Maryland



Analyte	SCL	6/16/2006	8/10/2006	5/26/2011	4/16/2014	9/4/2014	10/15/2014
TCE	5	**153**	**295**	**250**	**220**	**1.6**	**45**



Analyte	SCL	6/15/2006	8/10/2006	5/25/2011	5/7/2014	9/4/2014	10/14/2014
TCE	5	**48.9**	**41.2**	**25**	**22**	**26**	**27**



Analyte	SCL	5/7/2014	9/3/2014	10/15/2014
TCE	5	**160**	**71**	**110**

Attachment 5

TCE Trend Plots for FCA-01, FCA-03, and FCA-26

Phoenix Military Reservation

Jacksonville, Maryland

Notes:

Concentrations exceeding the applicable screening criterion are boldfaced and shaded.

Concentrations below the detection limit are represented graphically as zero.

All concentrations are presented in microgram per liter.

TCE - Trichlorethene

SCL - Site Cleanup Level