SOLUTIA
Solutions for a better life.

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May 26, 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
1st Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 1st 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
1st Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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1ST 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

May 2009

URS Corporation
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(314) 429-0100
Project # 21562047.00003

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1.0 INTRODUCTION

This report presents the results of the 1st Quarter 2009 (1Q09) 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 PCB Groundwater Quality Assessment Program Work Plan (Solutia 2008). 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 1Q09 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 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 1Q09 PCB Groundwater Quality Assessment Program field activities February 23 through March 3, 2009.

Groundwater Level Measurements – On February 23 through 25, 2009, 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. NAPL was only detected in monitoring well PMAMW04S. 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 PCB Groundwater Quality Assessment Program Work Plan.

Well gauging information for the 1Q09 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 on February 27 and March 3, 2009. 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 of 200 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.

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.: February (First quarter), 2009 (0209)**
- **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 0.4 feet of DNAPL in monitoring well PMAMW-4S during monitoring well gauging prior to sampling. Consequently, a DNAPL sample was collected. Using the same process as groundwater sampling, DNAPL was pumped through polyethylene tubing into a 4 ounce glass sample container. Sample PMAMW04S-0209-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 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 (FedEx for groundwater, UPS for DNAPL). 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 PCB Groundwater Quality Assessment Work Plan. 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**.

A total of 14 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one MS/MSD pair, one equipment blank) were prepared and analyzed by TestAmerica for PCBs. The results for the various analyses were submitted as sample delivery groups (SDGs) KPM028 and KPM029.

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 PCB Water Quality Assessment Work Plan (Solutia 2008). 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 MS/MSD, 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 100 percent.

5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 1Q09 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 PMAMW04S, and total PCBs were detected at a concentration of 224,400,000 µg/kg. Historically, measurable DNAPL has been observed in PMAMW04S during previous sampling events.

Of the three down-gradient PCB Groundwater Quality Assessment Program SHU monitoring wells (PMAMW-1S through PMAMW-3S), PCBs were only detected in monitoring well PMAMW-3S, at a concentration of 0.79 µg/L. These data indicate that PCBs in the SHU attenuated over the 300 to 400 ft distance between PMAMW04S 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 PMAMW04D located in the Former PCB Manufacturing Area indicated a total PCB concentration of 2.73 µg/L for the 1Q09 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.16 µg/L (PMAMW-1M), 2.9 µg/L (PMAMW-2M)/(2.0 µg/L duplicate), 1.4 µg/L (PMAMW-3M), and 0.32 µg/L (PMAMW-6D). PCBs were not detected in the groundwater sample collected from monitoring well PMAMW-5M. **Figure 5** displays the 1Q09 PCB sampling results for the MHU/DHU.

The 1Q09 sampling event is the third 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**. No statistically significant trends in PCB concentrations were observed.

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, 2008. PCB Groundwater Quality Assessment Program, W.G. Krummrich Facility, Sauget, IL, Prepared by URS Corporation, May 2008.

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

Figures

FALLING SPRINGS ROAD

STERLING STEEL

SITE H

SITE L

SITE M

SITE N

SITE I

SITE G

CONTAINMENT CELL

DEAD CREEK

CERRO COPPER

QUEENY AVENUE

ROUTE 3

W. G. KRUMMRICH FACILITY

AFTON CHEMICAL

MONSANTO AVENUE

BIG RIVER ZINC

ROUTE 3

CENTER ETHANOL COMPANY, LLC

LOT F

MIDWEST RUBBER

PHILLIPS PETROLEUM

SITE O

SITE P

UNION ELECTRIC

PCHEM POTW

CLAYTON CHEMICAL

SITE S

AMERICAN BOTTOMS POTW

ONYX INCINERATION

CAHOKIA MARINE

R SITE

SITE Q

GROUNDWATER PUMPING WELLS

BARRIER WALL

MISSISSIPPI RIVER

LEGEND

- W.G. KRUMMRICH FACILITY
- SAUGET AREA #1
- SAUGET AREA #2

Ø 1ØØØ

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
1ST QUARTER 2ØØ9 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

DRN. BY:lrm 5/15/Ø9
DSGN. BY:wh
CHKD. BY:

Site Location Map

FIG. NO. 1

LEGEND

⊕ MONITORING WELL LOCATION

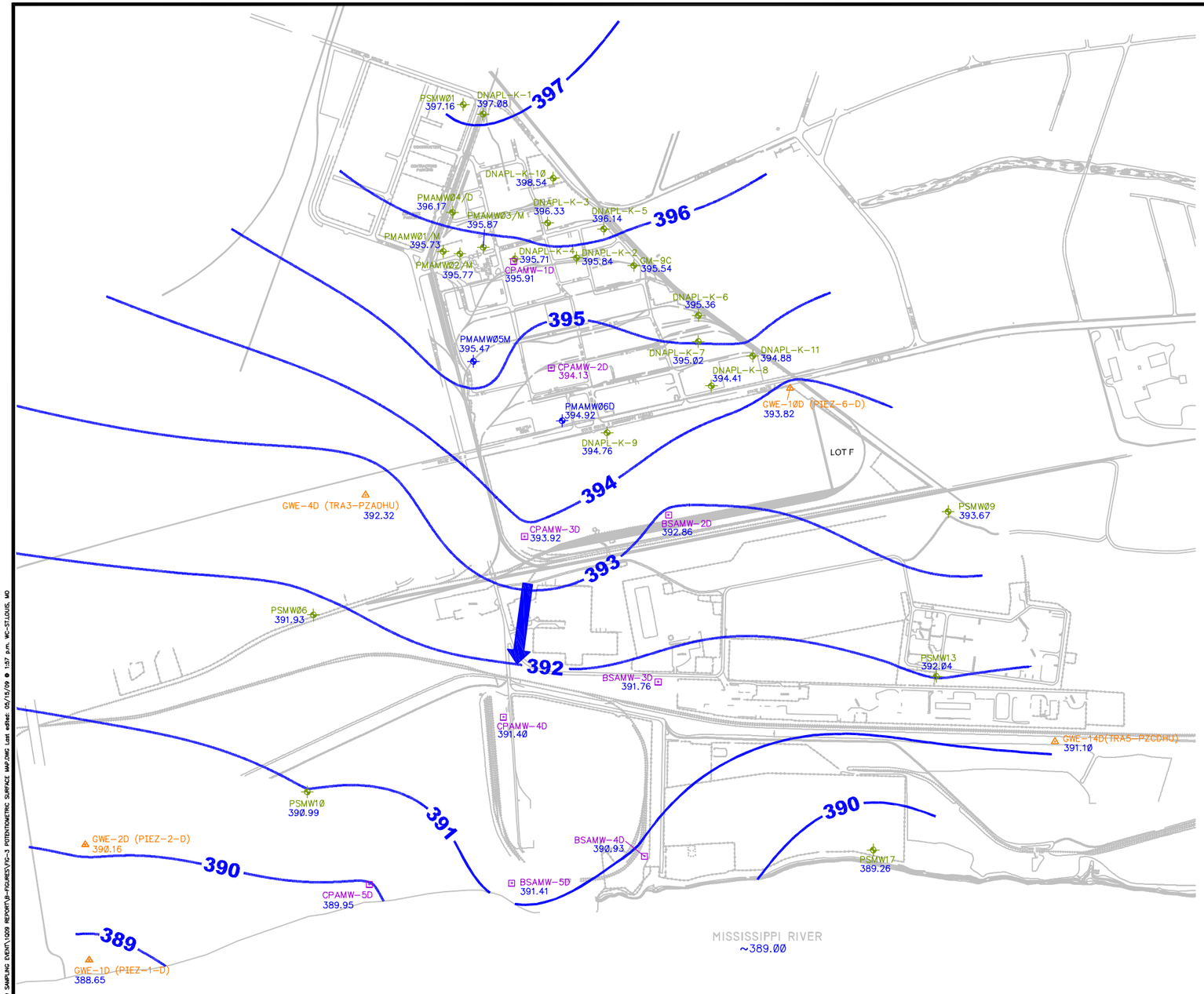
N E S W

Ø 300

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 1ST QUARTER 2009 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562156
URS	
DRN. BY: lrm 5/15/09 DSGN. BY: ekf CHKD. BY:	Former PCB Manufacturing Area Monitoring Well Locations
	FIG. NO. 2

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\MXD\2009\1Q09 SAMPLING EVENT\1Q09 REPORT\B-FIGURES\FIG-2 FORMER PCB MANUFACTURING AREA.DWG Last edited: MAY 15, 09 @ 1:53 p.m. by: curt_smith



LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- GMCS EXTRACTION WELL USED FOR GROUNDWATER CONTOURING
- GMCS PIEZOMETER USED FOR GROUNDWATER CONTOURING
- —392— GROUNDWATER ELEVATION CONTOUR (FT NAVD)
- INDICATES GROUNDWATER FLOW DIRECTION

NOTES:

1. GROUNDWATER LEVELS WERE MEASURED FEBRUARY 23-25, 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. WELLS/PIEZOMETERS SHOWN IN GRAYSCALE WERE NOT USED FOR CONTOURING.
4. 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.
5. THE POTENTIOMETRIC SURFACE OBSERVED AROUND SITE R MAY BE ASSOCIATED WITH THE OPERATION OF THE SA2 GMCS.
6. NEITHER THE PHYSICAL NOR THE HYDROLOGIC BARRIERS CREATED BY THE SA2 GMCS WERE INCORPORATED INTO THE DEVELOPMENT OF THESE CONTOURS.
7. LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 1ST QUARTER 2009 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562156
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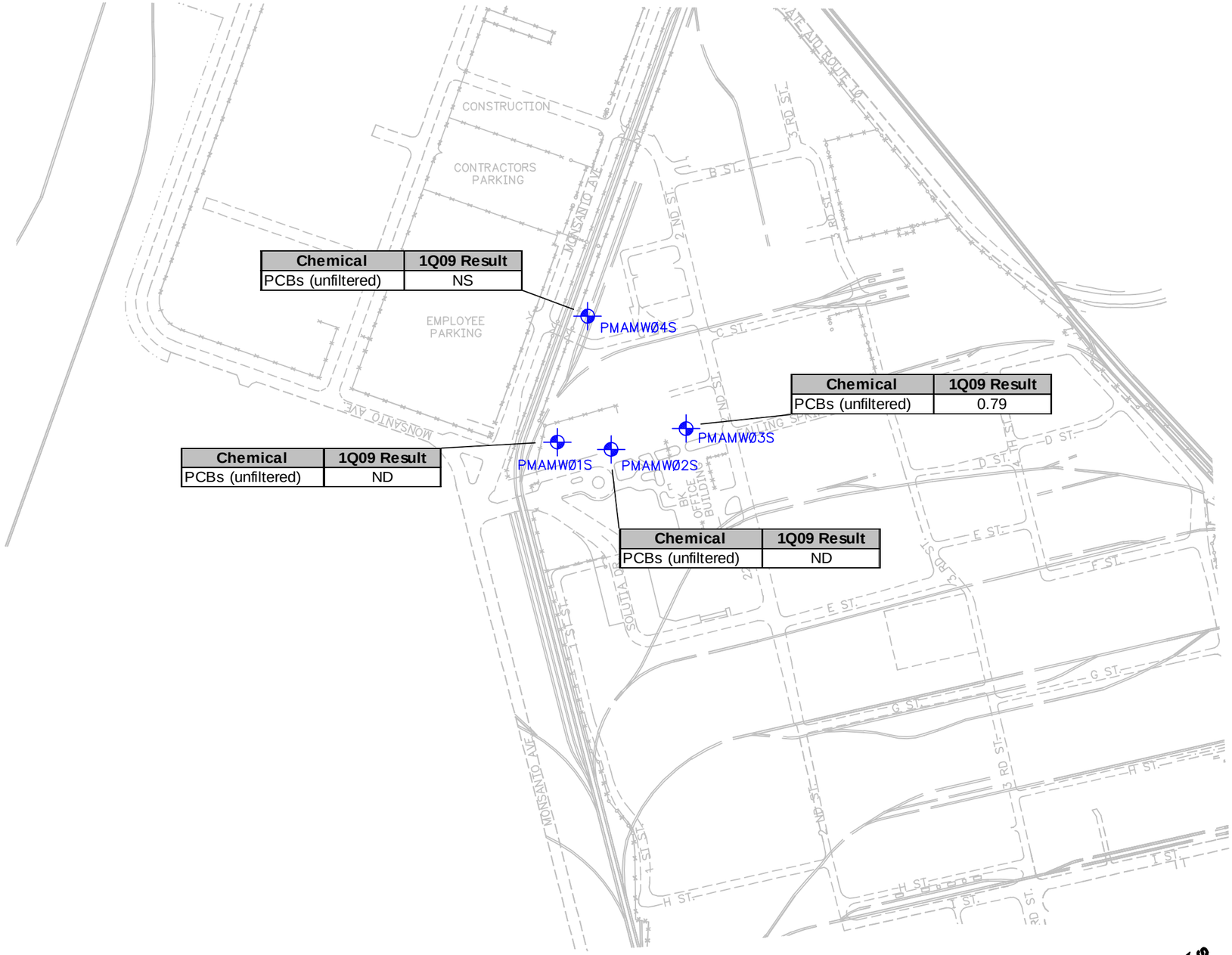
DRN. BY: lrm 5/15/09 DSGN. BY: ekf CHKD. BY:	Potentiometric Surface Map Middle/Deep Hydrogeologic Unit
	FIG. NO. 3



Chemical	1Q09 Result
PCBs (unfiltered)	NS

Chemical	1Q09 Result
PCBs (unfiltered)	0.79

Chemical	1Q09 Result
PCBs (unfiltered)	ND

Chemical	1Q09 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 DENOTES NOT DETECTED.
4. NS DENOTES NOT SAMPLED. PMAMWØ4S CONTAINED DNAPL AND THE GROUNDWATER WAS NOT SAMPLED DURING THE 1QØ9 SAMPLING EVENT.

N S E W

Ø 3ØØ

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
1ST QUARTER 2ØØ9 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

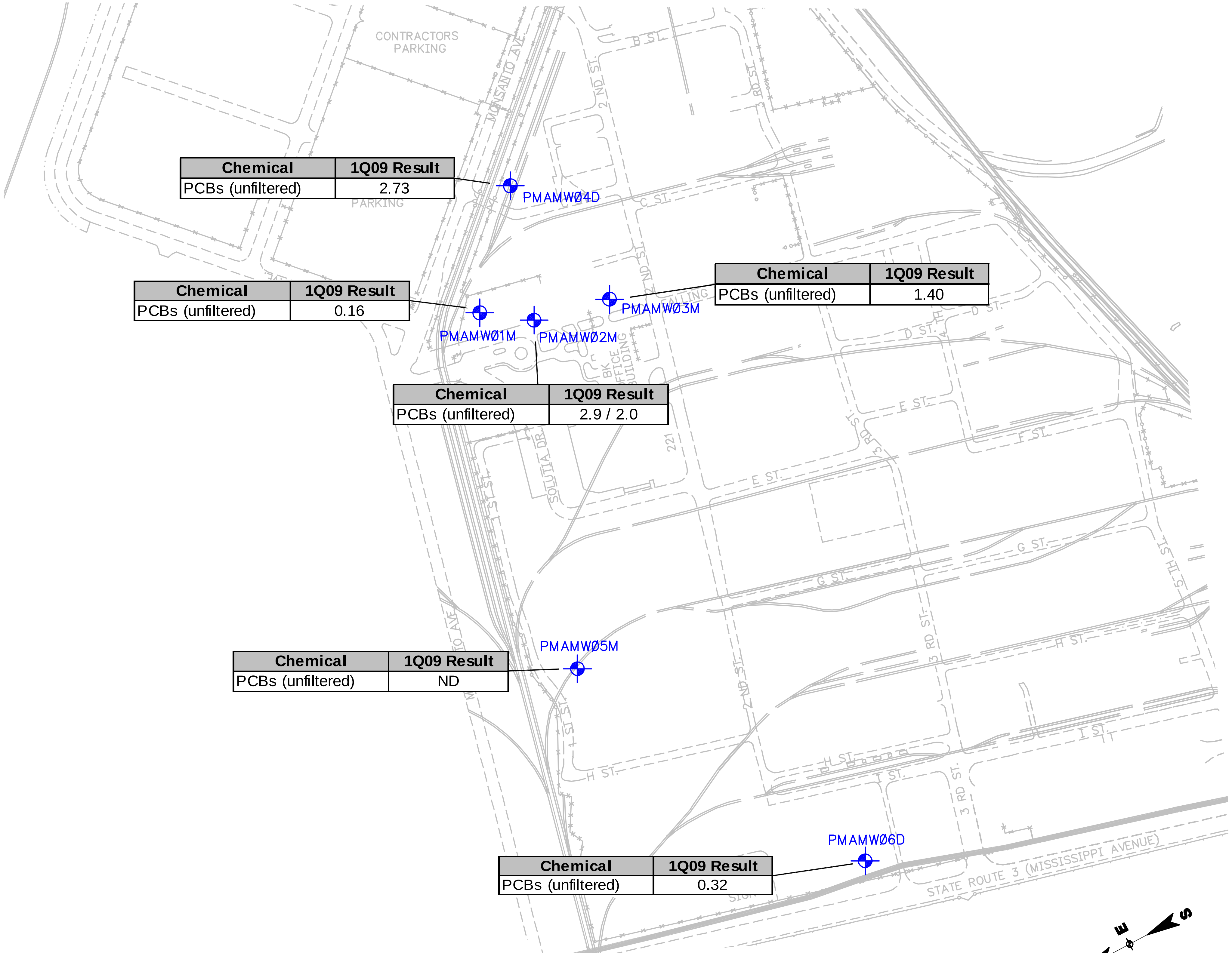
PROJECT NO. 21562156

URS

DRN. BY: lrm 5/21/Ø9
DSGN. BY: ekf
CHKD. BY:

PCB Results – SHU Wells

FIG. NO. 4



Chemical	1Q09 Result
PCBs (unfiltered)	2.73

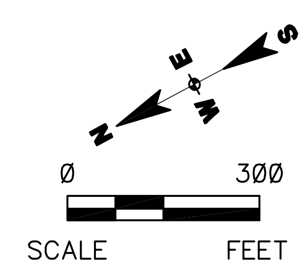
Chemical	1Q09 Result
PCBs (unfiltered)	0.16

Chemical	1Q09 Result
PCBs (unfiltered)	1.40

Chemical	1Q09 Result
PCBs (unfiltered)	2.9 / 2.0

Chemical	1Q09 Result
PCBs (unfiltered)	ND

Chemical	1Q09 Result
PCBs (unfiltered)	0.32



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. ND DENOTES NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
1ST QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

DRN. BY: lrm 5/15/09
DSGN. BY: ekf
CHKD. BY:

PCB Results – MHU/DHU Wells

FIG. NO. 5

Tables

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						February 23-25, 2009				Area
	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)	Depth to Product (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)	
Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)											
PMAMW01S	410.06	410.06	20.18	25.18	389.88	384.88	14.07	--	24.93	395.99	WGK
PMAMW02S	411.66	411.66	22.94	27.94	388.72	383.72	15.88	--	27.35	395.78	WGK
PMAMW03S	412.06	412.06	22.71	27.71	389.35	384.35	16.18	--	27.42	395.88	WGK
PMAMW04S	410.43	410.43	20.99	25.99	389.44	384.44	14.22	24.98	25.38	396.21	WGK
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)											
PMAMW01M	410.08	410.08	54.54	59.54	355.54	350.54	14.35	--	59.66	395.73	WGK
PMAMW02M	411.93	411.93	56.87	61.87	355.06	350.06	16.16	--	27.42	395.77	WGK
PMAMW03M	412.10	412.10	57.07	62.07	355.03	350.03	16.23	--	61.88	395.87	WGK
PMAMW05M	411.27	410.97	52.17	57.17	359.10	354.10	15.50	--	57.02	395.47	WGK
PSMW01	409.37	412.59	34.56	39.56	374.81	369.81	15.43	--	46.09	397.16	WGK
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)											
BSAMW-2D	412.00	415.13	65.79	70.79	346.21	341.21	22.27	--	77.10	392.86	WGK
BSAMW-3D	412.91	415.74	104.80	109.80	308.11	303.11	23.98	--	114.97	391.76	WGK
BSAMW-4D	425.00	424.69	118.54	123.54	306.46	301.46	33.76	--	123.21	390.93	WGK
BSAMW-5D	420.80	420.49	116.25	120.85	304.95	299.95	29.08	--	120.95	391.41	WGK
CPAMW-1D	408.62	408.32	66.12	71.12	342.50	337.50	12.41	--	70.88	395.91	WGK
CPAMW-2D	408.51	408.20	99.96	104.96	308.55	303.55	14.07	--	104.80	394.13	WGK
CPAMW-3D	410.87	410.67	101.90	106.90	308.97	303.97	16.75	--	113.20	393.92	WGK
CPAMW-4D	421.57	421.20	116.44	121.44	305.13	300.13	29.80	--	114.81	391.40	WGK
CPAMW-5D	411.03	413.15	105.51	110.51	305.52	300.52	23.20	--	114.69	389.95	WGK
DNAPL-K-1	413.07	415.56	108.2	123.2	304.87	289.87	18.48	--	123.35	397.08	WGK
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	11.88	--	112.59	395.84	WGK
DNAPL-K-3	412.13	411.91	104.8	119.8	307.33	292.33	15.58	--	119.47	396.33	WGK
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	13.44	--	115.80	395.71	WGK
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	15.77	--	116.61	396.14	WGK
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	14.73	--	117.09	395.36	WGK
DNAPL-K-7	408.32	407.72	100.4	115.4	307.92	292.92	12.70	--	115.59	395.02	WGK
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	16.97	--	117.71	394.41	WGK
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	11.21	--	111.35	394.76	WGK
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	16.71	--	120.40	396.54	WGK
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	16.90	--	120.36	394.88	WGK
GM-9C	409.54	411.21	88	108	321.54	301.54	15.67	--	108.46	395.54	WGK

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						February 23-25, 2009				Area
	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)	Depth to Product (feet btoc)	Depth to Bottom (feet btoc)	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	26.95	--	128.72	388.65	Sauget Area 2
GWE-2D (PIEZ-2D)	417.45	417.14	127	137	290.45	280.45	26.98	--	136.95	390.16	Sauget Area 2
GWE-4D (TRA3-PZADHU)	406.05	405.74	74	80	332.05	326.05	13.42	--	78.91	392.32	WGK
GWE-10D (PIEZ-6D)	410.15	412.87	102.5	112.5	307.65	297.65	19.05	--	115.00	393.82	Lot F
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90	96	330.47	324.47	31.80	--	97.18	391.10	WGK
PMAMW04D	411.22	410.88	68.84	73.84	342.38	337.38	14.71	--	73.45	396.17	WGK
PMAMW06D	407.63	407.32	96.49	101.49	311.14	306.14	12.40	--	101.41	394.92	WGK
PSMW06	404.11	406.63	99.80	104.80	304.31	299.31	14.70	--	109.98	391.93	WGK
PSMW09	403.92	403.52	100.40	105.40	303.52	298.52	9.85	--	105.31	393.67	WGK
PSMW10	409.63	412.18	101.23	106.23	308.40	303.40	21.19	--	111.45	390.99	WGK
PSMW13	405.80	405.53	106.08	111.08	299.72	294.72	13.49	--	110.88	392.04	WGK
PSMW17 (BWMW-4D)	420.22	423.26	121.25	126.25	298.97	293.97	34.00	--	134.20	389.26	WGK

Notes:
* - Elevation based upon North American Vertical Datum (NAVD) 88 datum
bgs - below ground surface
btoc - Below top of casing
NG - not gauged

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												
PMAMW01S-0209	2/27/2009	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW02S-0209	2/27/2009	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW03S-0209	3/3/2009	µg/L	**0.67**	**0.12**	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW-4S-0209-DNAPL	3/3/2009	µg/kg	<200,000	**3,400,000**	**20,000,000**	**51,000,000**	**36,000,000**	**62,000,000**	**42,000,000**	**10,000,000**	<1,000,000	<1,000,000
Middle / Deep Hydrologic Unit												
PMAMW01M-0209	2/27/2009	µg/L	**0.16**	<0.098	<0.098	<0.2	<0.2	<0.2	<0.29	<0.29	<0.49	<0.49
PMAMW02M-0209	2/27/2009	µg/L	**2.0 J**	<0.1	<0.1	<0.2	<0.2	<0.2	<0.3	<0.3	<0.5	<0.5
PMAMW02M-0209-AD	2/27/2009	µg/L	**2 J**	<0.1	<0.1	<0.2	<0.2	<0.2	<0.3	<0.3	<0.5	<0.5
PMAMW03M-0209	3/3/2009	µg/L	**1.4**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW04D-0209	3/3/2009	µg/L	**0.20**	**0.21**	**0.11**	**0.54**	**0.38**	**0.79**	**0.5**	<0.29	<0.49	<0.49
PMAMW05M-0209	2/27/2009	µg/L	<0.098	<0.098	<0.098	<0.2	<0.2	<0.2	<0.29	<0.29	<0.49	<0.49
PMAMW06D-0209	2/27/2009	µg/L	**0.32**	<0.098	<0.098	<0.2	<0.2	<0.2	<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
BOLD indicates concentration greater than the reporting limit

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	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	
Compare to Event 1		1	1	1	1	1	1	NA	1	1	1	1	10
Compare to Event 2			-1	-1	1	1	1	-1	-1	1	1	-1	0
Compare to Event 3				-1	1	1	1	-1	-1	1	1	-1	1
Compare to Event 4					1	1	1	-1	1	1	1	-1	4
Compare to Event 5						1	1	-1	-1	1	1	-1	1
Compare to Event 6							1	-1	-1	1	-1	-1	-2
Compare to Event 7								-1	-1	-1	-1	-1	-5
Compare to Event 8									1	1	1	1	4
Compare to Event 9										1	1	-1	1
Compare to Event 10											-1	-1	-2
Compare to Event 11												-1	-1

Mann-Kendall Statistic (S)	**11**
90 % Confidence Mann-Kendall Statistic	**20**

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	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	
Compare to Event 1		1	1	-1	1	1	1	-1	1	1	1	1	7
Compare to Event 2			1	-1	1	1	1	-1	1	1	1	1	6
Compare to Event 3				-1	1	-1	1	-1	1	1	-1	1	1
Compare to Event 4					1	1	1	-1	1	1	1	1	6
Compare to Event 5						-1	-1	-1	-1	1	-1	-1	-5
Compare to Event 6							1	-1	1	1	1	1	4
Compare to Event 7								-1	-1	1	-1	-1	-3
Compare to Event 8									1	1	1	1	4
Compare to Event 9										1	-1	-1	-1
Compare to Event 10											-1	-1	-2
Compare to Event 11												1	1

Mann-Kendall Statistic (S)	**18**
90 % Confidence Mann-Kendall Statistic	**20**

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	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	
Compare to Event 1		-1	-1	-1	1	-1	-1	-1	-1	-1	-1	1	-7
Compare to Event 2			-1	1	1	-1	-1	-1	1	-1	-1	1	-2
Compare to Event 3				1	1	1	1	1	1	1	1	1	9
Compare to Event 4					1	-1	-1	-1	1	-1	-1	1	-2
Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-7
Compare to Event 6							-1	-1	1	-1	-1	1	-2
Compare to Event 7								1	1	1	1	1	5
Compare to Event 8									1	1	-1	1	2
Compare to Event 9										-1	-1	1	-1
Compare to Event 10											-1	1	0
Compare to Event 11												1	1

Mann-Kendall Statistic (S)	**-4**
90 % Confidence Mann-Kendall Statistic	**-20**

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	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	
Compare to Event 1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-11
Compare to Event 2			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-10
Compare to Event 3				1	NA	1	1	1	1	1	1	1	8
Compare to Event 4					-1	1	-1	-1	1	1	-1	1	0
Compare to Event 5						1	1	1	1	1	1	1	7
Compare to Event 6							-1	-1	1	1	-1	1	0
Compare to Event 7								-1	1	1	-1	1	1
Compare to Event 8									1	1	1	1	4
Compare to Event 9										1	-1	1	1
Compare to Event 10											-1	1	0
Compare to Event 11												1	1

Mann-Kendall Statistic (S)	**1**
90 % Confidence Mann-Kendall Statistic	**20**

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	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	
Compare to Event 1		-1	1	-1	1	1	-1	-1	1	-1	1	0
Compare to Event 2			1	1	1	1	1	1	1	1	1	9
Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	1	-6
Compare to Event 4					1	1	-1	-1	1	-1	1	1
Compare to Event 5						-1	-1	-1	-1	-1	1	-4
Compare to Event 6							-1	-1	1	-1	1	-1
Compare to Event 7								1	1	1	1	4
Compare to Event 8									1	1	1	3
Compare to Event 9										-1	1	0
Compare to Event 10											1	1

Mann-Kendall Statistic (S)	**7**
90 % Confidence Mann-Kendall Statistic	**18**

Appendix A

Groundwater Purging and Sampling Forms

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 WEATHER: overcast, 37°
MONITORING WELL ID: PMAMW01M SAMPLE ID: PMAMW01M-0209

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 59.30 ft
Constructed Well Depth (btoc): 59.30 ft
Depth to Water (btoc): 14.58 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): 44.72 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.3 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

					±0.1 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	1055	14.58	colorless	hydrocarbon	6.90	14.23	2.153	2.2	7.76	-122.8
1200	1101	↓	↓	↓	6.87	14.47	2.266	0.7	9.14	-148.2
2400	1107				6.87	14.75	2.285	1.8	9.83	-156.6
3600	1113				6.90	14.74	2.286	1.3	12.34	-160.6
4800	1119				6.90	14.74	2.290	0.1	12.57	-164.3
6000	1125				6.90	14.74	2.297	-1.2	12.96	-165.1

Start Time: 1055
Stop Time: 1125
Elapsed Time: 30 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1130
Sample Flow Rate: 200 mL/min
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment | PROJECT NUMBER: 215621560.0001 | FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 | WEATHER: overcast, 37°
MONITORING WELL ID: PMAMW01S | SAMPLE ID: PMAMW01S-0209, PMAMW01S-0209-MS, PMAMW01S-0209-MSD

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 24.94 ft
Constructed Well Depth (btoc): 24.94 ft
Depth to Water (btoc): 14.06 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 19.94 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 10.88 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) = 22.44 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 6.0 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 (±0.1 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	0955	14.32	colorless	none	6.47	15.08	1.457	0.5	9.90	152.7
1200	1001	14.28	↓	↓	6.54	15.18	1.461	-0.4	10.58	133.8
2400	1007	14.25			6.53	15.17	1.493	-1.6	10.69	117.3
3600	1013	14.25			6.53	15.26	1.500	-1.8	10.48	112.6
4800	1019	14.25			6.52	15.11	1.508	-1.8	10.33	109.0

Start Time: 0955
Stop Time: 1019
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1025
Sample Flow Rate: 200 mL/min
Analysis: Total PCBs
QA/QC: MS/MSD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.0000/ FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 WEATHER: Overcast, 38°
MONITORING WELL ID: PMAMW02M SAMPLE ID: PMAMW02M-0209, PMAMW02M-0209-AD

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.54 ft
Constructed Well Depth (btoc): 61.54 ft
Depth to Water (btoc): 16.36 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 56.54 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 45.18 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) = 59.04 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 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 (±0.1 units)	Temp (°C) (±3 %)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1250	16.48	colorless	hydrocarbon	7.17	15.15	1.870	8.8	6.28	-68.4
1200	1256				7.13	14.49	2.086	9.3	6.08	-114.5
2400	1302				7.11	14.56	2.051	8.6	8.20	-145.4
3600	1308				7.13	14.60	2.059	5.4	8.49	-151.8
4800	1314				7.14	14.70	2.067	1.1	10.88	-158.6
6000	1320				7.14	14.70	2.068	0.5	11.25	-161.9
7200	1326				7.13	14.68	2.069	0.1	11.11	-166.3

Start Time: 1250
Stop Time: 1326
Elapsed Time: 36 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1330
Sample Flow Rate: 200 mL/min
Analysis: Total PCBs
QA/QC: Analytical duplicate

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 WEATHER: overcast, 38°
MONITORING WELL ID: PMAMW02S SAMPLE ID: PMAMW02S-0209, PMAMW025-0209-EB

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.35 ft
Constructed Well Depth (btoc): 27.33 ft
Depth to Water (btoc): 16.10 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): 11.18 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

					±0.1 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	1200	16.10	colorless	none	6.97	15.53	1.310	6.3	7.78	-29.6
1200	1206	↓	↓	↓	6.83	15.58	1.321	2.8	8.55	-21.1
2400	1212				6.81	15.74	1.321	1.1	8.81	-15.1
3600	1218				6.79	15.97	1.321	0.0	9.00	-8.5
4800	1224				6.78	15.99	1.324	-0.8	8.68	-3.0

Start Time: 1200
Stop Time: 1224
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1230
Sample Flow Rate: 200 mL/min.
Analysis: Total PCBs
QA/QC: EB collected before this well

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09 WEATHER: partly cloudy, 39°
MONITORING WELL ID: PMAMW03M SAMPLE ID: PMAMW03M-0209

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.81 ft
Constructed Well Depth (btoc): 61.81 ft
Depth to Water (btoc): 16.40 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): 45.41 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 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	1410	16.40	brown	hydrocarbon	9.07	15.30	2.319	114.7	3.88	-91.2
1200	1416				9.12	15.43	2.310	100.6	7.32	-109.3
2400	1422				9.12	15.51	2.313	75.7	8.66	-130.2
3600	1428				9.24	15.30	2.315	48.3	8.07	-146.9
4800	1434				9.26	15.80	2.316	30.7	7.89	-154.0
6000	1440				9.24	15.87	2.317	23.0	7.79	-158.0

Start Time: 1410
Stop Time: 1440
Elapsed Time: 30 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 3/3/09

SAMPLING DATA

Sample Date: 3/3/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1445
Sample Flow Rate: 200 mL/min.
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09
WEATHER: overcast, 39°
MONITORING WELL ID: PMAMW03S
SAMPLE ID: PMAMW03S-0209

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.35 ft
Constructed Well Depth (btoc): 27.40 ft
Depth to Water (btoc): 16.38 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): 11.02 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.1 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	1320	16.44	colorless	hydrocarbon	6.90	15.65	1.838	-3.0	4.24	51.7
1200	1326	↓	↓	↓	6.91	15.67	1.899	-4.2	4.30	45.8
2400	1332				6.83	15.83	1.912	-5.9	7.54	41.2
3600	1338				6.84	15.74	1.913	-6.2	8.10	38.1
4800	1344				6.82	15.66	1.917	-6.7	8.52	36.7
6000	1350	↓	↓	↓	6.81	15.53	1.916	-6.9	8.22	36.2

Start Time: 1320
Stop Time: 1350
Elapsed Time: 30 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 3/3/09

SAMPLING DATA

Sample Date: 3/3/09
Sample Method: Stainless Steel Monsoon
Sample Time: ~~1345~~ MC 1355
Sample Flow Rate: 200 mL/min.
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: WGK PCB GW Assess. PROJECT NUMBER: 21562156.0001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09 WEATHER: cloudy, 35°
MONITORING WELL ID: PMAMW04D SAMPLE ID: PMAMW04D-0209

INITIAL DATA

Well Diameter: 2 in
Total Well Depth (btoc): 73.45 ft
Depth to Water (btoc): 14.90 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 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

Volume of Flow Through Cell: ~~500~~ mc mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ mc 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	Temp (°C)	Cond. (ms/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1530	14.90	light gray	hydrocarbon	6.66	15.30	1.750	83.8	11.77	-116.2
1200	1536	↓	↓	↓	6.59	15.28	1.747	42.6	12.86	-121.4
2400	1542	↓	colorless	↓	6.65	15.07	1.739	19.6	13.38	-122.2
3600	1548	↓	↓	↓	6.61	15.18	1.738	18.0	12.44	-122.5
4800	1554	↓	↓	↓	6.63	15.08	1.735	12.7	13.61	-126.4

Start Time: 1530
Stop Time: 1554
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: 6920 YSI ~~556 and LaMotte 2020~~ mc
Date Calibrated: 3/3/09

SAMPLING DATA

Sample Date: 3/3/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1600
Sample Flow Rate: 200 mL/min.
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09 WEATHER: sunf/clouds, 35°
MONITORING WELL ID: PMAMW04S SAMPLE ID: ~~PMAMW04S-0209-MC~~ PMAMW04S-0209-DNAPL

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 25.38 ft
Constructed Well Depth (btoc): 25.38 ft
Depth to Water (btoc): 15.33 ft
Depth to LNAPL/DNAPL (btoc): 24.98 ft
Depth to Top of Screen (btoc): 20.38 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 10.05 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

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: 4.1 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	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:

SAMPLING DATA

Sample Date: 3/3/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1545
Sample Flow Rate:
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

DNAPL sampled for Total PCBs (680)

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 215621560.0001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 WEATHER: overcast, 39°
MONITORING WELL ID: PMAMW05M SAMPLE ID: ~~PMAMW05-0209~~ PMAMW05M-0209

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 57.02 ft
Constructed Well Depth (btoc): 57.17 ft
Depth to Water (btoc): 15.58 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 52.17 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 41.59 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) = 54.67 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 1.3 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	1525	15.58	gray	hydrocarbon	7.20	16.77	1.937	43.4	4.98	-91.7
1200	1531		colorless		7.15	16.91	8.232	30.2	5.04	-100.0
2400	1537				7.13	15.25	2.263	12.2	5.46	-103.0
3600	1543				7.14	15.16	2.258	6.6	6.73	-108.9
4800	1549				7.14	14.86	2.258	2.1	6.71	-114.1
6000	1555	↓	↓	↓	7.13	14.78	2.257	3.4	7.09	-118.0

Start Time: 1525
Stop Time: 1555
Elapsed Time: 30 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1600
Sample Flow Rate: 200 mL/min
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09 WEATHER: overcast, 40°
MONITORING WELL ID: PMAMW06D SAMPLE ID: ~~PMAMW06-0209~~ PMAMW06D-0209

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 101.29 ft
Constructed Well Depth (btoc): 101.29 ft
Depth to Water (btoc): 12.50 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 96.29 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 88.79 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) = 98.79 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): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 1.1 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	1430	12.51	colorless	hydrocarbon	6.90	16.23	1.080	11.1	7.97	−110.1
1200	1436	↓	↓	↓	6.94	16.00	1.083	2.3	8.65	−130.7
2400	1442				6.90	15.99	1.093	0.1	8.80	−138.9
3600	1448				6.90	16.04	1.105	−0.8	9.06	−145.5
4200	1454	↓	↓	↓	6.90	15.99	1.110	−1.3	9.26	−148.7

Start Time: 1430
Stop Time: 1454
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

SAMPLING DATA

Sample Date: 2/27/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1500
Sample Flow Rate: 200 mL/min
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

Appendix B

Chains-of-Custody

Serial Number 014687

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
GK PCB GW Quality	21562156	IL

L (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
idya Gulizia		

IENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Adams	314-429-0100	314-429-0462

IENT NAME	CLIENT E-MAIL
RS Corporation	thomas.adams@urscorp.com

IENT ADDRESS
01 Highlands Plaza Dr. West Ste. 300 St. Louis MO 63110

OMPANY CONTRACTING THIS WORK (if applicable)
elutia

PAGE 1 OF 1

STANDARD REPORT DELIVERY ○
DATE DUE

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: (680 PCBs Total)	REQUIRED ANALYSIS: PRESERVATIVE	REMARKS
2/27/09	1025	PMAMW01S-0209	G	X				2	1	
	1025	PMAMW01S-0209-MS	G	X				2		
	1025	PMAMW01S-0209-MSD	G	X				2		
	1130	PMAMW01M-0209	G	X				2		
	1145	PMAMW02MS-0209-EB 2-27-09	G	X				2		
	1230	PMAMW02S-0209	G	X				2		
	1330	PMAMW02M-0209	G	X				2		
	1330	PMAMW02M-0209-AD	G	X				2		
	1500	PMAMW06D-0209	G	X				2		
	1600	PMAMW05M-0209	G	X				2		
								SM 2/27/09		

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RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Kelly Moore	2/27/09	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ○ NO ○	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
	022809	1020			680-45096	1.0/2.8/2.4 TEMP

TAL8240-680 (1207)

Serial Number 014677

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

◯ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK PCB	21562156.00001	IL
TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Lidya Gulizia		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Thomas Adams	314-429-0100	314-429-0462
CLIENT NAME	CLIENT E-MAIL	
URS Corporation	thomas_adams@urscorp.com	
CLIENT ADDRESS		
1001 Highlands Plaza Dr. W. Ste 300 St. Louis, MO 63110		
COMPANY CONTRACTING THIS WORK (if applicable)		
Solutia		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: 1 Total PCB (680)	PRESERVATIVE	NUMBER OF CONTAINERS SUBMITTED	REMARKS
3/3/09	1355	PMAMW03S-0209	G	X						2	
↓	1445	PMAMW03M-0209	G	X						2	
↓	1600	PMAMW04D-0209	G	X						2	

SM 3/3/09

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Sherry Moore	3/3/09	1700						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KL	3/4/09	0902	YES ◯ NO ◯		680-45176	2.4

TAL8240-680 (1207)

Serial Number 014235

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

○ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
UGK PCB	215621560.00001	IL

(LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Idya Gulizia		

(SITE) PM	CLIENT PHONE	CLIENT FAX
Thomas Adams	314-429-0100	314-429-0462

CLIENT NAME	CLIENT E-MAIL
URS Corporation	thomas_adams@urscorp.com

CLIENT ADDRESS
1001 Highlands Plaza Dr. W Ste 300 St. Louis MO 63110

COMPANY CONTRACTING THIS WORK (if applicable)
Solutia

PAGE 1 OF 1

STANDARD REPORT DELIVERY ○
DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	MATRIX: AQUEOUS (WATER)	MATRIX: SOLID OR SEMISOLID	MATRIX: AIR	MATRIX: NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: Total PCB (1680)	PRESERVATIVE: none	NUMBER OF CONTAINERS SUBMITTED	REMARKS
3/03	1545	PMAMW04S-0209-DNAPL	G		X		X	X		1	

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RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Shelly Mosier	3/3/09	1700						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KL	3/4/09	1018	YES ○ NO ○		680-45199	3.8°C

Appendix C

Quality Assurance Report

QUALITY ASSURANCE REPORT

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

PCB Groundwater Quality Assessment
1st Quarter 2009 Data Report

Prepared for

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

May 2009

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # 21562156.00001

1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in February and March of 2009 at the Solutia W.G. Krummrich plant as part of the 1st 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). The Level III 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 Test America. These samples were analyzed as part of Sample Delivery Groups (SDGs) KPM028 and KPM029, 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 PCB Groundwater Quality Assessment Work Plan, (Solutia 2008).

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 (**J**) values was 100 percent, which meets the completeness goal of 95 percent.

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 the data, the cooler receipt form indicated that no problems were encountered by the laboratory.

Extractions and/or analyses were completed within the recommended holding time requirements; no qualification of data was required.

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. All analytes were not detected in the equipment blank samples.

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. No qualification of data was required due to LCS recoveries.

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 nine 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 percent 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 PMAMW01S-0209 was spiked and analyzed for PCBs in SDG KPM028. All MS/MSD recoveries were within evaluation criteria. No qualification of data was required due to MS/MSD recoveries.

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 nine investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Field duplicate RPDs were within evaluation criteria with the exception of the RPD in data reviews discussed further in **Appendix D**. Qualifications due to field duplicate RPDs are listed in the table below.

SDG	Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
KPM028	PMAMW02M-0209	PMAMW02M-0209-AD	PCBs	Monochloro-biphenyl	**37**	**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**. No qualifications of data were required due to internal standard responses.

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.

Appendix D

Groundwater Analytical Results

(with Data Review Sheets)

SDG KPM028

Results of Samples from Wells:

PMAMW01S
PMAMW01M
PMAMW02S
PMAMW02M
PMAMW03S
PMAMW03M
PMAMW04D
PMAMW05M
PMAMW06D

Solutia Krummrich Data Review

Laboratory SDG: KPM028

Reviewer: Elizabeth Kunkel

Date Reviewed: 4/6/2009

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

Applicable Work Plan: PCB Groundwater Quality Assessment (Solutia 2008)

Sample Identification #	Sample Identification #
PMAMW01S-0209	PMAMW01M-0209
PMAMW02S-0209-EB	PMAMW02S-0209
PMAMW02M-0209	PMAMW02M-0209-AD
PMAMW06D-0209	PMAMW05-0209
PMAMW03S-0209	PMAMW03M-0209
PSMW04D-0209	

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?

Although not indicated in the laboratory case narrative, one internal standard recovery was outside evaluation criteria. In addition, samples were qualified due to a field duplicate RPD outside of evaluation criteria. These issues are addressed further in the appropriate sections below.

The cooler receipt form did not indicate any problems.

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

Yes

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?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

Yes, sample PMAMW01S-0209 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

Field ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMAMW03M-0209	PCBs	Phenanthrene-d_{10}	**287508**	129844-241138

Analytical data that required qualification based on IS data are included in the table above. Analytical data which were reported as nondetect and associated with internal standard recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Internal standard areas for phenanthrene-d_{10} recovered within the initial calibration average internal standard area, therefore; no qualification of data was required.

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

Were laboratory duplicate sample RPDs within criteria?

N/A

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
PMAMW02M-0209	PMAMW02M-0209-AD

Were field duplicates within evaluation criteria?

No

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
PMAMW02M-0209	PMAMW02M-0209-AD	PCBs	Monochloro-biphenyl	**37**	**J**

11.0 Sample Dilutions

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

Samples were not analyzed at a dilution.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-45096-1	PMAMW01S-0209	Water	02/27/2009 1025	02/28/2009 1020
680-45096-1MS	PMAMW01S-0209	Water	02/27/2009 1025	02/28/2009 1020
680-45096-1MSD	PMAMW01S-0209	Water	02/27/2009 1025	02/28/2009 1020
680-45096-2	PMAMW01M-0209	Water	02/27/2009 1130	02/28/2009 1020
680-45096-3EB	PMAMW02S-0209-EB	Water	02/27/2009 1145	02/28/2009 1020
680-45096-4	PMAMW02S-0209	Water	02/27/2009 1230	02/28/2009 1020
680-45096-5	PMAMW02M-0209	Water	02/27/2009 1330	02/28/2009 1020
680-45096-6FD	PMAMW02M-0209-AD	Water	02/27/2009 1330	02/28/2009 1020
680-45096-7	PMAMW06D-0209	Water	02/27/2009 1500	02/28/2009 1020
680-45096-8	PMAMW05M-0209	Water	02/27/2009 1600	02/28/2009 1020
680-45176-1	PMAMW03S-0209	Water	03/03/2009 1355	03/04/2009 0902
680-45176-2	PMAMW03M-0209	Water	03/03/2009 1445	03/04/2009 0902
680-45176-3	PMAMW04D-0209	Water	03/03/2009 1600	03/04/2009 0902

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW01S-0209**

Lab Sample ID: 680-45096-1
Client Matrix: Water

Date Sampled: 02/27/2009 1025
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/17/2009 1107
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
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	Acceptance Limits
Decachlorobiphenyl-13C12	90	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW01M-0209**

Lab Sample ID: 680-45096-2
Client Matrix: Water

Date Sampled: 02/27/2009 1130
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/26/2009 1347
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.16		0.098
Dichlorobiphenyl	0.098	U	0.098
Trichlorobiphenyl	0.098	U	0.098
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
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	Acceptance Limits
Decachlorobiphenyl-13C12	44	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW02S-0209-EB**

Lab Sample ID: 680-45096-3EB
Client Matrix: Water

Date Sampled: 02/27/2009 1145
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/17/2009 1208
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
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	Acceptance Limits
Decachlorobiphenyl-13C12	79	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW02S-0209**

Lab Sample ID: 680-45096-4
Client Matrix: Water

Date Sampled: 02/27/2009 1230
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/25/2009 1150
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
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	Acceptance Limits
Decachlorobiphenyl-13C12	65	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW02M-0209**

Lab Sample ID: 680-45096-5
Client Matrix: Water

Date Sampled: 02/27/2009 1330
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/25/2009 1222
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

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

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	2.9	J	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	64	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW02M-0209-AD**

Lab Sample ID: 680-45096-6FD
Client Matrix: Water

Date Sampled: 02/27/2009 1330
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/26/2009 1621
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

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

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	2.0	J	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	86	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW06D-0209**

Lab Sample ID: 680-45096-7
Client Matrix: Water

Date Sampled: 02/27/2009 1500
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/26/2009 1316
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.32		0.098
Dichlorobiphenyl	0.098	U	0.098
Trichlorobiphenyl	0.098	U	0.098
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
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	Acceptance Limits
Decachlorobiphenyl-13C12	74	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW05M-0209**

Lab Sample ID: 680-45096-8
Client Matrix: Water

Date Sampled: 02/27/2009 1600
Date Received: 02/28/2009 1020

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/17/2009 1441
Date Prepared: 03/03/2009 1213

Analysis Batch: 680-133546
Prep Batch: 680-131612

Instrument ID: GC/MS SemiVolatiles - Y
Lab File ID: N/A
Initial Weight/Volume: 1020 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.098	U	0.098
Dichlorobiphenyl	0.098	U	0.098
Trichlorobiphenyl	0.098	U	0.098
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
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	Acceptance Limits
Decachlorobiphenyl-13C12	75	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW03S-0209**

Lab Sample ID: 680-45176-1
Client Matrix: Water

Date Sampled: 03/03/2009 1355
Date Received: 03/04/2009 0902

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/19/2009 0835
Date Prepared: 03/10/2009 1335

Analysis Batch: 680-133209
Prep Batch: 680-132174

Instrument ID: No Equipment Assigned to
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.67		0.097
Dichlorobiphenyl	0.12		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	Acceptance Limits
Decachlorobiphenyl-13C12	76	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW03M-0209**

Lab Sample ID: 680-45176-2
Client Matrix: Water

Date Sampled: 03/03/2009 1445
Date Received: 03/04/2009 0902

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/19/2009 0906
Date Prepared: 03/10/2009 1335

Analysis Batch: 680-133209
Prep Batch: 680-132174

Instrument ID: No Equipment Assigned to
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	1.4		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	Acceptance Limits
Decachlorobiphenyl-13C12	60	25 - 113

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Client Sample ID: **PMAMW04D-0209**

Lab Sample ID: 680-45176-3
Client Matrix: Water

Date Sampled: 03/03/2009 1600
Date Received: 03/04/2009 0902

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 03/19/2009 0937
Date Prepared: 03/10/2009 1335

Analysis Batch: 680-133209
Prep Batch: 680-132174

Instrument ID: No Equipment Assigned to
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.20		0.097
Dichlorobiphenyl	0.21		0.097
Trichlorobiphenyl	0.11		0.097
Tetrachlorobiphenyl	0.54		0.19
Pentachlorobiphenyl	0.38		0.19
Hexachlorobiphenyl	0.79		0.19
Heptachlorobiphenyl	0.50		0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Acceptance Limits
Decachlorobiphenyl-13C12	71	25 - 113

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-45096-1
Sdg Number: KPM028

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.

SDG KPM029

Results of Sample from Well:

PMAMW04S

Solutia Krummrich Data Review

Laboratory SDG: KPM029

Reviewer: Elizabeth Kunkel

Date Reviewed: 4/6/2009

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

Applicable Work Plan: PCB Groundwater Quality Assessment (Solutia 2008)

Sample Identification #
PMAMW04S-0209-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 surrogates were diluted out and not recovered in sample PMAMW04S-0209-DNAPL. Sample PMAMW04S-0209-DNAPL was diluted due to a high level of target analytes. The internal standard recovery for phenanthrene-d_{10} was outside evaluation criteria. These issues are addressed further in the appropriate sections below.

The cooler receipt form did not indicate any problems.

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

Yes

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?

No, surrogates were diluted out and not recovered in sample PMAMW04S-0209-DNAPL. No qualification of data was required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

No

Were MS/MSD recoveries within evaluation criteria?

N/A

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Field ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMAMW04S-0209-DNAPL	PCBs	Phenanthrene-d_{10}	**274859**	129844-241138

Analytical data that required qualification based on IS data are included in the table above. Analytical data which were reported as nondetect and associated with internal standard recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Internal standard areas for phenanthrene-d_{10} recovered within the initial calibration average internal standard area, therefore; no qualification of data was required.

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

Were laboratory duplicate sample RPDs within criteria?

N/A

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

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-45199-1
Sdg Number: KPM029

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-45199-1	PMAMW04S-0209-DNAPL	Waste	03/03/2009 1545	03/04/2009 1018

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-45199-1
Sdg Number: KPM029

Client Sample ID: **PMAMW04S-0209-DNAPL**

Lab Sample ID: 680-45199-1
Client Matrix: Waste

Date Sampled: 03/03/2009 1545
Date Received: 03/04/2009 1018

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 200
Date Analyzed: 03/19/2009 0558
Date Prepared: 03/08/2009 0616

Analysis Batch: 680-132480
Prep Batch: 680-132032

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

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Monochlorobiphenyl		200000	U	200000
Dichlorobiphenyl		3400000		200000
Trichlorobiphenyl		20000000		200000
Tetrachlorobiphenyl		51000000		400000
Pentachlorobiphenyl		36000000		400000
Hexachlorobiphenyl		62000000		400000
Heptachlorobiphenyl		42000000		600000
Octachlorobiphenyl		10000000		600000
Nonachlorobiphenyl		1000000	U	1000000
DCB Decachlorobiphenyl		1000000	U	1000000

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

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-45199-1
Sdg Number: KPM029

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	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.