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Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

P.O. Box 66760
St. Louis, Missouri 63166-6760
Tel 314-674-1000

November 23, 2009

Mr. Kenneth Bardo - LU-9J
U.S. EPA Region V
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

VIA FEDEX

Re: PCB Groundwater Quality Assessment Program
3rd Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 3rd Quarter 2009 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL.

If you have any questions or comments regarding this report, please contact me at (314) 674-3312 or gmrina@solutia.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

PCB Groundwater Quality Assessment Program
3rd Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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IEPA

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IEPA Bureau of Land, 1021 North Grand Avenue East, Springfield, IL 62706

Booz Allen Hamilton

Dan Briller
Booz Allen Hamilton, 8283 Greensboro Drive, McLean, VA 22102

Solutia

Cathy Bumb	575 Maryville Centre Drive, St. Louis, MO 63141
Justin Prien	500 Monsanto Avenue, Sauget, IL 62206-1198

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3RD QUARTER 2009
DATA REPORT

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM

SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared for
Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

November 2009

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # **21562156.00007**

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1.0 INTRODUCTION

This report presents the results of the 3rd Quarter 2009 (3Q09) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with the Revised PCB Groundwater Quality Assessment Program Work Plan (Solutia 2009). The Site location map is presented in **Figure 1**.

The PCB Groundwater Quality Assessment Program well network consists of ten monitoring wells, as follows (**Figure 2**):

- Two source area wells, PMAMW-4S and PMAMW-4D, are screened in the Shallow Hydrogeologic Unit (SHU) (designated with an "S") and Deep Hydrogeologic Unit (DHU) (designated with a "D"), respectively.
- Three well clusters (PMAMW-1S/M, PMAMW-2S/M and PMAMW-3S/M) are located down-gradient of the source area. These clusters include wells screened in the SHU and Middle Hydrogeologic Unit (MHU) (designated with an "M").
- Two individual wells designated PMAMW-5M and PMAMW-6D are located further down-gradient of the source area, with PMAMW-5M screened in the MHU and PMAMW-6D screened in the DHU.

Groundwater samples were collected from nine of the ten monitoring wells during the 3Q09 sampling event. A dense non-aqueous phase liquid (DNAPL) sample was collected from monitoring well PMAMW-4S based on the presence of DNAPL in the monitoring well during sampling.

Field sampling activities were conducted in accordance with the procedures outlined in the Revised PCB Groundwater Quality Assessment Program Work Plan, including the collection of appropriate quality assurance and quality control (QA/QC) samples. The following section summarizes the field investigative procedures.

2.0 FIELD PROCEDURES

URS Corporation (URS) conducted the 3Q09 PCB Groundwater Quality Assessment Program field activities between August 17 and 25, 2009.

Groundwater Level Measurements – An oil/water interface probe was used to measure depth to static groundwater levels and determine the presence of non-aqueous phase liquids (NAPL) in the PCB Groundwater Quality Assessment Program well network. A dense phase NAPL was detected in monitoring well PMAMW-4S. Depth to groundwater measurements were collected from accessible existing wells (i.e., GM-, K- , PSMW- and PMA-series) and piezometers clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the Revised PCB Groundwater Quality Assessment Program Work Plan.

Well gauging information for the 3Q09 event is presented in **Table 1**. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the MHU and DHU is presented as **Figure 3**.

Groundwater Sampling - Low-flow sampling techniques were used for groundwater sample collection. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate no more than 400 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

Drawdown was measured periodically throughout purging to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Once the flow rate and drawdown were stable, field measurements were collected approximately every three to five minutes. Purging of a well was considered complete when the following water quality parameters remained stable over three consecutive flow-thru cell volumes:

Parameter	Stabilization Guidelines
Dissolved Oxygen (DO)	+/- 10% or +/-0.2 mg/L, whichever is greatest
Oxidation-Reduction Potential (ORP)	+/- 20 mV
pH	+/- 0.2 units
Specific Conductivity	+/- 3%

Sampling commenced upon completion of purging. Prior to sample collection, the flow-thru cell was bypassed to allow for collection of uncompromised groundwater. Consistent with the work plan, samples were collected at a flow rate less than or equal to the rate at which stabilization was achieved.

Quality Assurance/Quality Control (QA/QC) samples consisting of analytical duplicates (AD) and equipment blanks (EB) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%, complying with the work plan. All samples were submitted to TestAmerica for PCB analysis.

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Each sample was labeled immediately following collection. The sample identification system used for each sample involved the following nomenclature "PMAMW#-MMYY-QAC" where:

- **PMAMW#** – Monitoring Well Location (PCB Manufacturing Area (PMA)) and Number
- **MMYY** – Month and year of sampling quarter, e.g.: August (Third quarter), 2009 (0809)
- **QAC** – will denote QA/QC samples (when applicable):
  - **EB** – equipment blank
  - **AD** – analytical duplicate
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

DNAPL Sampling – An interface probe detected 0.40 feet of DNAPL in monitoring well PMAMW-4S during monitoring well gauging prior to sampling. Consequently, a DNAPL sample was collected. Using a process similar to groundwater sampling, DNAPL was pumped through polyethylene tubing into a 4 ounce glass sample container. Sample PMAMW04S-0809-DNAPL was submitted to TestAmerica for Total PCB analysis by EPA Method 680.

Upon collection and labeling, sample containers were immediately placed inside an iced cooler, packed in such a way as to help prevent breakage and maintain inside temperature at or below approximately 4^{o}C. Field personnel recorded the project identification and number, sample description/location, required analysis, date and time of sample collection, type and matrix of sample, number of sample containers, analysis requested/comments, and sampler signature/date/time, with permanent ink on the chain-of-custody (COC). Prior to shipment, coolers were sealed between the lid and sides of the cooler with a custody seal, and then shipped to TestAmerica in Savannah, Georgia by means of overnight delivery service for groundwater (FedEx/UPS), and ground delivery for DNAPL (UPS). Field sampling data sheets are included in **Appendix A**, COC forms are included in **Appendix B**.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for PCBs using Method 680.

4.0 QUALITY ASSURANCE

Analytical data were reviewed for quality and completeness, as described in the Revised PCB Groundwater Quality Assessment Work Plan (Solutia 2009). Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory result pages. The Quality Assurance report is included as **Appendix C**. Laboratory result pages (i.e. Form 1's) along with data validation review sheets are included in **Appendix D**.

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A total of 12 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one equipment blank) were prepared and analyzed by TestAmerica for PCBs. Results for the various analyses were submitted as sample delivery groups (SDGs) KPM033 and KPM034. The samples contained in each SDG are listed below.

KPM033	KPM034
PMAMW-1S-0809	PMAMW-4S-0809-DNAPL
PMAMW-1M-0809	
PMAMW-2S-0809	
PMAMW-2S-0809-EB	
PMAMW-2M-0809	
PMAMW-2M-0809-AD	
PMAMW-6D-0809	
PMAMW-5M-0809	
PMAMW-3S-0809	
PMAMW-3M-0809	
PMAMW-4D-0809	

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, (USEPA 1999) and the Revised PCB Groundwater Quality Assessment Work Plan (Solutia 2009). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on LCS, surrogate and field duplicate data, were achieved for these SDGs to meet the project objectives. Completeness, which is defined to be the percentage of analytical results which are judged to be valid, including estimated (**J/UJ**) data was 96 percent.

5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 3Q09 PCB Groundwater Quality Assessment sampling event. A summary of the laboratory results is provided in **Table 2** and the entire laboratory data package is provided in **Appendix D.**

Shallow Hydrogeologic Unit

A DNAPL sample was collected from source area SHU monitoring well PMAMW-4S, and total PCBs were detected at a concentration of 517,330,000 µg/kg. Historically, measurable DNAPL has been observed in PMAMW-4S during previous sampling events.

PCBs were detected in one of the three down-gradient PCB Groundwater Quality Assessment Program SHU monitoring wells (PMAMW-3S) at a concentration of 0.34 µg/L. Such data indicates that PCBs in the SHU are attenuating over the 300 to 400 ft distance between

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PMAMW-4S and the three downgradient monitoring wells. PCB sampling results for the SHU are presented on **Figure 4**.

Middle/Deep Hydrogeologic Unit

Laboratory analytical results for monitoring well PMAMW-4D, located in the Former PCB Manufacturing Area, indicated a total PCB concentration of 0.37 µg/L for the 3Q09 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.27 µg/L (PMAMW-1M), 3.1 µg/L (PMAMW-2M)/(1.8 µg/L duplicate), 0.85 µg/L (PMAMW-3M), and 0.2 µg/L (PMAMW-6D). PCBs were not detected in the groundwater sample collected from monitoring well PMAMW-5M. **Figure 5** displays the 3Q09 PCB sampling results for the MHU/DHU.

The 3Q09 sampling event was the fifth event conducted under the PCB Groundwater Quality Assessment Program. Mann-Kendall trend analyses of total PCBs in unfiltered samples of groundwater from monitoring wells within (PMAMW-4D) or downgradient of (PMAMW-1M, -2M, -3S, and -3M) the former PCB Manufacturing Area are presented in **Tables 3** through **7**. There is a statistically significant upward trend in concentrations at monitoring well PMAMW-2M at this time, but no trends at any of the other wells.

After eight quarters of sampling under the PCB Groundwater Quality Assessment Program, the Mann-Whitney U Test will be performed to determine whether or not concentrations in the second four quarters were higher or lower than the first four quarters. Linear regression analysis will be done for the eight quarters of data provided the data distribution allows the use of parametric statistical analysis.

6.0 REFERENCES

Solutia Inc, 2009. Revised PCB Groundwater Quality Assessment Program Work Plan, W.G. Krummrich Facility, Sauget, IL, Prepared by URS Corporation, May 2009.

U.S. Environmental Protection Agency (USEPA), 1999. Contract Laboratory Program National Functional Guidelines for Organic Data Review.

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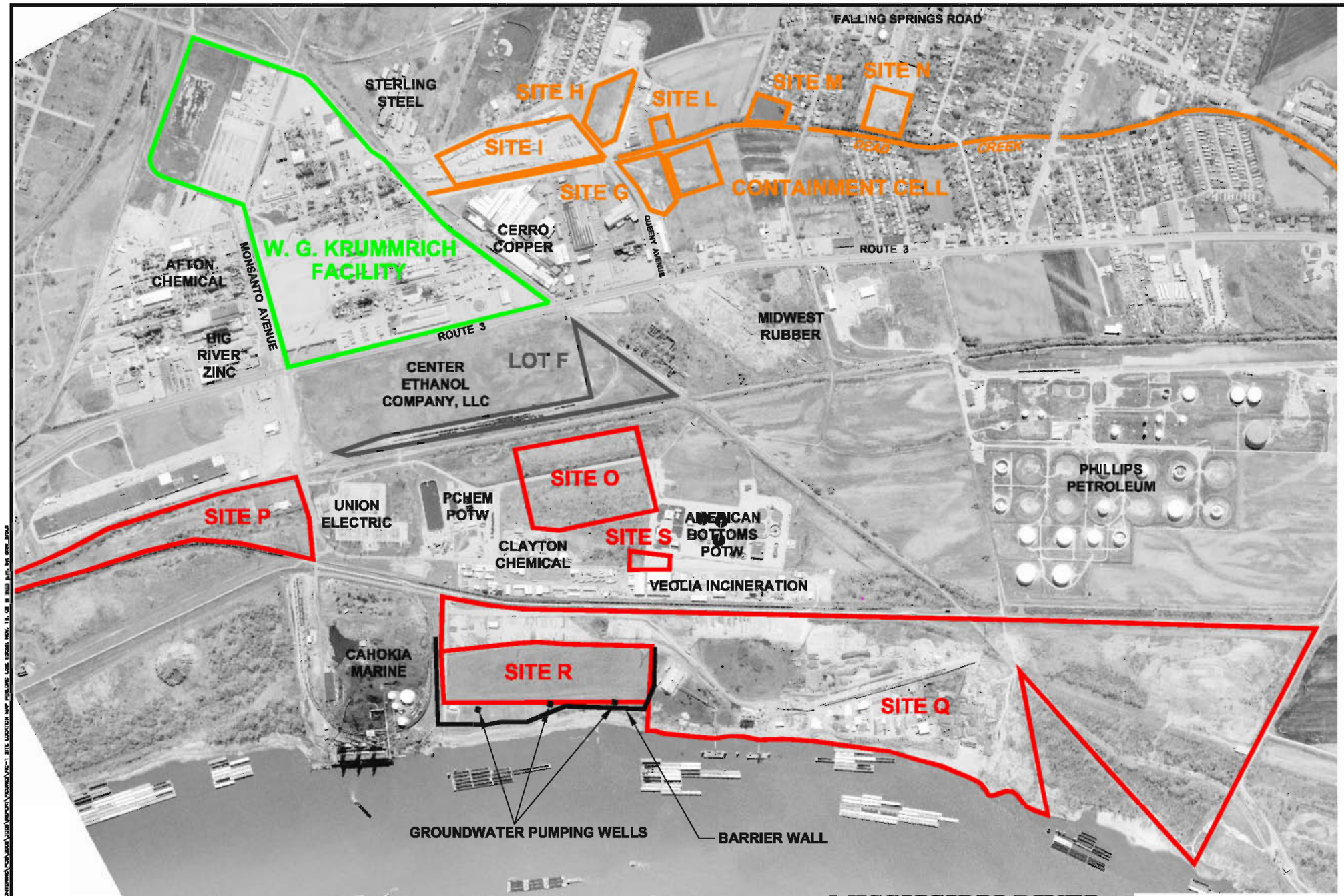
Figures



PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
3RD QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

DRN. BY:chs November 2009
DSGN. BY:wh
CHKD. BY:

Site Location Map

FIG. NO. 1

LEGEND

MONITORING WELL LOCATION

N

Ø 300

SCALE FEET

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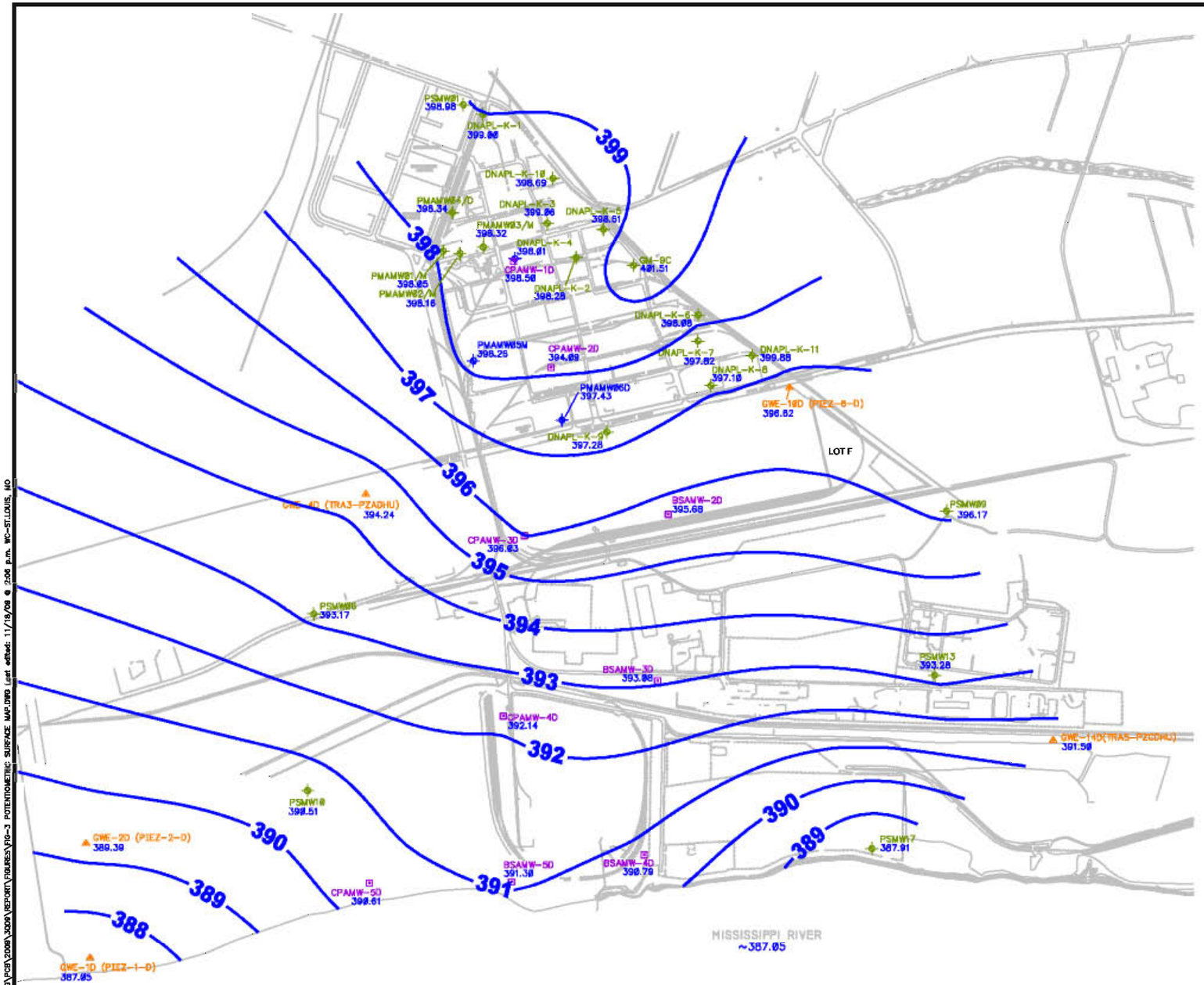
URS	
DRN. BY: chs November 2009 DSGN. BY: ekf CHKD. BY:	Former PCB Manufacturing Area Monitoring Well Locations
	FIG. NO. 2



LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- —393— GROUNDWATER ELEVATION CONTOUR (FT NAVD)

NOTES:

1. GROUNDWATER LEVELS WERE MEASURED AUGUST 17-18, 2009.
2. CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND.
3. THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE TIME OF THE GAUGING EVENT. THE INFORMATION WAS OBTAINED FROM THE SITE R BUBBLER.
4. LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.

Ø 1000
SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 3RD QUARTER 2009 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562156
URS	
DRN. BY:chs November 2009 DSGN. BY:ekf CHKD. BY:	Potentiometric Surface Map Middle/Deep Hydrogeologic Unit
	FIG. NO. 3

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\3Q09\REPORT\FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 11/19/09 @ 2:50 p.m. WC-ST.LOUIS, MO

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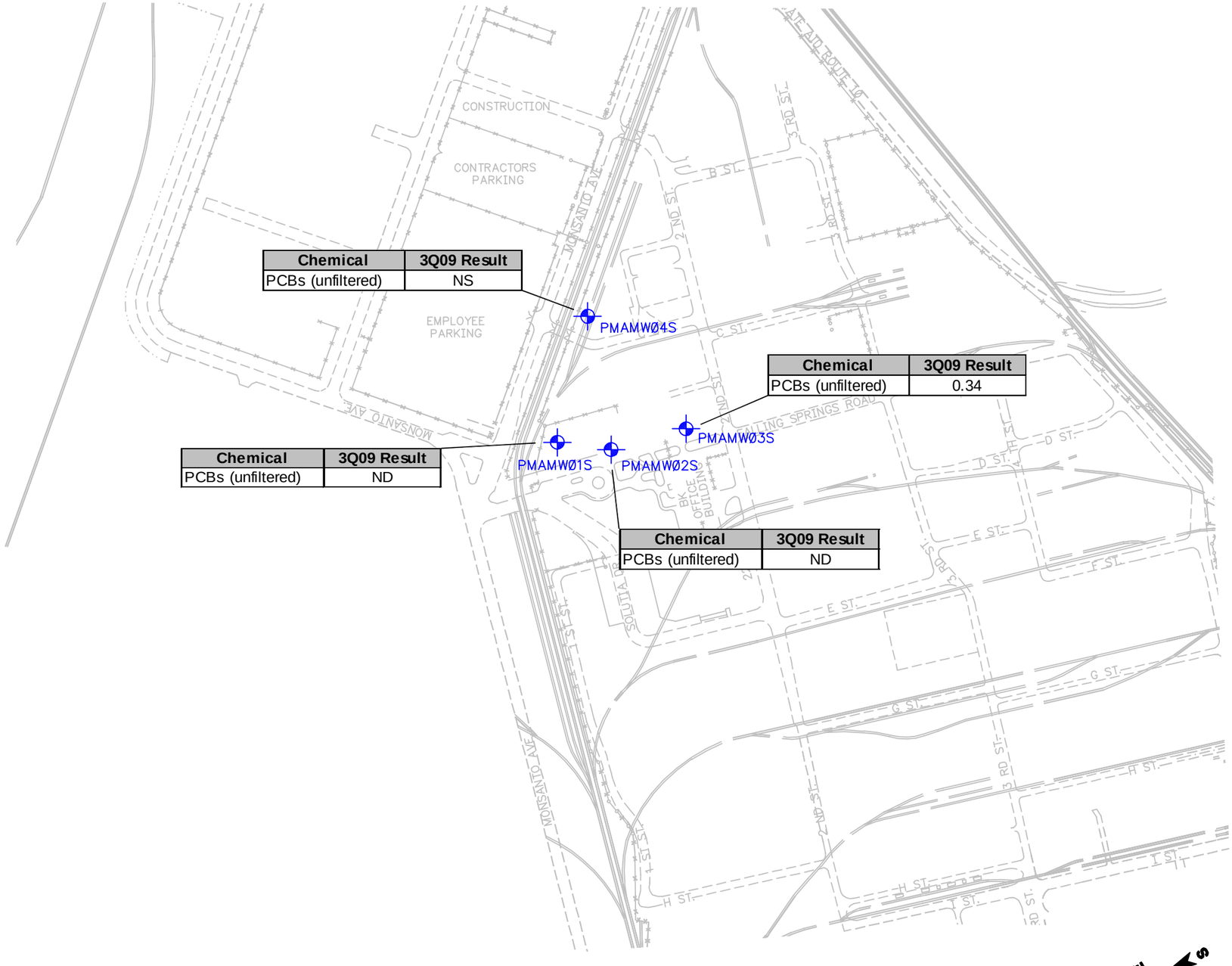

Chemical	3Q09 Result
PCBs (unfiltered)	NS

Chemical	3Q09 Result
PCBs (unfiltered)	0.34

Chemical	3Q09 Result
PCBs (unfiltered)	ND

Chemical	3Q09 Result
PCBs (unfiltered)	ND

LEGEND

MONITORING WELL LOCATION

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 68Ø HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND = NOT DETECTED.
4. NS = NOT SAMPLED. PMAMWØ4S CONTAINED DNAPL AND THE GROUNDWATER WAS NOT SAMPLED DURING THE 2Q09 SAMPLING EVENT.

N E S W

Ø 3ØØ

SCALE FEET

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3RD QUARTER 2ØØ9 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

DRN. BY: chs November 2ØØ9
DSGN. BY: ekf
CHKD. BY:

PCB Results – SHU Wells

FIG. NO. 4

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\3Q09\REPORT\FIGURES\FIG-4 TOTAL PCBS SHU WELLS.DWG Last edited NOV. 18, 09 @ 2:08 p.m. by: drew.brouk

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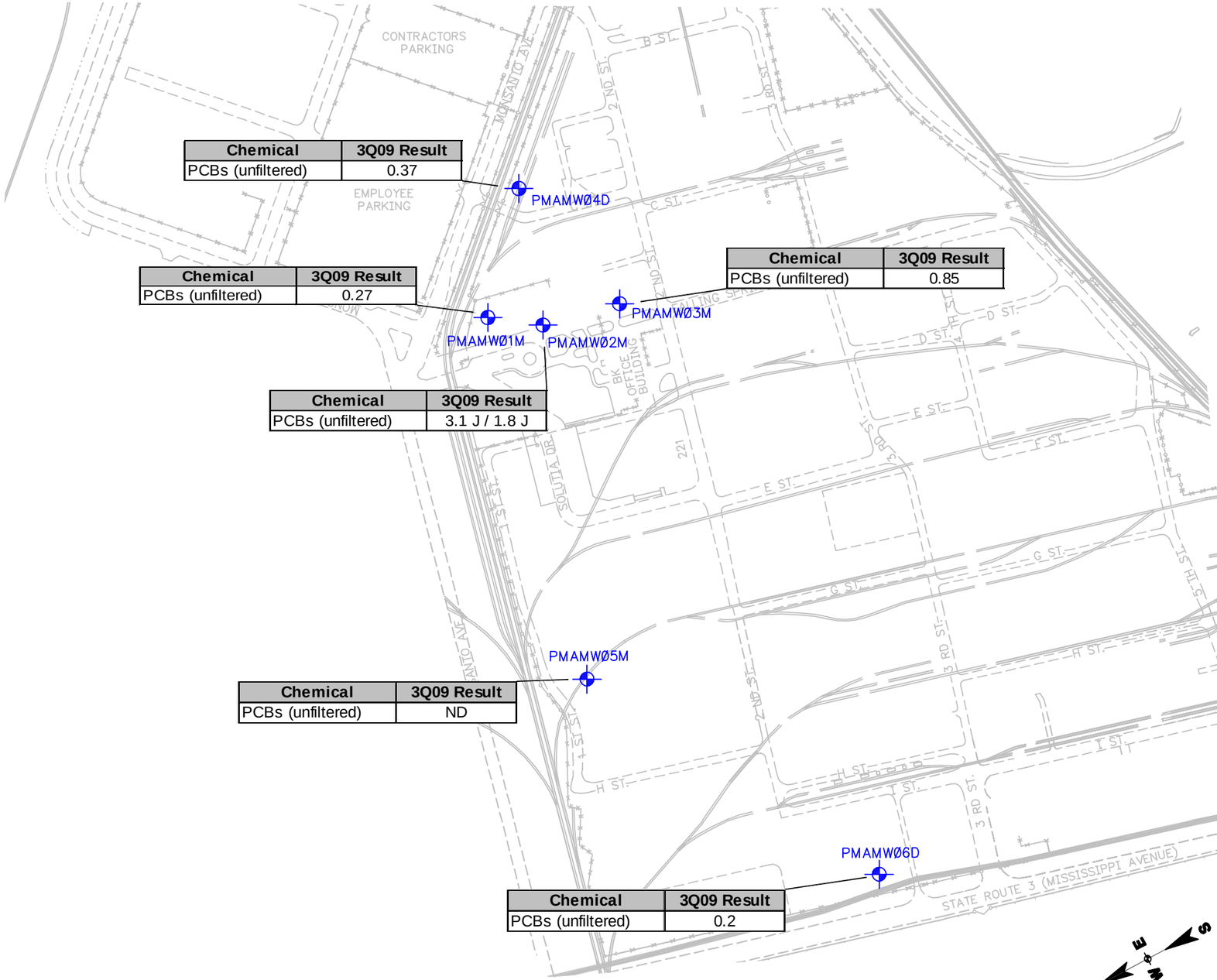

Chemical	3Q09 Result
PCBs (unfiltered)	0.37

Chemical	3Q09 Result
PCBs (unfiltered)	0.27

Chemical	3Q09 Result
PCBs (unfiltered)	0.85

Chemical	3Q09 Result
PCBs (unfiltered)	3.1 J / 1.8 J

Chemical	3Q09 Result
PCBs (unfiltered)	ND

Chemical	3Q09 Result
PCBs (unfiltered)	0.2

Ø 300

SCALE FEET

LEGEND

MONITORING WELL LOCATION

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. H = SAMPLE WAS PREPPED OR ANALYZED BEYOND THE SPECIFIED HOLDING TIME.
4. J = ESTIMATED VALUE.
5. ND = NOT DETECTED.
6. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
3RD QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

DRN. BY: chs November 2009
DSGN. BY: ekf
CHKD. BY:

PCB Results – MHU/DHU Wells

FIG. NO. 5

File: P:\ENVIRONMENTAL\SOUTIA WGK\QUARTERLY MONITORING\WGK\2009\3Q09\REPORTS\FIGURES\FIG-5 TOTAL PCBS MHU-DHU WELLS.DWG Last edited: NOV. 18, 09 @ 2:10 p.m. by: drew_bacus

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Tables

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See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						August 17 - 18, 2009		
	Ground Elevation (feet)*	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Elevation* (feet)
Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)									
PMAMW-1S	410.30	410.06	20.18	25.18	390.12	385.12	10.96	--	399.10
PMAMW-2S	412.27	411.66	22.94	27.94	389.33	384.33	13.44	--	398.22
PMAMW-3S	412.37	412.06	22.71	27.71	389.66	384.66	13.67	--	398.39
PMAMW-4S	411.09	410.43	20.99	25.99	390.10	385.10	11.67	0.40**	398.76
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)									
PMAMW-1M	410.32	410.08	54.54	59.54	355.78	350.78	12.03	--	398.05
PMAMW-2M	412.26	411.93	56.87	61.87	355.39	350.39	13.77	--	398.16
PMAMW-3M	412.36	412.10	57.07	62.07	355.29	350.29	13.78	--	398.32
PMAMW-5M	411.27	410.97	52.17	57.17	359.10	354.10	12.71	--	398.26
PSMW-1	409.37	412.59	34.56	39.56	374.81	369.81	13.61	--	398.98
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)									
BSAMW-2D	412.00	415.13	65.79	70.79	346.21	341.21	19.45	--	395.68
BSAMW-3D	412.91	415.74	104.80	109.80	308.11	303.11	22.66	--	393.08
BSAMW-4D	425.00	424.69	118.54	123.54	306.46	301.46	33.90	--	390.79
BSAMW-5D	420.80	420.49	116.25	120.85	304.95	299.95	29.19	--	391.30
CPAMW-1D	408.62	408.32	66.12	71.12	342.50	337.50	9.82	--	398.50
CPAMW-2D	408.51	408.20	99.96	104.96	308.55	303.55	14.11	--	394.09
CPAMW-3D	410.87	410.67	101.90	106.90	308.97	303.97	14.64	--	396.03
CPAMW-4D	421.57	421.20	116.44	121.44	305.13	300.13	29.06	--	392.14
CPAMW-5D	411.03	413.15	105.51	110.51	305.52	300.52	22.54	--	390.61
DNAPL-K-1	413.07	415.56	108.2	123.2	304.87	289.87	16.56	--	399.00
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	9.44	--	398.28
DNAPL-K-3	412.13	411.91	104.8	119.8	307.33	292.33	12.85	--	399.06
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	11.14	--	398.01
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	13.30	--	398.61
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	12.01	--	398.08
DNAPL-K-7	408.32	407.72	100.4	115.4	307.92	292.92	9.90	--	397.82
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	14.28	--	397.10
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	8.69	--	397.28
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	14.56	--	398.69
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	14.11	--	397.67
GM-9C	409.54	411.21	88	108	321.54	301.54	11.33	--	399.88

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See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						August 17 - 18, 2009		
	Ground Elevation (feet)*	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Elevation* (feet)
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock) (continued)									
GWE-1D (PIEZ-1D)	412.80	415.60	117	127	295.80	285.80	28.55	--	387.05
GWE-2D (PIEZ-2D)	417.45	417.14	127	137	290.45	280.45	27.75	--	389.39
GWE-4D (TRA3-PZADHU)	406.05	405.74	74	80	332.05	326.05	11.50	--	394.24
GWE-10D (PIEZ-6D)	410.15	412.87	102.5	112.5	307.65	297.65	16.25	--	396.62
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90	96	330.47	324.47	31.40	--	391.50
PMAMW-4D	411.22	410.88	68.84	73.84	342.38	337.38	12.54	--	398.34
PMAMW-6D	407.63	407.32	96.49	101.49	311.14	306.14	9.89	--	397.43
PSMW-6	404.11	406.63	99.80	104.80	304.31	299.31	13.46	--	393.17
PSMW-9	403.92	403.52	100.40	105.40	303.52	298.52	7.35	--	396.17
PSMW-10	409.63	412.18	101.23	106.23	308.40	303.40	21.67	--	390.51
PSMW-13	405.80	405.53	106.08	111.08	299.72	294.72	12.25	--	393.28
PSMW-17	420.22	423.26	121.25	126.25	298.97	293.97	35.35	--	387.91

Notes:
* - Elevation based upon North American Vertical Datum (NAVD) 88 datum
** - Measured on August 25, 2009
bgs - below ground surface
btoc - Below top of casing

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Table 2
Groundwater and DNAPL Analytical Detections

Sample ID	Sample Date	Units	Monochlorobiphenyl (ug/L)	Dichlorobiphenyl (ug/L)	Trichlorobiphenyl (ug/L)	Tetrachlorobiphenyl (ug/L)	Pentachlorobiphenyl (ug/L)	Hexachlorobiphenyl (ug/L)	Heptachlorobiphenyl (ug/L)	Octachlorobiphenyl (ug/L)	Nonachlorobiphenyl (ug/L)	Decachlorobiphenyl (ug/L)
Shallow Hydrologic Unit												
PMAMW-1S-0809	8/21/2009	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW-2S-0809	8/21/2009	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW-3S-0809	8/25/2009	µg/L	**0.34 ***	<0.094 *	<0.094 *	<0.19 *	<0.19 *	<0.19 *	<0.28 *	<0.28 *	<0.47 *	<0.47 * R
PMAMW-4S-0809-DNAPL	8/25/2009	µg/kg	**320,000 J**	**4,600,000 J**	**47,000,000 J**	**110,000,000 J**	**77,000,000 J**	**140,000,000 J**	**120,000,000 J**	**14,000,000 J**	**3,600,000 J**	**810,000 J**
Middle / Deep Hydrologic Unit												
PMAMW-1M-0809	8/21/2009	µg/L	**0.27**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49 R
PMAMW-2M-0809	8/21/2009	µg/L	**3.1 J**	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47
PMAMW-2M-0809-AD	8/21/2009	µg/L	**1.8 J**	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47
PMAMW-3M-0809	8/25/2009	µg/L	**0.85 ***	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47 R
PMAMW-4D-0809	8/25/2009	µg/L	**0.2 ***	**0.17 ***	<0.094 *	<0.19 *	<0.19 *	<0.19 *	<0.28 *	<0.28 *	<0.47 *	<0.47 * R
PMAMW-5M-0809	8/21/2009	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW-6D-0809	8/21/2009	µg/L	**0.2**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49

Notes:
µg/L = micrograms per liter
µg/Kg = micrograms per kilogram
< = Result is non-detect, less than the reporting limit
AD = Analytical Duplicate
J = Estimated value
R = Rejected (data that failed to meet the criteria for being acceptable for use)
* = LCS or LCSD, or RPD of the LCS and LCSD, exceeds the control limits
BOLD indicates concentration greater than the reporting limit

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Table 3
Monitoring Well PMA MW-1M Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-1M Mann-Kendall Trend Analysis															
	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 3Q08	Event 11 4Q08	Event 12 1Q09	Event 13 2Q09	Event 14 3Q09	Row Total
Total PCBs, µg/L	ND	0.24	0.21	0.17	0.26	0.29	48	ND	0.18	0.38	0.26	0.16	0.21	0.27	
Compare to Event 1		1	1	1	1	1	1	NA	1	1	1	1	1	1	12
Compare to Event 2			-1	-1	1	1	1	-1	-1	1	1	-1	-1	1	0
Compare to Event 3				-1	1	1	1	-1	-1	1	1	-1	0	1	2
Compare to Event 4					1	1	1	-1	1	1	1	-1	1	1	6
Compare to Event 5						1	1	-1	-1	1	0	-1	-1	1	0
Compare to Event 6							1	-1	-1	1	-1	-1	-1	-1	-4
Compare to Event 7								-1	-1	-1	-1	-1	-1	-1	-7
Compare to Event 8									1	1	1	1	1	1	6
Compare to Event 9										1	1	-1	1	1	3
Compare to Event 10											-1	-1	-1	-1	-4
Compare to Event 11												-1	-1	1	-1
Compare to Event 12													1	1	2
Compare to Event 13														1	1

Mann-Kendall Statistic (S)	**16**
90 % Confidence Mann-Kendall Statistic	**25**

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Table 4
Monitoring Well PMA MW-2M Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-2M Mann-Kendall Trend Analysis

	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 3Q08	Event 11 4Q08	Event 12 1Q09	Event 13 2Q09	Event 14 3Q09	Row Total
Total PCBs, µg/L	2.3	2.4	2.8	2.1	3.3	2.5	3.1	1.7	3.0	4.3	2.5	2.9	4.14	3.10	
Compare to Event 1		1	1	-1	1	1	1	-1	1	1	1	1	1	1	9
Compare to Event 2			1	-1	1	1	1	-1	1	1	1	1	1	1	8
Compare to Event 3				-1	1	-1	1	-1	1	1	-1	1	1	1	3
Compare to Event 4					1	1	1	-1	1	1	1	1	1	1	8
Compare to Event 5						-1	-1	-1	-1	1	-1	-1	1	-1	-5
Compare to Event 6							1	-1	1	1	0	1	1	1	5
Compare to Event 7								-1	-1	1	-1	-1	1	0	-2
Compare to Event 8									1	1	1	1	1	1	6
Compare to Event 9										1	-1	-1	1	1	1
Compare to Event 10											-1	-1	-1	-1	-4
Compare to Event 11												1	1	1	3
Compare to Event 12													1	1	2
Compare to Event 13														-1	-1

Mann-Kendall Statistic (S)	**33**
90 % Confidence Mann-Kendall Statistic	**25**

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Table 5
Monitoring Well PMA MW-3S Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3S Mann-Kendall Trend Analysis

	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 3Q08	Event 11 4Q08	Event 12 1Q09	Event 13 2Q09	Event 14 3Q09	Row Total
Total PCBs, µg/L	0.66	0.32	0.20	0.35	0.80	0.30	0.21	0.25	0.64	0.26	0.24	0.79	ND	0.34	
Compare to Event 1		-1	-1	-1	1	-1	-1	-1	-1	-1	-1	1	-1	-1	-9
Compare to Event 2			-1	1	1	-1	-1	-1	1	-1	-1	1	-1	1	-2
Compare to Event 3				1	1	1	1	1	1	1	1	1	-1	1	9
Compare to Event 4					1	-1	-1	-1	1	-1	-1	1	-1	-1	-4
Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Compare to Event 6							-1	-1	1	-1	-1	1	-1	1	-2
Compare to Event 7								1	1	1	1	1	-1	1	5
Compare to Event 8									1	1	-1	1	-1	1	2
Compare to Event 9										-1	-1	1	-1	-1	-3
Compare to Event 10											-1	1	-1	1	0
Compare to Event 11												1	-1	1	1
Compare to Event 12													-1	-1	-2
Compare to Event 13														1	1

Mann-Kendall Statistic (S)	**-13**
90 % Confidence Mann-Kendall Statistic	**-25**

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Table 6
Monitoring Well PMA MW-3M Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3M Mann-Kendall Trend Analysis

	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 3Q08	Event 11 4Q08	Event 12 1Q09	Event 13 2Q09	Event 14 3Q09	Row Total
Total PCBs, µg/L	5.18	1.90	ND	0.77	ND	0.86	0.76	0.39	0.92	1.3	0.71	1.4	1.30	0.85	
Compare to Event 1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-13
Compare to Event 2			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-12
Compare to Event 3				1	NA	1	1	1	1	1	1	1	1	1	10
Compare to Event 4					-1	1	-1	-1	1	1	-1	1	1	1	2
Compare to Event 5						1	1	1	1	1	1	1	1	1	9
Compare to Event 6							-1	-1	1	1	-1	1	1	-1	0
Compare to Event 7								-1	1	1	-1	1	1	1	3
Compare to Event 8									1	1	1	1	1	1	6
Compare to Event 9										1	-1	1	1	-1	1
Compare to Event 10											-1	1	1	-1	0
Compare to Event 11												1	1	1	3
Compare to Event 12													-1	-1	-2
Compare to Event 13														-1	-1

Mann-Kendall Statistic (S)	**6**
90 % Confidence Mann-Kendall Statistic	**25**

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Table 7
Monitoring Well PMA MW-4D Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-4D Mann-Kendall Trend Analysis														
	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 4Q08	Event 11 1Q09	Event 12 2Q09	Event 13 3Q09	Row Total
Total PCBs, µg/L	0.34	0.10	2.07	0.33	0.50	0.35	0.23	0.27	0.44	0.27	2.73	0.59	0.37	
Compare to Event 1		-1	1	-1	1	1	-1	-1	1	-1	1	1	1	2
Compare to Event 2			1	1	1	1	1	1	1	1	1	1	1	11
Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-8
Compare to Event 4					1	1	-1	-1	1	-1	1	1	1	3
Compare to Event 5						-1	-1	-1	-1	-1	1	1	-1	-4
Compare to Event 6							-1	-1	1	-1	1	1	1	1
Compare to Event 7								1	1	1	1	1	1	6
Compare to Event 8									1	1	1	1	1	5
Compare to Event 9										-1	1	1	-1	0
Compare to Event 10											1	1	1	3
Compare to Event 11												-1	-1	-2
Compare to Event 12													-1	-1

Mann-Kendall Statistic (S)	**16**
90 % Confidence Mann-Kendall Statistic	**23**

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Table 8
Monitoring Well PMA MW-6D Mann-Kendall Trend Analysis

W.G.Krummrich Facility Well PMA MW-6D Mann-Kendall Trend Analysis						
	Event 1 3Q08	Event 2 4Q08	Event 3 1Q09	Event 4 2Q09	Event 5 3Q09	Row Total
Total PCBs, ug/L	0.21	0.43	0.32	0.29	0.20	
Compare to Event 1		1	1	1	-1	2
Compare to Event 2			-1	-1	-1	-3
Compare to Event 3				-1	-1	-2
Compare to Event 4					-1	-1

Mann-Kendall Statistic (S)	**-4**
90 % Confidence Mann-Kendall Statistic	**-7**

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Appendix A

Groundwater Purging and Sampling Forms

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Bronk
DATE: 8/21/09 | WEATHER: Sunny, breezy, 70s
MONITORING WELL ID: PMAMW01M | SAMPLE ID: PMAMW01M-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 59.30 ft
Constructed Well Depth (btoc): 59.30 ft
Depth to Water (btoc): 12.01 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 54.30 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 46. 47.29 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 56.80 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1037	12.03	colorless	hydrocarbon	6.81	17.84	2.536	2.8	4.21	-136.2
800	1039				6.80	17.81	2.541	0.2	3.77	-141.6
1,600	1041				6.79	17.75	2.541	0.4	3.66	-143.2
2,400	1043				6.79	17.73	2.542	0.7	3.74	-141.6
3,200	1045				6.77	17.61	2.540	6.5	4.11	-142.9
4,000	1047				6.76	17.64	2.546	6.5	4.15	-142.4
4,800	1049				6.75	17.62	2.536	5.0	4.19	-144.6
5,600	1051				6.75	17.62	2.540	5.8	4.20	-144.9
						MEC				

Start Time: 1037
Stop Time: 1051
Elapsed Time: 14 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1100
Sample Flow Rate: 400 mL/min.
Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk
DATE: 8/21/09 | WEATHER: sunny, breezy, 70°
MONITORING WELL ID: PMAMW01S | SAMPLE ID: PMAMW01S-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 24.93 ft
Constructed Well Depth (btoc): 25.18 ft
Depth to Water (btoc): 11.29 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 20.18 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 13.64 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 22.68 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	0950	11.30	colorless	none	6.60	18.11	1.457	26.4	3.00	153.2
750	0953	↓	↓	↓	6.61	18.06	1.422	17.2	2.78	125.7
1,500	0956				6.63	17.93	1.404	12.3	3.00	117.0
2,250	0959				6.63	17.63	1.406	9.2	3.07	117.4
3,000	1002				6.64	17.45	1.404	7.8	3.16	118.0
3,750	1005				6.64	17.41	1.410	7.0	3.17	117.6

MEE

Start Time: 0950
Stop Time: 1005
Elapsed Time: 15 min.
Average Purge Rate (mL/min): 250
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1010
Sample Flow Rate: 250 mL/min
Analysis: Total PCBs
QA/QC Samples: MS/MSD → PMAMW01S-0809-MS
→ PMAMW01S-0809-MSD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk

DATE: 8/21/09 | WEATHER: sunny, breezy, 70s

MONITORING WELL ID: PMAMW02M | SAMPLE ID: PMAMW02M-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.60 ft
Constructed Well Depth (btoc): 61.60 ft
Depth to Water (btoc): 13.75 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 56.60 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 47.85 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 59.10 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs) (±10 % or ±2 mg/L)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1210	13.76	colorless	hydrocarbon	7.02	19.35	2.333	37.4	4.72	-105.4
800	1212	↓	↓	↓	6.97	19.40	2.321	20.5	4.06	-123.9
1,600	1214				6.94	19.41	2.313	23.8	4.12	-132.8
2,400	1216				6.93	19.47	2.311	13.7	4.11	-134.4
3,200	1218				6.93	19.47	2.315	6.4	4.22	-136.4
9,000	1220				6.91	19.27	2.337	4.8	4.15	-137.3
						MEC				

Start Time: 1210
Stop Time: 1220
Elapsed Time: 10 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1225
Sample Flow Rate: 400 mL/min
Analysis: Total PCBs
QA/QC Samples: AD — PMAMW02M-0809-AD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk

DATE: 8/21/09 | WEATHER: sunny, breezy, 70s

MONITORING WELL ID: PMAMW02S | SAMPLE ID: PMAMW02S-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.33 ft
Constructed Well Depth (btoc): 27.33 ft
Depth to Water (btoc): 13.53 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 22.33 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 13.80 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.83 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

					±0.2 units		±3 %		±10 % or ±2 mg/L	±20 mV
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (ms/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1139	13.55	colorless	hydrocarbon	7.30	20.26	1.241	18.9	4.67	57.6
800	1141	↓	↓	↓	6.87	19.91	1.196	13.6	3.73	78.4
1,600	1143				6.77	19.93	1.194	11.8	3.68	88.0
2,400	1145				6.75	19.95	1.193	10.3	3.61	94.2
3,200	1147				6.71	19.67	1.194	8.0	3.77	101.8
4,000	1149				6.69	19.56	1.193	6.8	3.85	107.0

PAEC

Start Time: 1139
Stop Time: 1149

Elapsed Time: 10 min.
Average Purge Rate (mL/min): 400

Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon

Sample Time: 1155
Sample Flow Rate: 400 mL/min

Analysis: Total PCBs
QA/QC Samples: EB before this well — PMAMW02S-0809-EB

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Bronk
DATE: 8/25/09 | WEATHER: sunny, 70s
MONITORING WELL ID: PMAMW03M | SAMPLE ID: PMAMW03M-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.68 ft
Constructed Well Depth (btoc): 61.81 ft
Depth to Water (btoc): 13.92 ft
Depth to LNAPL/DNAPL (btoc): ___ ft
Depth to Top of Screen (btoc): 56.81 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 47.76 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 59.31 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = ___ ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = ___ ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1030	13.99	dk brown	hydrocarbon	9.04	18.78	2.586	167.3	1.47	-117.7
4,800	1042				9.24	18.60	2.628	95.3	0.54	-182.9
7,200	1048				9.28	18.54	2.647	61.3	0.50	-195.6
10,400	1056				9.30	18.58	2.659	45.5	0.49	-180.9
15,200	1102				9.31	18.58	2.664	38.6	0.47	-178.5
20,000	1108				9.32	18.56	2.672	33.4	0.45	-197.2
24,800	1114				9.33	18.61	2.676	31.1	0.45	-194.0
25,600	1116				9.33	18.62	2.677	30.7	0.44	-183.8
26,400	1118				9.33	18.61	2.676	28.9	0.44	-172.1
27,200	1120	↓	↓	↓	9.33	18.65	2.678	29.1	0.44	-183.1
						MEC				

Start Time: 1030
Stop Time: 1120
Elapsed Time: 50 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/25/09

SAMPLING DATA

Sample Date: 8/25/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1125
Sample Flow Rate: 400mL/min
Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00003
FIELD PERSONNEL: Mike Corbett, Drew Brouk
DATE: 8/25/09
WEATHER: sunny, 70s
MONITORING WELL ID: PMAMW03S
SAMPLE ID: PMAMW03S-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.40 ft
Constructed Well Depth (btoc): 27.40 ft
Depth to Water (btoc): 13.85 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 22.40 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 13.55 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.90 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 1.1 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	0938	13.87	colorless	none	6.53	18.68	2.057	57.0	1.23	35.0
800	0940	↓	↓	↓	6.57	18.69	2.045	46.8	1.18	33.1
1,600	0942				6.59	18.71	2.045	32.8	1.11	29.7
2,400	0944				6.62	18.73	2.048	25.1	1.12	30.1
3,200	0946				6.63	18.80	2.049	18.7	1.14	32.4
4,000	0948				6.64	18.90	2.051	17.3	1.16	34.4
4,800	0950				6.65	18.88	2.051	15.2	1.18	36.1
5,600	0952				6.66	18.86	2.052	14.9	1.20	37.3
6,400	0954				6.66	18.86	2.052	14.7	1.20	38.1
7,200	0956				6.66	18.86	2.052	14.2	1.22	38.8
8,000	0958				6.66	18.85	2.053	13.8	1.23	39.0
8,800	1000				6.66	18.85	2.052	12.8	1.25	40.9
9,600	1002				6.67	18.84	2.052	13.0	1.28	42.6
10,400	1004				6.68	18.85	2.052	12.0	1.30	44.5
11,200	1006	↓	↓	↓	6.68	18.85	2.053	12.0	1.30	44.6

Start Time: 0938
Stop Time: 1006
Elapsed Time: 28 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/25/09

SAMPLING DATA

Sample Date: 8/25/09
Sample Time: 1010
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 400 mL/min
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk
DATE: 8/25/09 | WEATHER: Sunny, 70s
MONITORING WELL ID: PMAMW04D | SAMPLE ID: PMAMW04D-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 73.45 ft
Constructed Well Depth (btoc): 73.50 ft
Depth to Water (btoc): 12.69 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 68.50 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 60.76 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 71.00 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1202	12.70	colorless	hydrocarbon	6.80	18.99	2.418	38.7	1.79	-122.6
1,600	1206				6.58	19.00	2.409	28.7	1.71	-128.4
4,800	1214				6.48	18.75	2.399	24.7	1.77	-131.2
7,200	1220				6.48	18.78	2.411	23.0	1.87	-132.6
9,600	1226				6.48	18.82	2.424	17.8	1.99	-137.1
10,400	1228				6.48	18.82	2.426	20.8	2.09	-137.7
11,200	1230				6.48	18.80	2.429	21.6	2.04	-138.3
						MEC				

Start Time: 1202
Stop Time: 1230
Elapsed Time: 28 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/25/09

SAMPLING DATA

Sample Date: 8/25/09
Sample Time: 1235
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 400 mL/min
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00003 FIELD PERSONNEL: Mike Corbett, Drew Brouk
DATE: 8/25/09 WEATHER: sunny, 70s
MONITORING WELL ID: PMAMW04S SAMPLE ID: PMAMW04S-0809-DNAPL

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 25.33 ft
Constructed Well Depth (btoc): 25.33 ft
Depth to Water (btoc): 11.96 ft
Depth to LNAPL/DNAPL (btoc): 24.93 ft
Depth to Top of Screen (btoc): 20.33 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are (4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = ft btoc
MC

Volume of Flow Through Cell): mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)

MEC

Start Time:
Stop Time:
Elapsed Time:
Average Purge Rate (mL/min):
Water Quality Meter ID: YSI 6920
Date Calibrated:
MC

SAMPLING DATA

Sample Date: 8/25/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1230
Sample Flow Rate:
Analysis: Total PCBs (NAPL)
QA/QC Samples: none

COMMENTS:
No ground water sample collected.

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk
DATE: 8/21/09 | WEATHER: sunny, breezy, 70s
MONITORING WELL ID: PMAMW05M | SAMPLE ID: PMAMW05M-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 56.87 ft
Constructed Well Depth (btoc): 56.87 ft
Depth to Water (btoc): 12.74 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 51.87 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 44.13 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 54.37 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

					±0.2 units		±3 %		±10 % or ±2 mg/L	±20 mV
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (ms/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1322	12.78	colorless	hydrocarbon	7.11	20.56	2.569	15.8	3.01	−38.6
800	1324				7.00	20.19	2.533	12.1	2.65	−50.3
1,600	1326				6.97	20.20	2.530	10.4	2.72	−53.4
2,400	1328				6.94	20.38	2.528	8.6	2.75	−56.0
3,200	1330				6.92	19.94	2.528	7.0	2.88	−59.9
4,000	1332				6.92	20.29	2.523	6.3	3.06	−61.7
4,800	1334				6.92	20.30	2.526	6.0	3.13	−62.2
5,600	1336				6.92	20.25	2.524	5.8	3.26	−63.3
6,400	1338				6.92	20.28	2.526	5.8	3.31	−64.0
7,200	1340				6.93	20.50	2.522	5.6	3.37	−64.5
8,000	1342	↓	↓	↓	6.93	20.67	2.524	5.4	3.45	−65.1
					MEC					

Start Time: 1322
Stop Time: 1342
Elapsed Time: 20 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1350
Sample Flow Rate: 400 mL/min
Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 21562156.00003 | FIELD PERSONNEL: Mike Corbett, Drew Brouk

DATE: 8/21/09 | WEATHER: sun/clouds, 70s, breezy

MONITORING WELL ID: PMAMW06D | SAMPLE ID: PMAMW06D-0809

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 101.18 ft
Constructed Well Depth (btoc): 101.18 ft
Depth to Water (btoc): 9.79 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 96.18 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 91.39 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is ⟨4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 98.68 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ⟨ 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 750 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 2,250 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1418	9.79	Colorless	hydrocarbon	7.11	20.06	1.314	28.9	3.75	-102.1
800	1420	↓	↓	↓	6.85	19.52	1.268	26.1	2.79	-116.2
1,600	1422				6.80	19.48	1.261	12.3	2.83	-118.4
2,400	1424				6.77	19.38	1.270	7.7	2.99	-121.0
3,200	1426				6.77	19.51	1.278	9.6	3.48	-123.0
4,000	1428				6.77	19.53	1.282	9.3	3.50	-123.8
4,800	1430				6.77	19.54	1.286	9.1	3.52	-124.4
5,600	1432				6.77	19.73	1.289	8.8	3.65	-124.0
						MEC				

Start Time: 1418
Stop Time: 1432

Elapsed Time: 14 min.
Average Purge Rate (mL/min): 400

Water Quality Meter ID: YSI 6920
Date Calibrated: 8/21/09

SAMPLING DATA

Sample Date: 8/21/09
Sample Method: Stainless Steel Monsoon

Sample Time: 1440
Sample Flow Rate: 400 mL/min.

Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

US EPA ARCHIVE DOCUMENT

Appendix B

Chains-of-Custody

Savannah
5102 LaRoche Avenue
Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	Date: 8/21/09	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: Fed Ex	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. 21562156.00003
St. Louis, MO 63110	Calendar (C) or Work Days (W)			
(314) 429-0100 Phone	TAT if different from Below Standard			SDG No.
(314) 429-0462 FAX	☐ 2 weeks			
Project Name: 3Q09 PCB GW Sampling	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Total PCBs by 680	Sample Specific Notes:
PMAMW-1S-0809	8/21/09	1010	G	Water	2		2	
PMAMW-1S-0809-MS		1010	G	Water	2		2	
PMAMW-1S-0809-MSD		1010	G	Water	2		2	
PMAMW-1M-0809		1100	G	Water	2		2	
PMAMW-2S-0809		1155	G	Water	2		2	
PMAMW-2S-0809-EB		1120	G	Water	2		2	
PMAMW-2M-0809		1225	G	Water	2		2	
PMAMW-2M-0809-AD		1225	G	Water	2		2	
PMAMW-6D-0809		1440	G	Water	2		2	
PMAMW-5M-0809	↓	1350	G	Water	2		2	
~~Trip Blank~~				Water	2		2	MC

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____ | 1

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

3.2/2.6/2.0
680 - 50142

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	8/21/09 1630	[signature]	TMSN	GMC 10/21 1333 10/22/09 8/22/09
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

US EPA ARCHIVE DOCUMENT

Savannah
2 LaRoche Avenue
annah, GA 31404
ne 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	Date: 8/25/09	COC No:
S Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: UPS	1 of 1 COCs
1 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. 21562156.00003
Louis, MO 63110	Calendar (C) or Work Days (W)			SDG No.
4) 429-0100 Phone	TAT if different from Below Standard			
4) 429-0462 FAX	☐ 2 weeks			
ject Name: 3Q09 PCB GW Sampling	☐ 1 week			
e: Solutia WG Krummrich Facility	☐ 2 days			
) #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Total PCBs by 680	Sample Specific Notes:
PMAMW-3S-0809	8/25/09	1010	G	Water	2		2	
PMAMW-3M-0809	↓	1125	G	Water	2		2	
PMAMW-4D-0809	↓	1235	G	Water	2		2	
								680-50208
~~Trip Blank~~				~~Water~~	~~2~~		2	MC
							1	1.8

eservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

ossible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

pecial Instructions/QC Requirements & Comments: Level 4 Data Package

	Company:	Date/Time:	Received by:	Company:	Date/Time:
elinquished by:	URS	8/25/09 1600	Beth A Daughtry	TA SAV	8-26-9 1000
elinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
elinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Savannah
102 LaRoche Avenue
Savannah, GA 31404
Phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

US EPA ARCHIVE DOCUMENT

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	Date: 8/25/09	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: UPS	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	**Analysis Turnaround Time**			Job No. 21562156.00003
St. Louis, MO 63110	Calendar (C) or Work Days (W)			
(314) 429-0100 Phone	TAT if different from Below Standard			SDG No.
(314) 429-0462 FAX	☐ 2 weeks			
Project Name: 3Q09 PCB GW Sampling	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			
PO #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Total PCBs by 680	Sample Specific Notes:
PMAMW-4S-0809-DNAPL	8/25/09	1230	G	NAPL	2		2	
								680-50207
								TEMPERATURE
								2.8
							1	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: **Level 4 Data Package**

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	8/25/09 1600	Bettina Daughtry	TH SAV	8-26-9c 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

US EPA ARCHIVE DOCUMENT

Appendix C

Quality Assurance Report

US EPA ARCHIVE DOCUMENT

QUALITY ASSURANCE REPORT

Solutia Inc.
W.G. Krummrich Facility
Sauget, Illinois

PCB Groundwater Quality Assessment Program
3rd Quarter 2009 Data Report

Prepared for

Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141

November 2009

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21562156

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in August of 2009 at the Solutia W.G. Krummrich plant as part of the 3rd Quarter 2009 PCB Groundwater Quality Assessment Program. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Samples were analyzed for polychlorinated biphenyls (PCBs).

One hundred percent of the data were subjected to a data quality review (Level III validation); ten percent of these data were subjected to a full data validation (Level IV validation). Samples PMAMW-1M-0809, PMAMW-3S-0809, PMAMW-3M-0809, and PMAMW-4D-0809 were subjected to a full Level IV validation. Validation results are presented in the Full Validation of Polychlorinated Biphenyl Homologs Data – SDG KPM033 which follows the KPM033 Data Review in **Appendix D**. The Level III and IV validations were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use.

A total of 14 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one matrix spike and matrix spike duplicate (MS/MSD) pair, and one equipment blank) were analyzed by TestAmerica. These samples were analyzed as part of Sample Delivery Groups (SDGs) KPM033 and KPM034 utilizing the following USEPA Methods:

- Method 680 for PCBs

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999, and the Revised PCB Groundwater Quality Assessment Work Plan, (Solutia 2009).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Data was qualified based on the data quality review. Qualifiers assigned indicates data that did not meet acceptance criteria and for which corrective actions were not successful or not performed. The various qualifiers are explained in **Tables 1** and **2** below:

TABLE 1 Laboratory Data Qualifiers

Lab Qualifier	Definition
U	Analyte was not detected at or above the reporting limit.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.
E	Result exceeded the calibration range, secondary dilution required.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
N	MS, MSD: Spike recovery exceeds upper or lower control limits.
H	Sample was prepped or analyzed beyond the specified holding time.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

TABLE 2 URS Data Qualifiers

URS Qualifier	Definition
U	The analyte was analyzed for but was not detected.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined to be the percentage of analytical results which are judged to be valid, including estimated detect/nondetect (**J/UJ**) values was 96 percent, which meets the completeness goal of 95 percent.

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The data review included evaluation of the following criteria:

Organics

- Receipt condition and sample holding times
- Laboratory method blanks, and field equipment blank samples
- Surrogate spike recoveries
- Laboratory control sample (LCS) recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) sample recoveries and Relative Percent Difference (RPD) values
- Field duplicate results
- Results reported from dilutions
- Internal standard responses

2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance. Upon review of SDG KPM034, sample PMAMW-4S-0809-DNAPL was extracted 5 days outside of hold time (hold time is 14 days for PCBs in wastes). Professional judgment was used to not reject data, since PCBs are very stable. Detected analytes were qualified as estimated (J) as summarized in the table below:

Field ID	Parameter	Analyte	Qualification
PMAMW-4S-0809-DNAPL	PCBs	Monochlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Dichlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Octachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Nonachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	DCB Decachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Trichlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Tetrachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Pentachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Hexachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Heptachlorobiphenyl	**J**

The cooler receipt form did not indicate any problems.

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3.0 LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. All laboratory method blank samples were analyzed at the method prescribed frequencies. No analytes were detected in the method blanks.

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. No analytes were detected in the equipment blank sample.

4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. All samples analyzed for PCBs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Organic Data Review state how data is qualified, if surrogate spike recoveries do not meet evaluation criteria. Surrogate recoveries were within evaluation criteria with the exception of those surrogates in data reviews discussed further in Appendix D. No qualifications of data were required due to surrogate recoveries.

5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. All LCS recoveries were within evaluation criteria with the exceptions of those discussed in the data review for SDG KPM033. Professional judgment was used to not qualify data since all LCS recoveries were within evaluation criteria and all LCSD recoveries were outside criteria due to a residual acid in the extract from an acid cleanup procedure that was completed as part of the method extraction.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES

MS/MSD samples are analyzed to assess the accuracy and precision of the analytical process on an analytical sample in a particular matrix. MS/MSD samples were required to be collected at a frequency of one per 20 investigative samples in accordance with the work plan. URS Corporation submitted one MS/MSD sample set for ten investigative samples, meeting the work plan frequency requirement.

No qualifications were made to the data if the MS/MSD percent recoveries were zero due to dilutions or if the Relative Percent Difference (RPD) was the only factor outside of criteria. Also, USEPA National Functional Guidelines for Organic Data Review (October 1999) states that organic data should not be qualified based on MS/MSD criteria alone. Therefore, if recoveries were outside evaluation criteria due to matrix interference or abundance of analytes, no qualifiers were assigned unless these analytes had other quality control criteria outside evaluation criteria.

Sample PMAMW-1S-0809 was spiked and analyzed for PCBs in SDG KPM033. All MS/MSD recoveries were within evaluation criteria. No qualification of data was required due to MS/MSD recoveries.

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7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within 2 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

One field duplicate sample was collected for the ten investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Field duplicate results were within evaluation criteria with the exception of those with an RPD greater than 25% between the parent and field duplicate results in data reviews discussed further in Appendix D. Qualifications due to field duplicate results are listed in the table below:

SDG	Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
KPM033	PMAMW-2M-0809	PMAMW-2M-0809-AD	PCBs	Monochlorobiphenyl	53	**J**

8.0 INTERNAL STANDARD RESPONSES

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. For the PCBs (Method 680), the IS areas must be within +/- 30 percent of the preceding calibration verification (CV) IS value. Also, the IS retention times must be within 30 seconds of the preceding IS CV retention time. If the IS area count is outside criteria, Method 680 indicates the mean IS area obtained during the initial calibration (ICAL) (+/- 50 percent) should be used.

The internal standards area responses for PCBs were verified for the data reviews. IS responses met the criteria as described above, with the exception of the IS responses in the data reviews discussed further in Appendix D. Qualifications due to internal standard area recoveries are listed in the table below:

SDG	Field ID	Parameter	Analyte	Qualification
KPM034	PMAMW-4S-0809-DNAPL	PCBs	Monochlorobiphenyl	**J**
KPM034	PMAMW-4S-0809-DNAPL	PCBs	Dichlorobiphenyl	**J**
KPM034	PMAMW-4S-0809-DNAPL	PCBs	Octachlorobiphenyl	**J**
KPM034	PMAMW-4S-0809-DNAPL	PCBs	Nonachlorobiphenyl	**J**
KPM034	PMAMW-4S-0809-DNAPL	PCBs	DCB Decachlorobiphenyl	**J**

9.0 RESULTS REPORTED FROM DILUTIONS

The PCB DNAPL sample was diluted and reanalyzed due to the high levels of PCBs in the sample. The diluted sample results for PCBs were reported at the lowest possible reporting limit.

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Appendix D

Groundwater Analytical Results

(with Data Review/Validation Sheets)

SDG KPM033

Results of Samples from Wells:

PMAMW-1M
PMAMW-1S
PMAMW-2M
PMAMW-2S
PMAMW-3M
PMAMW-3S
PMAMW-4D
PMAMW-5M
PMAMW-6D

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D.1.a Solutia Krummrich Data Review

Laboratory SDG: KPM033

Reviewer: Elizabeth Kunkel

Date Reviewed: 10/9/2009

Guidance: USEPA National Functional Guidelines for Organic Data Review 1999.

Applicable Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification	Sample Identification
PMAMW-1S-0809	PMAMW-1M-0809
PMAMW-2S-0809	PMAMW-2S-0809-EB
PMAMW-2M-0809	PMAMW-2M-0809-AD
PMAMW-6D-0809	PMAMW-5M-0809
PMAMW-3S-0809	PMAMW-3M-0809
PMAMW-4D-0809	

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated that LCSD recoveries were outside evaluation criteria. The surrogate recoveries for decachlorobiphenyl-$13C_{12}$ were outside evaluation criteria in quality control samples. Internal standard recoveries for phenanthrene-d_{10} and chrysene-d_{12} were outside evaluation criteria in the laboratory control sample duplicate. Additionally, samples were qualified due to field duplicate RPD. These issues are addressed further in the appropriate section below.

The cooler receipt form did not indicate any problems.

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

Yes

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4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS/LCSD recoveries within evaluation criteria?

No

LCS/LCSD ID	Parameter	Analyte	LCS/LCSD Recovery	RPD	LCS/LCSD/RPD Criteria
680-146749/5-A/ 680-146749/6-A	PCBs	Monochlorobiphenyl	44/**230**	**136**	10-125/40
680-146749/5-A/ 680-146749/6-A	PCBs	Dichlorobiphenyl	47/**265**	**139**	10-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Trichlorobiphenyl	49/**285**	**141**	17-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Tetrachlorobiphenyl	51/**291**	**141**	18-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Pentachlorobiphenyl	55/**313**	**140**	34-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Hexachlorobiphenyl	55/**313**	**140**	31-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Heptachlorobiphenyl	57/**324**	**140**	33-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Octachlorobiphenyl	59/**329**	**139**	33-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	DCB Decachlorobiphenyl	61/**344**	**139**	26-115/40

Professional judgment was used to not qualify data since all LCS recoveries were within evaluation criteria and all LCSD recoveries were outside criteria due to a residual acid in the extract from an acid cleanup procedure that was completed as part of the method extraction.

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

No

Laboratory ID	Parameter	Surrogate	Recovery	Criteria
MB 680-146212/9-A	PCBs	Decachlorobiphenyl-$13C_{12}$	**17**	25-113
LCSD 680-146749/6-A	PCBs	Decachlorobiphenyl-$13C_{12}$	**386**	25-113

Method blanks and LCSDs are quality control samples; therefore, no qualification of data is required.

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7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples reported as part of this SDG?

Yes, sample PMAMW-1S-0809 was spiked and analyzed for PCBs.

Were MS/MSD recoveries within evaluation criteria?

Yes

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Laboratory ID	Parameter	Analyte	IS Area Recovery	IS Criteria
LCSD 680-146749/6-A	PCBs	Phenanthrene-d_{10}	**3587**	17895-53683
LCSD 680-146749/6-A	PCBs	Chrysene-d_{12}	**9416**	24232-72696

Quality control samples do not require qualification. LCSD samples are quality control samples; therefore, no qualification of data is required.

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
PMAMW-2M-0809	PMAMW-2M-0809-AD

Were field duplicates within evaluation criteria?

No

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
PMAMW-2M-0809	PMAMW-2M-0809-AD	PCBs	Monochlorobiphenyl	**53**	**J**

11.0 Sample Dilutions

For samples that were diluted and non-detect, were undiluted results also reported?

Samples analyzed did not require a dilution.

12.0 Additional Qualifications

Were additional qualifications applied?

No

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D.1.b FULL VALIDATION OF POLYCHLORINATED BIPHENYL HOMOLOGS DATA – SDG KPM033

This section describes the full validation for four water samples which were prepared as specified in USEPA Method 680 (aqueous) and analyzed for polychlorinated biphenyl (PCB) homologs by USEPA Method 680. Samples were analyzed by TestAmerica Laboratory of Savannah, Georgia, and submitted as part of sample delivery group (SDG) KPM033. Samples included as part of this validation are listed below:

Sample Identification
PMAMW-1M-0809
PMAMW-3S-0809
PMAMW-3M-0809
PMAMW-4D-0809

Quality assurance/quality control (QA/QC) criteria were identified in the Revised PCB Groundwater Quality Assessment Work Plan (Solutia, 2009) and of those criteria established in USEPA Method 680. Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1999) where applicable to SW-846 Method 680.

Criteria evaluated included the following method performance criteria:

- Data package completeness
- Laboratory case narrative/cooler receipt form
- Holding times and sample preservation
- GC/MS instrument performance
- Initial calibration
- Calibration verification
- Blank samples
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) samples
- Internal standard areas
- Laboratory control sample (LCS)
- Target compound identification and quantitation
- Overall assessment of data

1.1 Data Package Completeness

The data package was reviewed to make certain that it contained the data contractually required in the deliverable. This included checking the data package for the results of each analyte requested for each field sample submitted in the analytical batch, along with requested QC documentation for the respective methods. The data package was complete.

1.2 Laboratory Case Narrative/Cooler Receipt Form

The laboratory case narrative indicated that LCSD recoveries were outside evaluation criteria. The surrogate recoveries for decachlorobiphenyl-13C_{12} surrogate recoveries were outside

evaluation criteria in quality control samples. Internal standard recoveries for phenanthrene-d_{10} and chrysene-d_{12} were outside evaluation criteria in the laboratory control sample duplicate. Although not indicated in the laboratory case narrative, the initial and continuing calibration average response factors for PCB decachlorobiphenyl were less than 0.05. Additionally, samples were qualified due to field duplicate RPD. These issues are addressed further in the appropriate sections below. No problems were noted on the cooler receipt form.

1.3 Holding Times and Sample Preservation

Review of the sample collection and analysis dates involved comparing the chains-of-custody, the summary forms, the raw data forms, and the chromatograms for accuracy, consistency, and holding time compliance. The cooler receipt form indicated the cooler temperatures were received at $4^oC \pm 2^oC$. The samples were extracted within the holding time criteria of 7 days (water) and analyzed within 40 days after extraction.

1.4 Instrument Performance

GC/MS instrument performance checks were performed to ensure mass resolution, identification, and instrument sensitivity. Criteria for evaluation of instrument performance included possible transcription/calculation errors, adherence to instrument tuning frequency requirements, mass assignments, and ion abundance criteria. Instrument performance check samples were evaluated against criteria identified in the data package. No qualification of data was required.

Based on the raw data, the ion abundance criteria were within evaluation criteria for all masses, and no calculation or transcription errors were noted.

1.5 Initial Calibration

Calibration criteria were established to assess whether the instrument was capable of producing acceptable qualitative and quantitative data for PCB analysis. Samples as part of SDG KPM033 were analyzed using instrument MSF5973. The initial calibration (ICAL) for instrument MSF5973 was established on 9/17/2009 prior to sample analysis and using at least five concentration standards to establish the initial calibration curve as required by Method 680. For the initial calibration, the response factors (RFs) were reviewed and were greater than 0.05 for all analytes, with the exception of decachlorobiphenyl (0.034).

Qualifications due to ICAL RFs are listed in the table below:

Field ID	Analyte	Qualification
PMAMW-1M-0809	DCB Decachlorobiphenyl	**R**
PMAMW-3S-0809	DCB Decachlorobiphenyl	**R**
PMAMW-3M-0809	DCB Decachlorobiphenyl	**R**
PMAMW-4D-0809	DCB Decachlorobiphenyl	**R**

Review of the initial calibration summary forms indicated the relative standard deviations (%RSDs) were $\leq$ 30% for all compounds.

Recalculations of the RFs and %RSD for two compounds per standard were performed, and no errors in calculation were noted.

1.6 Calibration Verification

Review of the sample chromatograms indicate the calibration verifications (CVs) were performed within 12 hours of operation. Based on the review of raw data and summary forms,

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all RFs met the evaluation criteria of greater than 0.05 for all analytes, with the exception of decachlorobiphenyl (0.035). This compound was previously qualified due to ICAL RF below evaluation criteria, therefore no additional qualification was required. In addition, percent differences (%Ds) met the evaluation criteria of $\leq$ 30% for all target compounds, no qualification of data was required.

Recalculation of the RF and %D for one compound per standard was completed, and no errors in calculation were noted.

1.7 Blank Samples

The purpose of the method blank samples is to evaluate the existence and magnitude of contamination problems emanating from laboratory activities. Method blank samples were analyzed with each analytical batch as required by USEPA SW-846 Method 680. All target compounds in the method blanks were reported as non-detect. Review of chromatograms indicates all peaks present were accounted or the concentrations reported were below the method detection limit.

1.8 Surrogate Spike Recoveries

Surrogate compounds were used to evaluate the overall laboratory sample preparation efficiency on a per-sample basis. All surrogate recoveries were within criteria with the exceptions for the method blank and laboratory control standard duplicate summarized in the table below:

Laboratory ID	Parameter	Surrogate	Recovery	Criteria
MB 680-146212/9-A	PCBs	Decachlorobiphenyl-13C_{12}	**17**	25-113
LCSD 680-146749/6-A	PCBs	Decachlorobiphenyl-13C_{12}	**386**	25-113

Method blanks and LCSDs are quality control samples; therefore, no qualification of data is required. Ten percent of the recoveries were recalculated, and the summary forms versus the raw data were verified. No calculation or transcription errors were noted.

1.9 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

A MS/MSD sample is analyzed to assess accuracy and precision for the analyses and potential matrix affects. The validated samples were not chosen for MS/MSD analysis.

1.10 Internal Standards

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. Each sample included the internal standards chrysene-d_{12} and phenanthrene-d_{10}. Method 680 indicates the IS areas must be within +/- 30% of the preceding CV IS value. Also, the IS retention times must be within 30 seconds of the preceding IS CV retention time. If the IS area count is outside criteria, Method 680 indicates that the mean IS area obtained during the ICAL (+/- 50%) should be used. The internal standard recoveries that were outside evaluation criteria of $\pm$ 50% are summarized in the table below:

Laboratory ID	Parameter	Analyte	IS Area Recovery	IS Criteria
LCSD 680-146749/6-A	PCBs	Phenanthrene-d_{10}	**3587**	17895-53683
LCSD 680-146749/6-A	PCBs	Chrysene-d_{12}	**9416**	24232-72696

Quality control samples do not require qualification. LCSD samples are quality control samples; therefore, no qualification of data is required.

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1.11 Laboratory Control Sample (LCS)

Laboratory control samples were analyzed with each analytical batch to assess the accuracy of the analytical process. All LCS/LCSD recoveries were within evaluation criteria with the exceptions summarized in the table below:

LCS/LCSD ID	Parameter	Analyte	LCS/LCSD Recovery	RPD	LCS/LCSD/RPD Criteria
680-146749/5-A/ 680-146749/6-A	PCBs	Monochlorobiphenyl	44/**230**	**136**	10-125/40
680-146749/5-A/ 680-146749/6-A	PCBs	Dichlorobiphenyl	47/**265**	**139**	10-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Trichlorobiphenyl	49/**285**	**141**	17-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Tetrachlorobiphenyl	51/**291**	**141**	18-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Pentachlorobiphenyl	55/**313**	**140**	34-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Hexachlorobiphenyl	55/**313**	**140**	31-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Heptachlorobiphenyl	57/**324**	**140**	33-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	Octachlorobiphenyl	59/**329**	**139**	33-110/40
680-146749/5-A/ 680-146749/6-A	PCBs	DCB Decachlorobiphenyl	61/**344**	**139**	26-115/40

Analytical data which were reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. Professional judgment was used to not qualify data since all LCS recoveries were within evaluation criteria and all LCSD recoveries were outside criteria due to a residual acid in the extract from an acid cleanup procedure that was completed as part of the method extraction.

A minimum of 20% of the spiking compound recoveries for the LCS's were recalculated using the LCS summary forms, and no calculation or transcription errors were noted.

1.12 Target Compound Identification and Quantitation

For validation of the compound identification, chromatograms were reviewed to verify the major peaks were identified, the spectra of the identified compounds were verified against the library spectra, and the relative retention time was no greater than 0.06 different from the associated continuing calibration retention times. No anomalies were noted with the identification of the target compounds in the samples.

For the validation of compound quantitation, approximately 10% of the detected compound results were recalculated from the raw data, and no calculation errors were noted. Review of the data indicated that the correct reporting limits were reported.

1.13 Overall Data Assessment

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use with the exception of the rejected data. Acceptable levels of accuracy and precision, based on LCS, and surrogate data were achieved for this SDG. Qualifiers were added as appropriate.

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-50142-1

SDG Number: KPM033

Job Description: WGK PCB GW Quality 3Q09 AUG 2009

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, MO 63141

Attention: Mr. Jerry Rinaldi

Approved for release.
Lidya Gulizia
Project Manager I
9/28/2009 4:54 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
09/28/2009

Reviewed on SEP 29 2009

cc: Mr. Jeff Adams
Mr. Bob Billman
Dave Palmer

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. This report may not be reproduced, except in full, without the written approval of the laboratory. Questions should be directed to the person who signed this report.

Savannah Certifications and ID #s: A2LA: 0399.01; AL: 41450; ARDEQ: 88-0692; ARDOH; CA: 03217CA; CO; CT: PH0161; DE; FL: E87052; GA: 803; Guam; HI; IL: 200022; IN; IA: 353; KS: E-10322; KY EPPC: 90084; KY UST; LA DEQ: 30690; LA DHH: LA080008; ME: 2008022; MD: 250; MA: M-GA006; MI: 9925; MS; NFESC: 249; NV: GA00006; NJ: GA769; NM; NY: 10842; NC DWQ: 269; NC DHHS: 13701; PA: 68-00474; PR: GA00006; RI: LAO00244; SC: 98001001; TN: TN0296; TX: T104704185; USEPA: GA00006; VT: VT-87052; VA: 00302; WA; WV DEP: 094; WV DHHR: 9950 C; WI DNR: 999819810; WY/EPAR8: 8TMS-Q

TestAmerica Laboratories, Inc.
TestAmerica Savannah 5102 LaRoche Avenue, Savannah, GA 31404
Tel (912) 354-7858 Fax (912) 352-0165 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Job Narrative
680-J50142-1 / SDG KPM033

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
Method(s) 680: The laboratory control sample duplicate (LCSD) for preparation batch 146749 exceeded control limits for all spiked analytes. The extract contained residual acid as a result of the acid cleanup procedure. Therefore, the internal standards recovered low and analytes recovered high biased. The responses of the target compounds and surrogate in the LCSD are comparable to the responses in the LCS.

Method(s) 680: The surrogate recovery for the blank associated with batch 146212 was outside recovery limits. All associated sample surrogates fell within acceptance criteria; therefore, the data have been reported.

Method(s) 680: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 146749 exceeded control limits for all spiked analytes.

No other analytical or quality issues were noted.

Comments
No additional comments.

SEP 29 2009 EZK

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Description	Lab Location	Method	Preparation Method
Matrix Water			
Polychlorinated Biphenyls (PCBs) (GC/MS)	TAL SAV	EPA 680	
Liquid-Liquid Extraction (Separatory Funnel)	TAL SAV		EPA 680

Lab References:

TAL SAV = TestAmerica Savannah

Method References:

EPA = US Environmental Protection Agency

METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Method	Analyst	Analyst ID
EPA 680	Chamberlain, Kim	KAC

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-50142-1	PMAMW-1S-0809	Water	08/21/2009 1010	08/22/2009 1333
680-50142-1MS	PMAMW-1S-0809-MS	Water	08/21/2009 1010	08/22/2009 1333
680-50142-1MSD	PMAMW-1S-0809-MSD	Water	08/21/2009 1010	08/22/2009 1333
680-50142-2	PMAMW-1M-0809	Water	08/21/2009 1100	08/22/2009 1333
680-50142-3	PMAMW-2S-0809	Water	08/21/2009 1155	08/22/2009 1333
680-50142-4EB	PMAMW-2S-0809-EB	Water	08/21/2009 1120	08/22/2009 1333
680-50142-5	PMAMW-2M-0809	Water	08/21/2009 1225	08/22/2009 1333
680-50142-6FD	PMAMW-2M-0809-AD	Water	08/21/2009 1225	08/22/2009 1333
680-50142-7	PMAMW-6D-0809	Water	08/21/2009 1440	08/22/2009 1333
680-50142-8	PMAMW-5M-0809	Water	08/21/2009 1350	08/22/2009 1333
680-50208-1	PMAMW-3S-0809	Water	08/25/2009 1010	08/26/2009 1000
680-50208-2	PMAMW-3M-0809	Water	08/25/2009 1125	08/26/2009 1000
680-50208-3	PMAMW-4D-0809	Water	08/25/2009 1235	08/26/2009 1000

SEP 29 2009

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: PMAMW-1S-0809

Lab Sample ID: 680-50142-1
Client Matrix: Water

Date Sampled: 08/21/2009 1010
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1030 mL
Date Analyzed:	09/17/2009 2257			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.097	U	0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	72		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-1M-0809**

Lab Sample ID: 680-50142-2
Client Matrix: Water

Date Sampled: 08/21/2009 1100
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1030 mL
Date Analyzed:	09/17/2009 2329			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.27		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	~~U~~ "R"	0.49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	70		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-2S-0809**

Lab Sample ID: 680-50142-3
Client Matrix: Water

Date Sampled: 08/21/2009 1155
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1030 mL
Date Analyzed:	09/18/2009 0001			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.097	U	0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	61		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-2S-0809-EB**

Lab Sample ID: 680-50142-4EB
Client Matrix: Water

Date Sampled: 08/21/2009 1120
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	09/18/2009 0033			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.094	U	0.094
Dichlorobiphenyl	0.094	U	0.094
Trichlorobiphenyl	0.094	U	0.094
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.28	U	0.28
Octachlorobiphenyl	0.28	U	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	U	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	75		25 - 113

SEP 29 2009 ETL

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-2M-0809**

Lab Sample ID: 680-50142-5
Client Matrix: Water

Date Sampled: 08/21/2009 1225
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	09/18/2009 0105			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	3.1	J	0.094
Dichlorobiphenyl	0.094	U	0.094
Trichlorobiphenyl	0.094	U	0.094
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.28	U	0.28
Octachlorobiphenyl	0.28	U	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	U	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	74		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-2M-0809-AD**

Lab Sample ID: 680-50142-6FD
Client Matrix: Water

Date Sampled: 08/21/2009 1225
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146212		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	09/18/2009 0138			Final Weight/Volume:	1 mL
Date Prepared:	08/25/2009 1324			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	1.8	J	0.094
Dichlorobiphenyl	0.094	U	0.094
Trichlorobiphenyl	0.094	U	0.094
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.28	U	0.28
Octachlorobiphenyl	0.28	U	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	U	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	59		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-6D-0809**

Lab Sample ID: 680-50142-7
Client Matrix: Water

Date Sampled: 08/21/2009 1440
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768	Instrument ID: MSF
Preparation:	680	Prep Batch: 680-146212	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1030 mL
Date Analyzed:	09/18/2009 0210		Final Weight/Volume: 1 mL
Date Prepared:	08/25/2009 1324		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.20		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	65		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-5M-0809**

Lab Sample ID: 680-50142-8
Client Matrix: Water

Date Sampled: 08/21/2009 1350
Date Received: 08/22/2009 1333

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768	Instrument ID: MSF
Preparation:	680	Prep Batch: 680-146212	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1030 mL
Date Analyzed:	09/18/2009 0242		Final Weight/Volume: 1 mL
Date Prepared:	08/25/2009 1324		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.097	U	0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	69		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-3S-0809**

Lab Sample ID: 680-50208-1
Client Matrix: Water

Date Sampled: 08/25/2009 1010
Date Received: 08/26/2009 1000

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768	Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146749	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	09/17/2009 1807		Final Weight/Volume:	1 mL
Date Prepared:	08/31/2009 1350		Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.34	*	0.094
Dichlorobiphenyl	0.094	U *	0.094
Trichlorobiphenyl	0.094	U *	0.094
Tetrachlorobiphenyl	0.19	U *	0.19
Pentachlorobiphenyl	0.19	U *	0.19
Hexachlorobiphenyl	0.19	U *	0.19
Heptachlorobiphenyl	0.28	U *	0.28
Octachlorobiphenyl	0.28	U *	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	~~U *~~ = R"	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	81		25 - 113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-3M-0809**

Lab Sample ID: 680-50208-2
Client Matrix: Water

Date Sampled: 08/25/2009 1125
Date Received: 08/26/2009 1000

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-146749		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	09/17/2009 1840			Final Weight/Volume:	1 mL
Date Prepared:	08/31/2009 1350			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.85	*	0.094
Dichlorobiphenyl	0.094	U *	0.094
Trichlorobiphenyl	0.094	U *	0.094
Tetrachlorobiphenyl	0.19	U *	0.19
Pentachlorobiphenyl	0.19	U *	0.19
Hexachlorobiphenyl	0.19	U *	0.19
Heptachlorobiphenyl	0.28	U *	0.28
Octachlorobiphenyl	0.28	U *	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	~~U~~ "R"	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	52		25 - 113

SEP 29 2009 EJR

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Client Sample ID: **PMAMW-4D-0809**

Lab Sample ID: 680-50208-3
Client Matrix: Water

Date Sampled: 08/25/2009 1235
Date Received: 08/26/2009 1000

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148768	Instrument ID: MSF
Preparation:	680	Prep Batch: 680-146749	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	09/17/2009 1912		Final Weight/Volume: 1 mL
Date Prepared:	08/31/2009 1350		Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.20	*	0.094
Dichlorobiphenyl	0.17	*	0.094
Trichlorobiphenyl	0.094	U *	0.094
Tetrachlorobiphenyl	0.19	U *	0.19
Pentachlorobiphenyl	0.19	U *	0.19
Hexachlorobiphenyl	0.19	U *	0.19
Heptachlorobiphenyl	0.28	U *	0.28
Octachlorobiphenyl	0.28	U *	0.28
Nonachlorobiphenyl	0.47	U	0.47
DCB Decachlorobiphenyl	0.47	~~U~~ = R"	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	73		25 - 113

SEP 29 2009

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	*	LCS or LCSD exceeds the control limits
	*	RPD of the LCS and LCSD exceeds the control limits
	X	Surrogate exceeds the control limits

QUALITY CONTROL RESULTS

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 680-146212					
LCS 680-146212/10-A	Lab Control Sample	T	Water	680	
MB 680-146212/9-A	Method Blank	T	Water	680	
680-50142-1	PMAMW-1S-0809	T	Water	680	
680-50142-1MS	Matrix Spike	T	Water	680	
680-50142-1MSD	Matrix Spike Duplicate	T	Water	680	
680-50142-2	PMAMW-1M-0809	T	Water	680	
680-50142-3	PMAMW-2S-0809	T	Water	680	
680-50142-4EB	PMAMW-2S-0809-EB	T	Water	680	
680-50142-5	PMAMW-2M-0809	T	Water	680	
680-50142-6FD	PMAMW-2M-0809-AD	T	Water	680	
680-50142-7	PMAMW-6D-0809	T	Water	680	
680-50142-8	PMAMW-5M-0809	T	Water	680	
Prep Batch: 680-146749					
LCS 680-146749/5-A	Lab Control Sample	T	Water	680	
LCSD 680-146749/6-A	Lab Control Sample Duplicate	T	Water	680	
MB 680-146749/4-A	Method Blank	T	Water	680	
680-50208-1	PMAMW-3S-0809	T	Water	680	
680-50208-2	PMAMW-3M-0809	T	Water	680	
680-50208-3	PMAMW-4D-0809	T	Water	680	
Analysis Batch:680-148768					
LCS 680-146212/10-A	Lab Control Sample	T	Water	680	680-146212
MB 680-146212/9-A	Method Blank	T	Water	680	680-146212
LCS 680-146749/5-A	Lab Control Sample	T	Water	680	680-146749
LCSD 680-146749/6-A	Lab Control Sample Duplicate	T	Water	680	680-146749
MB 680-146749/4-A	Method Blank	T	Water	680	680-146749
680-50142-1	PMAMW-1S-0809	T	Water	680	680-146212
680-50142-1MS	Matrix Spike	T	Water	680	680-146212
680-50142-1MSD	Matrix Spike Duplicate	T	Water	680	680-146212
680-50142-2	PMAMW-1M-0809	T	Water	680	680-146212
680-50142-3	PMAMW-2S-0809	T	Water	680	680-146212
680-50142-4EB	PMAMW-2S-0809-EB	T	Water	680	680-146212
680-50142-5	PMAMW-2M-0809	T	Water	680	680-146212
680-50142-6FD	PMAMW-2M-0809-AD	T	Water	680	680-146212
680-50142-7	PMAMW-6D-0809	T	Water	680	680-146212
680-50142-8	PMAMW-5M-0809	T	Water	680	680-146212
680-50208-1	PMAMW-3S-0809	T	Water	680	680-146749
680-50208-2	PMAMW-3M-0809	T	Water	680	680-146749
680-50208-3	PMAMW-4D-0809	T	Water	680	680-146749

Report Basis
T = Total

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Surrogate Recovery Report

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	13DCB %Rec
680-50142-1	PMAMW-1S-0809	72
680-50142-2	PMAMW-1M-0809	70
680-50142-3	PMAMW-2S-0809	61
680-50142-4	PMAMW-2S-0809-EB	75
680-50142-5	PMAMW-2M-0809	74
680-50142-6	PMAMW-2M-0809-AD	59
680-50142-7	PMAMW-6D-0809	65
680-50142-8	PMAMW-5M-0809	69
680-50208-1	PMAMW-3S-0809	81
680-50208-2	PMAMW-3M-0809	52
680-50208-3	PMAMW-4D-0809	73
MB 680-146212/9-A		17X
MB 680-146749/4-A		77
LCS 680-146212/10-A		83
LCS 680-146749/5-A		68
LCSD 680-146749/6-A		386X
680-50142-1 MS	PMAMW-1S-0809 MS	67
680-50142-1 MSD	PMAMW-1S-0809 MSD	58

Surrogate	Acceptance Limits
13DCB = Decachlorobiphenyl-13C12	25-113

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Method Blank - Batch: 680-146212

Method: 680
Preparation: 680

Lab Sample ID: MB 680-146212/9-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/17/2009 2152
Date Prepared: 08/25/2009 1324

Analysis Batch: 680-148768
Prep Batch: 680-146212
Units: ug/L

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result	Qual	RL
Monochlorobiphenyl	0.10	U	0.10
Dichlorobiphenyl	0.10	U	0.10
Trichlorobiphenyl	0.10	U	0.10
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
Heptachlorobiphenyl	0.30	U	0.30
Octachlorobiphenyl	0.30	U	0.30
Nonachlorobiphenyl	0.50	U	0.50
DCB Decachlorobiphenyl	0.50	U	0.50

Surrogate	% Rec		Acceptance Limits
Decachlorobiphenyl-13C12	17	X	25 - 113

Lab Control Sample - Batch: 680-146212

Method: 680
Preparation: 680

Lab Sample ID: LCS 680-146212/10-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/17/2009 2225
Date Prepared: 08/25/2009 1324

Analysis Batch: 680-148768
Prep Batch: 680-146212
Units: ug/L

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Monochlorobiphenyl	2.00	1.09	54	10 - 125	
Dichlorobiphenyl	2.00	1.24	62	10 - 110	
Trichlorobiphenyl	2.00	1.30	65	17 - 110	
Tetrachlorobiphenyl	4.00	2.68	67	18 - 110	
Pentachlorobiphenyl	4.00	2.82	71	34 - 110	
Hexachlorobiphenyl	4.00	2.80	70	31 - 110	
Heptachlorobiphenyl	6.00	4.28	71	33 - 110	
Octachlorobiphenyl	6.00	4.38	73	33 - 110	
DCB Decachlorobiphenyl	10.0	7.71	77	26 - 115	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	83	25 - 113

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

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-146212

Method: 680
Preparation: 680

MS Lab Sample ID:	680-50142-1	Analysis Batch: 680-148768	Instrument ID: GC/MS SemiVolatiles - F
Client Matrix:	Water	Prep Batch: 680-146212	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	09/18/2009 0314		Final Weight/Volume: 1 mL
Date Prepared:	08/25/2009 1324		Injection Volume:

MSD Lab Sample ID:	680-50142-1	Analysis Batch: 680-148768	Instrument ID: GC/MS SemiVolatiles - F
Client Matrix:	Water	Prep Batch: 680-146212	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	09/18/2009 0346		Final Weight/Volume: 1 mL
Date Prepared:	08/25/2009 1324		Injection Volume:

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Monochlorobiphenyl	42	28	10 - 125	40	40		
Dichlorobiphenyl	50	36	10 - 110	32	40		
Trichlorobiphenyl	52	40	17 - 110	25	40		
Tetrachlorobiphenyl	53	41	18 - 110	25	40		
Pentachlorobiphenyl	61	48	34 - 110	23	40		
Hexachlorobiphenyl	61	48	31 - 110	23	40		
Heptachlorobiphenyl	63	49	33 - 110	25	40		
Octachlorobiphenyl	62	50	33 - 110	23	40		
DCB Decachlorobiphenyl	62	52	26 - 115	18	40		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl-13C12	67	58	25 - 113

SEP 29 2009

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

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Method Blank - Batch: 680-146749

Method: 680
Preparation: 680

Lab Sample ID: MB 680-146749/4-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 09/17/2009 1558
Date Prepared: 08/31/2009 1350

Analysis Batch: 680-148768
Prep Batch: 680-146749
Units: ug/L

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result	Qual	RL
Monochlorobiphenyl	0.10	U	0.10
Dichlorobiphenyl	0.10	U	0.10
Trichlorobiphenyl	0.10	U	0.10
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
Heptachlorobiphenyl	0.30	U	0.30
Octachlorobiphenyl	0.30	U	0.30
Nonachlorobiphenyl	0.50	U	0.50
DCB Decachlorobiphenyl	0.50	U	0.50

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	77	25 - 113

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

SEP 29 2009

Client: Solutia Inc.

Job Number: 680-50142-1
Sdg Number: KPM033

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 680-146749

Method: 680
Preparation: 680

LCS Lab Sample ID:	LCS 680-146749/5-A	Analysis Batch:	680-148768	Instrument ID:	GC/MS SemiVolatiles - F
Client Matrix:	Water	Prep Batch:	680-146749	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	09/17/2009 1703			Final Weight/Volume:	1 mL
Date Prepared:	08/31/2009 1350			Injection Volume:	

LCSD Lab Sample ID:	LCSD 680-146749/6-A	Analysis Batch:	680-148768	Instrument ID:	GC/MS SemiVolatiles - F
Client Matrix:	Water	Prep Batch:	680-146749	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	09/17/2009 1735			Final Weight/Volume:	1 mL
Date Prepared:	08/31/2009 1350			Injection Volume:	

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Monochlorobiphenyl	44	230	10 - 125	136	40		*
Dichlorobiphenyl	47	265	10 - 110	139	40		*
Trichlorobiphenyl	49	285	17 - 110	141	40		*
Tetrachlorobiphenyl	51	291	18 - 110	141	40		*
Pentachlorobiphenyl	55	313	34 - 110	140	40		*
Hexachlorobiphenyl	55	313	31 - 110	140	40		*
Heptachlorobiphenyl	57	324	33 - 110	140	40		*
Octachlorobiphenyl	59	329	33 - 110	139	40		*
DCB Decachlorobiphenyl	61	344	26 - 115	139	40		*

Surrogate	LCS % Rec	LCSD % Rec		Acceptance Limits
Decachlorobiphenyl-13C12	68	386	X	25 - 113

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

SEP 29 2009

Savannah
5102 LaRoche Avenue
Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: Fed Ex	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time		Job No. 21562156.00003
St. Louis, MO 63110	Calendar (C) or Work Days (W)		
(314) 429-0100 Phone	TAT if different from Below Standard		
(314) 429-0462 FAX	☐ 2 weeks		SDG No.
Project Name: 3Q09 PCB GW Sampling	☐ 1 week		
Site: Solutia WG Krummrich Facility	☐ 2 days		
P O #	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Total PCBs by 680	Sample Specific Notes:
PMAMW-1S-0809 ✓	8/21/09	1010	G	Water	2		2	
PMAMW-1S-0809-MS ✓		1010	G	Water	2		2	
PMAMW-1S-0809-MSD ✓		1010	G	Water	2		2	
PMAMW-1M-0809 ✓		1100	G	Water	2		2	
PMAMW-2S-0809 ✓		1155	G	Water	2		2	
PMAMW-2S-0809-EB ✓		1120	G	Water	2		2	
PMAMW-2M-0809 ✓		1225	G	Water	2		2	
PMAMW-2M-0809-AD ✓		1225	G	Water	2		2	
PMAMW-6D-0809 ✓		1440	G	Water	2		2	
PMAMW-5M-0809 ✓	↓	1350	G	Water	2		2	
~~Trip Blank~~				Water	2		2	MC

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____ | 1

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

3.2/2.6/2.0
680 - 50142

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	8/21/09 1630			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

SEP 29 2009 EZ

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett		COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: UPS	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. 21562156.00003
St. Louis, MO 63110	Calendar (C) or Work Days (W)			
(314) 429-0100 Phone	TAT if different from Below Standard			SDG No.
(314) 429-0462 FAX	☐ 2 weeks			
Project Name: 3Q09 PCB GW Sampling	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Total PCBs by 680	Sample Specific Notes:
PMAMW-3S-0809	8/25/09	1010	G	Water	2	2	
PMAMW-3M-0809		1125	G	Water	2	2	
PMAMW-4D-0809		1235	G	Water	2	2	
							680-50208
~~Trip Blank~~				~~Water~~	~~2~~	~~2~~	MC
						1	1.8

Page 27 of 29

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	8/25/09 1600	Beth A Daughtry	TA SAV	8-26-09 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

SEP 29 2009 EVK

Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-50142-1
SDG Number: KPM033

Login Number: 50142
Creator: Conner, Keaton
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	3 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2, 2.6, 2.0 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	False	
Sample Preservation Verified	True	

SEP 29 2009

Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-50142-1
SDG Number: KPM033

Login Number: 50208
Creator: Daughtry, Beth
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	MS/MSD received in job 50142 for SDG
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

SEP 29 2009

SDG KPM034

Results of Sample from Well:

PMAMW-4S

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

D.2 Solutia Krummrich Data Review

Laboratory SDG: KPM034

Reviewer: Elizabeth Kunkel

Date Reviewed: 10/9/2009

Guidance: USEPA National Functional Guidelines for Organic Data Review 1999.

Applicable Work Plan: Revised PCB Groundwater Quality Assessment (Solutia 2009)

Sample Identification
PMAMW-4S-0809-DNAPL

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated that PCB surrogates were diluted out and not recovered. Internal standard recoveries for phenanthrene-d_{10} were outside evaluation criteria in sample PMAMW-4S-0809-DNAPL. Samples were diluted due to high levels of target analytes. Additionally, sample PMAMW-4S-0809-DNAPL was extracted outside of holding time criteria. These issues are addressed further in the appropriate sections below.

The cooler receipt form did not indicate any problems.

US EPA ARCHIVE DOCUMENT

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

No, sample PMAMW-4S-0809-DNAPL was extracted 5 days outside of hold time (hold time is 14 days for PCBs in wastes). Professional judgment was used to not reject data, since PCBs are very stable. Detected analytes were qualified as estimated (**J**) as summarized in the table below:

Field ID	Parameter	Analyte	Qualification
PMAMW-4S-0809-DNAPL	PCBs	Monochlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Dichlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Octachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Nonachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	DCB Decachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Trichlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Tetrachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Pentachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Hexachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL-DL	PCBs	Heptachlorobiphenyl	**J**

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Surrogates were diluted out and not recovered in the following samples: PMAMW-4S-0809-DNAPL and PMAMW-4S-0809-DNAPL-DL. No qualification of data is required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples reported as part of this SDG?

No

US EPA ARCHIVE DOCUMENT

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Field ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMAMW-4S-0809-DNAPL	PCBs	Phenanthrene-d_{10}	**133051**	17895-53683

Analytical results that required qualification based on IS data are included in the table below.

Field ID	Parameter	Analyte	Qualification
PMAMW-4S-0809-DNAPL	PCBs	Monochlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Dichlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Octachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	Nonachlorobiphenyl	**J**
PMAMW-4S-0809-DNAPL	PCBs	DCB Decachlorobiphenyl	**J**

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples analyzed as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-50207-1

SDG Number: KPM034

Job Description: WGK PCB GW DNAPL MW4S 3Q09 - AUG 2009

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, MO 63141

Attention: Mr. Jerry Rinaldi

Lidya Gulizia

Approved for release.
Lidya Gulizia
Project Manager I
9/28/2009 5:03 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
09/28/2009

Reviewed on

OCT 9 2009 CZK

cc: Mr. Jeff Adams
Mr. Bob Billman
Dave Palmer

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. This report may not be reproduced, except in full, without the written approval of the laboratory. Questions should be directed to the person who signed this report.

Savannah Certifications and ID #s: A2LA: 0399.01; AL: 41450; ARDEQ: 88-0692; ARDOH; CA: 03217CA; CO; CT: PH0161; DE; FL: E87052; GA: 803; Guam; HI; IL: 200022; IN; IA: 353; KS: E-10322; KY EPPC: 90084; KY UST; LA DEQ: 30690; LA DHH: LA080008; ME: 2008022; MD: 250; MA: M-GA006; MI: 9925; MS; NFESC: 249; NV: GA00006; NJ: GA769; NM; NY: 10842; NC DWQ: 269; NC DHHS: 13701; PA: 68-00474; PR: GA00006; RI: LAO00244; SC: 98001001; TN: TN0296; TX: T104704185; USEPA: GA00006; VT: VT-87052; VA: 00302; WA; WV DEP: 094; WV DHHR: 9950 C; WI DNR: 999819810; WY/EPAR8: 8TMS-Q

TestAmerica Laboratories, Inc.
TestAmerica Savannah 5102 LaRoche Avenue, Savannah, GA 31404
Tel (912) 354-7858 Fax (912) 352-0165 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Job Narrative
680-J50207-1 / SDG KPM034

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
Method(s) 680: Sample PMAMW-4S-0809-DNAPL (680-50207-1) was diluted due to abundance of target analytes. As such, surrogate recoveries are not reported, and elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Comments
No additional comments.

OCT 9 2009 EZR

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Description	Lab Location	Method	Preparation Method
Matrix Waste			
Polychlorinated Biphenyls (PCBs) (GC/MS)	TAL SAV	EPA 680	
Waste Preparation (PCBs)	TAL SAV		EPA 680

Lab References:

TAL SAV = TestAmerica Savannah

Method References:

EPA = US Environmental Protection Agency

METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Method	Analyst	Analyst ID
EPA 680	Chamberlain, Kim	KAC

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-50207-1	PMAMW-4S-0809-DNAPL	Waste	08/25/2009 1230	08/26/2009 1000

SAMPLE RESULTS

* "Do not use this data. Use all other data."

Analytical Data

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Client Sample ID: **PMAMW-4S-0809-DNAPL**

Lab Sample ID: 680-50207-1
Client Matrix: Waste

Date Sampled: 08/25/2009 1230
Date Received: 08/26/2009 1000

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148857		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-147714		Lab File ID:	N/A
Dilution:	100			Initial Weight/Volume:	1.37 g
Date Analyzed:	09/18/2009 1321			Final Weight/Volume:	10 mL
Date Prepared:	09/14/2009 1030			Injection Volume:	

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Monochlorobiphenyl		320000	"J"	72000
Dichlorobiphenyl		4600000	"J"	72000
~~Trichlorobiphenyl~~		~~31000000~~	~~E~~	~~72000~~
~~Tetrachlorobiphenyl~~		~~63000000~~	~~E~~	~~150000~~
~~Pentachlorobiphenyl~~		~~49000000~~	~~E~~	~~150000~~
~~Hexachlorobiphenyl~~		~~91000000~~	~~E~~	~~150000~~
~~Heptachlorobiphenyl~~		~~82000000~~	~~E~~	~~220000~~
Octachlorobiphenyl		14000000	"J"	220000
Nonachlorobiphenyl		3600000	"J"	370000
DCB Decachlorobiphenyl		810000	"J"	370000

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	0	D	30 - 130

OCT 9 2009 EZR

* "Use these results only. All other data was reported from the 100x dilution analysis."

Analytical Data

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Client Sample ID: PMAMW-4S-0809-DNAPL

Lab Sample ID: 680-50207-1
Client Matrix: Waste

Date Sampled: 08/25/2009 1230
Date Received: 08/26/2009 1000

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-148857		Instrument ID:	MSF
Preparation:	680	Prep Batch: 680-147714		Lab File ID:	N/A
Dilution:	1000 9/24/2009 ⊙			Initial Weight/Volume:	1.37 g
Date Analyzed:	~~09/18/2009~~ 1114	Run Type:	DL	Final Weight/Volume:	10 mL
Date Prepared:	09/14/2009 1030			Injection Volume:	

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
~~Monochlorobiphenyl~~		~~720000~~	~~U~~	~~720000~~
~~Dichlorobiphenyl~~		~~6600000~~	~~D~~	~~720000~~
Trichlorobiphenyl		47000000	~~D~~ "J"	720000
Tetrachlorobiphenyl		110000000	~~D~~ "J"	1500000
Pentachlorobiphenyl		77000000	~~D~~ "J"	1500000
Hexachlorobiphenyl		140000000	~~D~~ "J"	1500000
Heptachlorobiphenyl		120000000	~~D~~ "J"	2200000
~~Octachlorobiphenyl~~		~~15000000~~	~~D~~	~~2200000~~
~~Nonachlorobiphenyl~~		~~3700000~~	~~U~~	~~3700000~~
~~DCB Decachlorobiphenyl~~		~~3700000~~	~~U~~	~~3700000~~

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	0	D	30 - 130

⊙ Analysis date for the DL run was confirmed as 9/24/2009 (11:14 Am) both through checking the raw data sample information summary and checking with the laboratory. EZR 10/16/2009

OCT 9 2009 EZR

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	E	Result exceeded calibration range.
	D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

QUALITY CONTROL RESULTS

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 680-147714					
LCS 680-147714/3-A	Lab Control Sample	T	Waste	680	
MB 680-147714/2-A	Method Blank	T	Waste	680	
680-50207-1	PMAMW-4S-0809-DNAPL	T	Waste	680	
680-50207-1DL	PMAMW-4S-0809-DNAPL	T	Waste	680	
Analysis Batch:680-148857					
LCS 680-147714/3-A	Lab Control Sample	T	Waste	680	680-147714
MB 680-147714/2-A	Method Blank	T	Waste	680	680-147714
680-50207-1	PMAMW-4S-0809-DNAPL	T	Waste	680	680-147714
680-50207-1DL	PMAMW-4S-0809-DNAPL	T	Waste	680	680-147714

Report Basis
T = Total

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Surrogate Recovery Report

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Client Matrix: Waste

Lab Sample ID	Client Sample ID	13DCB %Rec
680-50207-1 DL	PMAMW-4S-0809-DN APL DL	0D
680-50207-1	PMAMW-4S-0809-DN APL	0D
MB 680-147714/2-A		100
LCS 680-147714/3-A		96

Surrogate	Acceptance Limits
13DCB = Decachlorobiphenyl-13C12	30-130

OCT 9 2009

Client: Solutia Inc.

Job Number: 680-50207-1
Sdg Number: KPM034

Method Blank - Batch: 680-147714

Method: 680
Preparation: 680

Lab Sample ID: MB 680-147714/2-A
Client Matrix: Waste
Dilution: 1.0
Date Analyzed: 09/18/2009 1217
Date Prepared: 09/14/2009 1030

Analysis Batch: 680-148857
Prep Batch: 680-147714
Units: ug/Kg

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	Result	Qual	RL
Monochlorobiphenyl	990	U	990
Dichlorobiphenyl	990	U	990
Trichlorobiphenyl	990	U	990
Tetrachlorobiphenyl	2000	U	2000
Pentachlorobiphenyl	2000	U	2000
Hexachlorobiphenyl	2000	U	2000
Heptachlorobiphenyl	3000	U	3000
Octachlorobiphenyl	3000	U	3000
Nonachlorobiphenyl	5100	U	5100
DCB Decachlorobiphenyl	5100	U	5100

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	100	30 - 130

Lab Control Sample - Batch: 680-147714

Method: 680
Preparation: 680

Lab Sample ID: LCS 680-147714/3-A
Client Matrix: Waste
Dilution: 1.0
Date Analyzed: 09/18/2009 1249
Date Prepared: 09/14/2009 1030

Analysis Batch: 680-148857
Prep Batch: 680-147714
Units: ug/Kg

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1.00 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Monochlorobiphenyl	20000	19300	96	30 - 130	
Dichlorobiphenyl	20000	19100	95	30 - 130	
Trichlorobiphenyl	20000	18500	93	30 - 130	
Tetrachlorobiphenyl	40000	38000	95	40 - 140	
Pentachlorobiphenyl	40000	38900	97	40 - 140	
Hexachlorobiphenyl	40000	37600	94	40 - 140	
Heptachlorobiphenyl	60000	54900	91	40 - 140	
Octachlorobiphenyl	60000	54500	91	40 - 140	
DCB Decachlorobiphenyl	100000	85900	86	30 - 130	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	96	30 - 130

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

OCT 9 2009

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: UPS	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time		Job No.
St. Louis, MO 63110	Calendar (C) or Work Days (W)		21562156.00003
(314) 429-0100 Phone	TAT if different from Below Standard		SDG No.
(314) 429-0462 FAX	☐ 2 weeks		
Project Name: 3Q09 PCB GW Sampling	☐ 1 week		
Site: Solutia WG Krummrich Facility	☐ 2 days		
P O #	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Total PCBs by 680	Sample Specific Notes:
PMAMW-4S-0809-DNAPL	8/25/09	1230	G	NAPL	2	2	
							680-50207
							2.8
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other						1	

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Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ■ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: Level 4 Data Package

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	8/25/09 1600	Bettina Daughtry	TH STAV	8-26-9c 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

OCT 9 2009 [signature]

Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-50207-1
SDG Number: KPM034

Login Number: 50207
Creator: Daughtry, Beth
List Number: 1

List Source: TestAmerica Savannah

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

OCT 9 2009