SOLUTIA
Solutions for a better life.

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

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St. Louis, Missouri 63166-6760
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February 15, 2010

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
4th Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 4th 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
4th Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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4TH 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

February 2010

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
Project # **21562156.00008**

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1.0 INTRODUCTION

This report presents the results of the 4th Quarter 2009 (4Q09) 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 4Q09 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 4Q09 PCB Groundwater Quality Assessment Program field activities between November 13 and 24, 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 4Q09 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.

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.: November (fourth quarter), 2009 (1109)
- **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 0.38 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-1109-DNAPL was submitted to TestAmerica for PCB analysis.

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°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 Water 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**. The laboratory reports, 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 equipment blank, and an MS/MSD pair) were prepared and analyzed by TestAmerica for PCBs. Results for the various analyses were submitted as sample delivery groups (SDGs) KPM035 and KPM036. The samples contained in each SDG are listed below:

KPM035	KPM036
PMA-MW-01M-1109	PMA-MW-4S-1109-DNAPL
PMA-MW-01S-1109-MS	
PMA-MW-01S-1109-MSD	
PMA-MW-01S-1109	
PMA-MW-02M-1109	
PMA-MW-02M-1109-AD	
PMA-MW-02S-1109	
PMA-MW-02S-1109-EB	
PMA-MW-03M-1109	
PMA-MW-03S-1109	
PMA-MW-04D-1109	
PMA-MW-05M-1109	
PMA-MW-06D-1109	

Evaluation of the analytical data followed procedures outlined in the USEPA National Functional Guidelines for Superfund Organic Data Review (USEPA 2008) and the Revised PCB Water 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 detect/nondetect (**J/UJ**) data was 100 percent.

5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 4Q09 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 512,000,000 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 2.03 µg/L. Such data

indicates that PCBs in the SHU are attenuating over the 300 to 400 ft distance between 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 0.61 µg/L for the 4Q09 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.27 µg/L (PMAMW-1M), 2.7 µg/L (PMAMW-2M)/(3.4 µg/L duplicate), 0.85 µg/L (PMAMW-3M), and 0.3 µg/L (PMAMW-6D). PCBs were not detected in the groundwater sample collected from monitoring well PMAMW-5M. **Figure 5** displays the 4Q09 PCB sampling results for the MHU/DHU.

The 4Q09 sampling event was the sixth 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, -3M, and -6D) the former PCB Manufacturing Area are presented in **Tables 3** through **8**. The data appear to exhibit an upward trend in concentrations at monitoring well PMAMW-2M at this time, but no trends at any of the other wells.

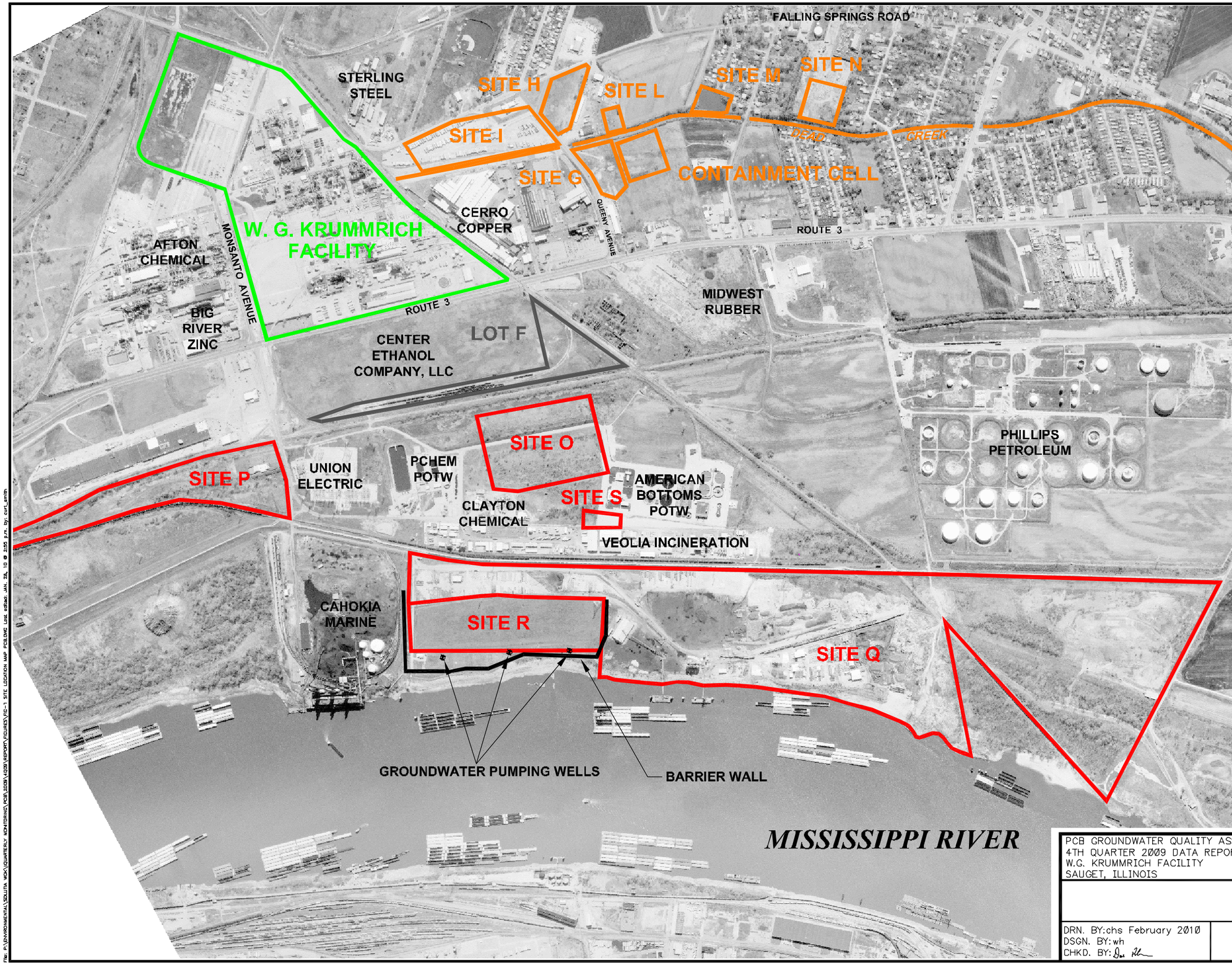
After eight quarters of sampling under the PCB Groundwater Quality Assessment Program, the Mann-Whitney U Test will be performed to determine whether or not concentrations in the second four quarters were higher or lower than the first four quarters. Linear regression analysis will be done for the eight 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), 2008. National Functional Guidelines for Superfund Organic Data Review.

Figures



LEGEND

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

0 1000

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

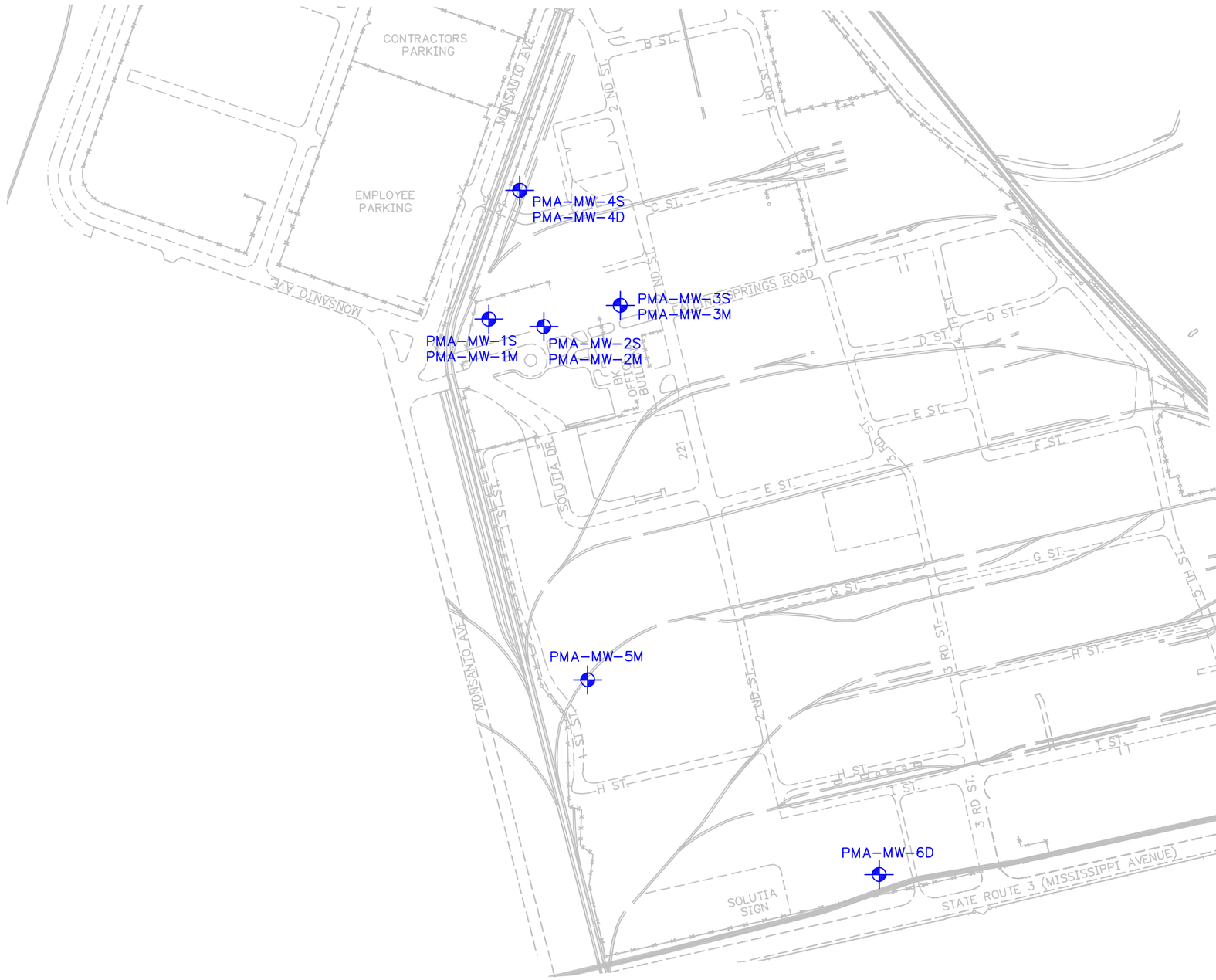
URS

DRN. BY: chs February 2010
DSGN. BY: wh
CHKD. BY:

Site Location Map

FIG. NO. 1

File: P:\ENVIRONMENTAL\SOLUTIA MCA\QUARTERLY MONITORING\PCB\2009\4QDR\REPORT\FIGURES\FIG-1 SITE LOCATION MAP.PCB.DWG Last edited: JAN. 28, 10 @ 2:25 p.m. by: cvr_smith



LEGEND

MONITORING WELL LOCATION

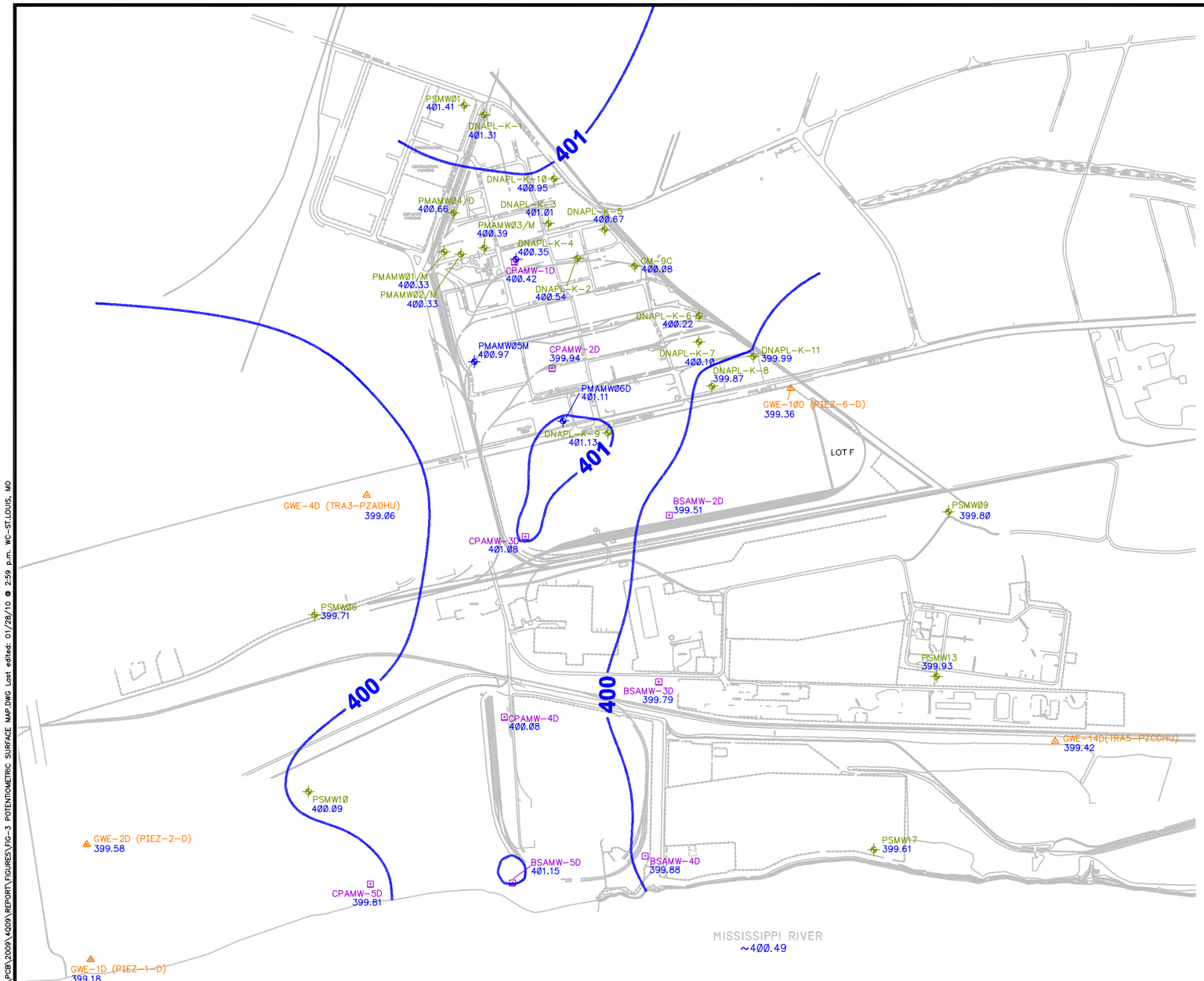
N E S

0 300

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 4TH QUARTER 2009 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562156
URS	
DRN. BY: chs February 2010 DSGN. BY: ekf CHKD. BY:	Former PCB Manufacturing Area Monitoring Well Locations
	FIG. NO. 2

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\4Q09\REPORT\FIGURES\FIG-2 FORMER PCB MANUFACTURING AREA.DWG Last edited: FEB. 01, 10 @ 12:54 p.m. by: drew.brook



LEGEND

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

NOTES:

1. GROUNDWATER LEVELS WERE MEASURED NOVEMBER 13, 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.

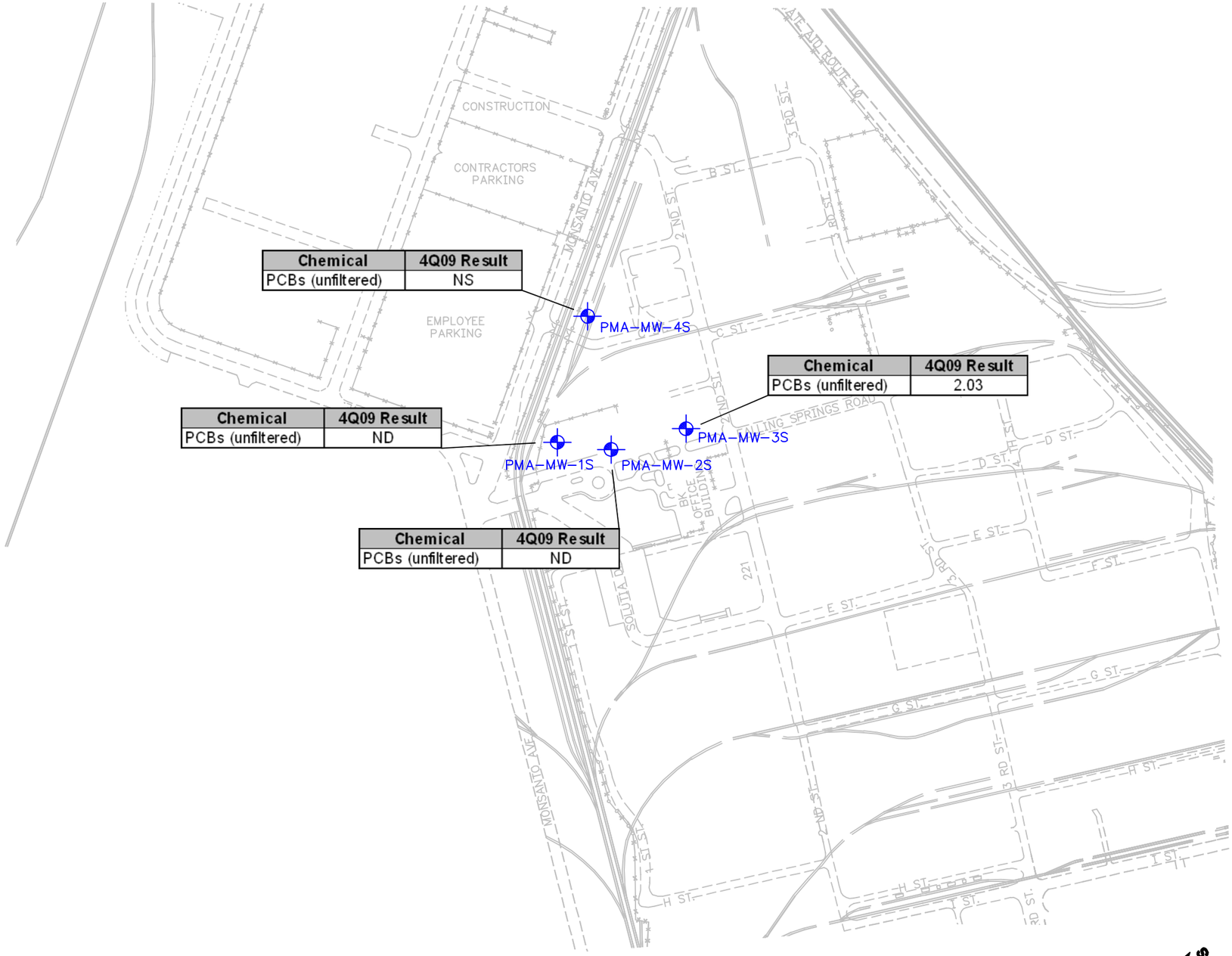
N

0 1000

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 4TH QUARTER 2009 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562156
URS	
DRN. BY:chs February 2010 DSGN. BY:ekf CHKD. BY:	Potentiometric Surface Map Middle/Deep Hydrogeologic Unit
	FIG. NO. 3

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\4Q09\REPORT\FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 01/28/10 @ 2:59 p.m. WC-ST.LOUIS, MO



Chemical	4Q09 Result
PCBs (unfiltered)	NS

Chemical	4Q09 Result
PCBs (unfiltered)	2.03

Chemical	4Q09 Result
PCBs (unfiltered)	ND

Chemical	4Q09 Result
PCBs (unfiltered)	ND

LEGEND

MONITORING WELL LOCATION

NOTES:
TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.

RESULTS ARE SHOWN IN ug/L.

ND = NOT DETECTED.

NS = NOT SAMPLED. PMA-MW-04S CONTAINED DNAPL AND THE GROUNDWATER WAS NOT SAMPLED DURING THE 4Q09 SAMPLING EVENT.

N E S W

0 300
SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

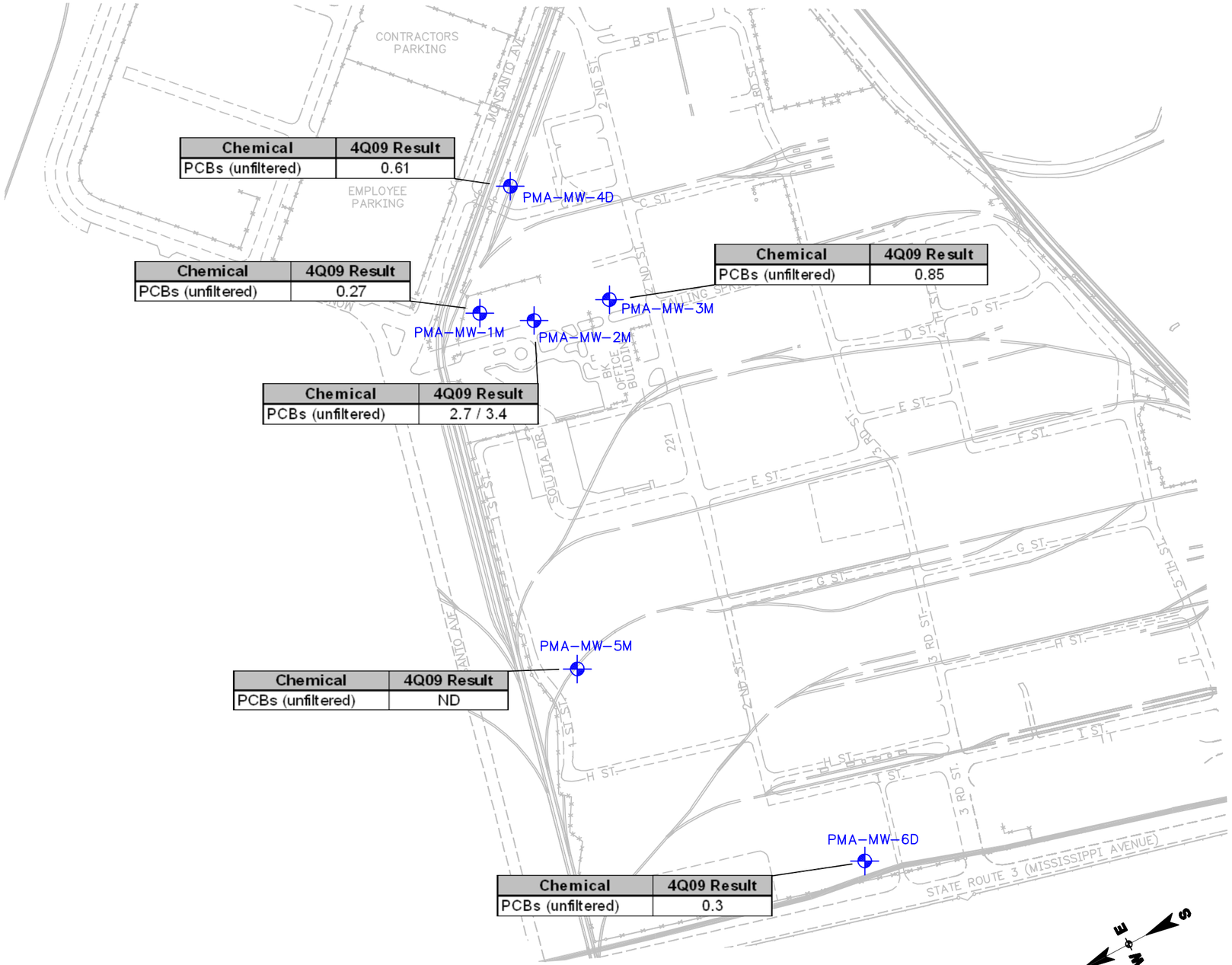
URS

DRN. BY: chs February 2010
DSGN. BY: ekf
CHKD. BY:

PCB Results – SHU Wells

FIG. NO. 4

FILE: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\4Q09\REPORT\FIGURES\FIG-4 TOTAL PCBS SHU WELLS.DWG Last edited JAN. 28, 10 @ 3:50 p.m. by: curt.smith



Chemical	4Q09 Result
PCBs (unfiltered)	0.61

Chemical	4Q09 Result
PCBs (unfiltered)	0.27

Chemical	4Q09 Result
PCBs (unfiltered)	0.85

Chemical	4Q09 Result
PCBs (unfiltered)	2.7 / 3.4

Chemical	4Q09 Result
PCBs (unfiltered)	ND

Chemical	4Q09 Result
PCBs (unfiltered)	0.3

N E S W

0 300

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

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2009 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

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CHKD. BY:

PCB Results – MHU/DHU Wells

FIG. NO. 5

File: P:\ENVIRONMENTAL\SOUTIA WGK\QUARTERLY MONITORING\PCB\2009\4Q09\REPORT\FIGURES\FIG-5 TOTAL PCBS MHU-DHU WELLS.DWG Last edited: JAN. 28, 10 @ 3:02 p.m. by: curt_smith

Tables

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						November 13, 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	10.06	--	400.00
PMAMW-2S	412.27	411.66	22.94	27.94	389.33	384.33	11.35	--	400.31
PMAMW-3S	412.37	412.06	22.71	27.71	389.66	384.66	11.71	--	400.35
PMAMW-4S	411.09	410.43	20.99	25.99	390.10	385.10	10.34	0.38**	400.09
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)									
PMAMW-1M	410.32	410.08	54.54	59.54	355.78	350.78	9.75	--	400.33
PMAMW-2M	412.26	411.93	56.87	61.87	355.39	350.39	11.60	--	400.33
PMAMW-3M	412.36	412.10	57.07	62.07	355.29	350.29	11.71	--	400.39
PMAMW-5M	411.27	410.97	52.17	57.17	359.10	354.10	10.00	--	400.97
PSMW-1	409.37	412.59	34.56	39.56	374.81	369.81	11.18	--	401.41
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)									
BSAMW-2D	412.00	415.13	65.79	70.79	346.21	341.21	15.62	--	399.51
BSAMW-3D	412.91	415.74	104.80	109.80	308.11	303.11	15.95	--	399.79
BSAMW-4D	425.00	424.69	118.54	123.54	306.46	301.46	24.81	--	399.88
BSAMW-5D	420.80	420.49	116.25	120.85	304.95	299.95	19.34	--	401.15
CPAMW-1D	408.62	408.32	66.12	71.12	342.50	337.50	7.90	--	400.42
CPAMW-2D	408.51	408.20	99.96	104.96	308.55	303.55	8.26	--	399.94
CPAMW-3D	410.87	410.67	101.90	106.90	308.97	303.97	9.59	--	401.08
CPAMW-4D	421.57	421.20	116.44	121.44	305.13	300.13	21.12	--	400.08
CPAMW-5D	411.03	413.15	105.51	110.51	305.52	300.52	13.34	--	399.81
DNAPL-K-1	413.07	415.56	108.2	123.2	304.87	289.87	14.25	--	401.31
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	7.18	--	400.54
DNAPL-K-3	412.13	411.91	104.8	119.8	307.33	292.33	10.90	--	401.01
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	8.80	--	400.35
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	11.24	--	400.67
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	9.87	--	400.22
DNAPL-K-7	408.32	407.72	100.4	115.4	307.92	292.92	7.62	--	400.10
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	11.51	--	399.87
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	4.84	--	401.13
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	12.30	--	400.95
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	11.79	--	399.99
GM-9C	409.54	411.21	88	108	321.54	301.54	11.13	--	400.08

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						November 13, 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	16.42	--	399.18
GWE-2D (PIEZ-2D)	417.45	417.14	127	137	290.45	280.45	17.56	--	399.58
GWE-4D (TRA3-PZADHU)	406.05	405.74	74	80	332.05	326.05	6.68	--	399.06
GWE-10D (PIEZ-6D)	410.15	412.87	102.5	112.5	307.65	297.65	13.51	--	399.36
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90	96	330.47	324.47	23.48	--	399.42
PMAMW-4D	411.22	410.88	68.84	73.84	342.38	337.38	10.22	--	400.66
PMAMW-6D	407.63	407.32	96.49	101.49	311.14	306.14	6.21	--	401.11
PSMW-6	404.11	406.63	99.80	104.80	304.31	299.31	6.92	--	399.71
PSMW-9	403.92	403.52	100.40	105.40	303.52	298.52	3.72	--	399.80
PSMW-10	409.63	412.18	101.23	106.23	308.40	303.40	12.09	--	400.09
PSMW-13	405.80	405.53	106.08	111.08	299.72	294.72	5.60	--	399.93
PSMW-17	420.22	423.26	121.25	126.25	298.97	293.97	23.65	--	399.61

Notes:
* - Elevation based upon North American Vertical Datum (NAVD) 88 datum
** - Measured on November 24, 2009
bgs - below ground surface
btoc - Below top of casing

Table 2
Groundwater and DNAPL Analytical Detections

Sample ID	Sample Date	Units	Monochlorobiphenyl	Dichlorobiphenyl	Trichlorobiphenyl	Tetrachlorobiphenyl	Pentachlorobiphenyl	Hexachlorobiphenyl	Heptachlorobiphenyl	Octachlorobiphenyl	Nonachlorobiphenyl	Decachlorobiphenyl
Shallow Hydrologic Unit												
PMAMW-1S-0809	11/23/2009	µg/L	<0.095	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-2S-1109	11/23/2009	µg/L	<0.094	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47
PMAMW-3S-1109	11/24/2009	µg/L	**1.8**	**0.23**	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-4S-1109-DNAPL	11/24/2009	µg/kg	<370,000 J	**6,000,000 J**	**51,000,000 J**	**110,000,000 J**	**88,000,000 J**	**140,000,000 J**	**97,000,000 J**	**20,000,000 J**	<1,900,000 J	<1,900,000 J
Middle / Deep Hydrologic Unit												
PMAMW-1M-1109	11/23/2009	µg/L	**0.27**	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-2M-1109	11/23/2009	µg/L	**2.7**	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-2M-1109-AD	11/23/2009	µg/L	**3.4**	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47
PMAMW-3M-1109	11/24/2009	µg/L	**0.85**	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47
PMAMW-4D-1109	11/24/2009	µg/L	**0.27**	**0.34**	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-5M-1109	11/23/2009	µg/L	<0.095	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48	<0.48
PMAMW-6D-1109	11/23/2009	µg/L	**0.3**	<0.094	<0.094	<0.19	<0.19	<0.19	<0.28	<0.28	<0.47	<0.47

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	Event 13 2Q09	Event 14 3Q09	Event 15 4Q09	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	0.27	
Compare to Event 1		1	1	1	1	1	1	NA	1	1	1	1	1	1	1	13
Compare to Event 2			-1	-1	1	1	1	-1	-1	1	1	-1	-1	1	1	1
Compare to Event 3				-1	1	1	1	-1	-1	1	1	-1	0	1	1	3
Compare to Event 4					1	1	1	-1	1	1	1	-1	1	1	1	7
Compare to Event 5						1	1	-1	-1	1	0	-1	-1	1	1	1
Compare to Event 6							1	-1	-1	1	-1	-1	-1	-1	-1	-5
Compare to Event 7								-1	-1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 8									1	1	1	1	1	1	1	7
Compare to Event 9										1	1	-1	1	1	1	4
Compare to Event 10											-1	-1	-1	-1	-1	-5
Compare to Event 11												-1	-1	1	1	0
Compare to Event 12													1	1	1	3
Compare to Event 13														1	1	2
Compare to Event 14															0	0

Mann-Kendall Statistic (S)	**23**

90 % Confidence Mann-Kendall Statistic	**29**

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	Event 15 4Q09	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	3.1	2.7	
Compare to Event 1		1	1	-1	1	1	1	-1	1	1	1	1	1	1	1	10
Compare to Event 2			1	-1	1	1	1	-1	1	1	1	1	1	1	1	9
Compare to Event 3				-1	1	-1	1	-1	1	1	-1	1	1	1	-1	2
Compare to Event 4					1	1	1	-1	1	1	1	1	1	1	1	9
Compare to Event 5						-1	-1	-1	-1	1	-1	-1	1	-1	-1	-6
Compare to Event 6							1	-1	1	1	0	1	1	1	1	6
Compare to Event 7								-1	-1	1	-1	-1	1	0	-1	-3
Compare to Event 8									1	1	1	1	1	1	1	7
Compare to Event 9										1	-1	-1	1	1	-1	0
Compare to Event 10											-1	-1	-1	-1	-1	-5
Compare to Event 11												1	1	1	1	4
Compare to Event 12													1	1	-1	1
Compare to Event 13														-1	-1	-2
Compare to Event 14															-1	-1

Mann-Kendall Statistic (S)	**31**

90 % Confidence Mann-Kendall Statistic	**29**

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	Event 15 4Q09	Row Total
Total PCBs, µg/L	0.66	0.32	0.2	0.35	0.8	0.3	0.21	0.25	0.64	0.26	0.24	0.79	ND	0.34	2.0	
Compare to Event 1		-1	-1	-1	1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-8
Compare to Event 2			-1	1	1	-1	-1	-1	1	-1	-1	1	-1	1	1	-1
Compare to Event 3				1	1	1	1	1	1	1	1	1	-1	1	1	10
Compare to Event 4					1	-1	-1	-1	1	-1	-1	1	-1	-1	1	-3
Compare to Event 5						-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-8
Compare to Event 6							-1	-1	1	-1	-1	1	-1	1	1	-1
Compare to Event 7								1	1	1	1	1	-1	1	1	6
Compare to Event 8									1	1	-1	1	-1	1	1	3
Compare to Event 9										-1	-1	1	-1	-1	1	-2
Compare to Event 10											-1	1	-1	1	1	1
Compare to Event 11												1	-1	1	1	2
Compare to Event 12													-1	-1	1	-1
Compare to Event 13														1	1	2
Compare to Event 14															1	1

Mann-Kendall Statistic (S)	**1**

90 % Confidence Mann-Kendall Statistic	**29**

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	Event 15 4Q09	Row Total
Total PCBs, µg/L	5.18	1.9	ND	0.77	ND	0.86	0.76	0.39	0.92	1.3	0.71	1.4	1.3	0.85	0.85	
Compare to Event 1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-14
Compare to Event 2			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-13
Compare to Event 3				1	NA	1	1	1	1	1	1	1	1	1	1	11
Compare to Event 4					-1	1	-1	-1	1	1	-1	1	1	1	1	3
Compare to Event 5						1	1	1	1	1	1	1	1	1	1	10
Compare to Event 6							-1	-1	1	1	-1	1	1	-1	-1	-1
Compare to Event 7								-1	1	1	-1	1	1	1	1	4
Compare to Event 8									1	1	1	1	1	1	1	7
Compare to Event 9										1	-1	1	1	-1	-1	0
Compare to Event 10											-1	1	1	-1	-1	-1
Compare to Event 11												1	1	1	1	4
Compare to Event 12													-1	-1	-1	-3
Compare to Event 13														-1	-1	-2
Compare to Event 14															0	0

Mann-Kendall Statistic (S)	**5**

90 % Confidence Mann-Kendall Statistic	**29**

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	Event 14 4Q09	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	0.61	
Compare to Event 1		-1	1	-1	1	1	-1	-1	1	-1	1	1	1	1	3
Compare to Event 2			1	1	1	1	1	1	1	1	1	1	1	1	12
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	-3
Compare to Event 6							-1	-1	1	-1	1	1	1	1	2
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	1
Compare to Event 10											1	1	1	1	4
Compare to Event 11												-1	-1	-1	-3
Compare to Event 12													-1	1	0
Compare to Event 13														1	1

Mann-Kendall Statistic (S)	**25**

90 % Confidence Mann-Kendall Statistic	**25**

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	Event 6 4Q09	Row Total
Total PCBs, ug/L	0.21	0.43	0.32	0.29	0.2	0.3	
Compare to Event 1		1	1	1	-1	1	3
Compare to Event 2			-1	-1	-1	-1	-4
Compare to Event 3				-1	-1	-1	-3
Compare to Event 4					-1	1	0
Compare to Event 5						1	1

Mann-Kendall Statistic (S)	**-4**

90 % Confidence Mann-Kendall Statistic	**-9**

Appendix A

Groundwater Purging and Sampling Forms

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: sunny, 55°F
MONITORING WELL ID: PMAMW01M
SAMPLE ID: PMAMW01M-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 59.66 ft
Constructed Well Depth (btoc): 59.30 ft
Depth to Water (btoc): 8.90 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): 50.76 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) = 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	1024	8.90	colorless	hydrocarbon	6.90	15.98	2.023	8.2	4.83	-169.9
1,200	1028	↓	↓	↓	6.92	16.26	2.145	9.6	4.80	-186.1
2,400	1032				6.92	16.37	2.160	6.5	6.77	-186.8
3,600	1036				6.92	16.30	2.166	4.6	7.43	-189.7
4,800	1040				6.93	16.21	2.175	3.1	7.05	-190.0
6,000	1044				6.93	16.16	2.177	5.1	7.26	-192.3
7,200	1048				6.93	16.14	2.176	2.1	6.92	-192.8

Start Time: 1024
Stop Time: 1048
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Time: 1050
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 300 mL/min
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: Sunny, 55°F
MONITORING WELL ID: PMAMW01S
SAMPLE ID: PMAMW01S-1109, PMAMW01S-1109-MS, PMAMW01S-1109-MSD

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 24.93 ft
Constructed Well Depth (btoc): ~~25.18~~ 24.94 ft
Depth to Water (btoc): 9.24 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): ~~20.18~~ ft
Screen Length: 5 19.94 ft

Water Column Height (do not include LNAPL or DNAPL): 15.69 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): 1,200 mL
Minimum Purge Volume = (3 x Flow Through Cell Volume) 3,600 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	0937	9.25	colorless	odorless	6.98	16.37	1.237	9.6	11.10	-25.4
1,200	0941	9.20	↓	↓	6.97	16.82	1.231	5.1	11.97	-26.4
2,400	0945	9.30			6.97	16.78	1.215	1.8	12.37	-25.3
3,600	0949	9.28			6.96	16.94	1.211	0.8	12.42	-21.8
4,800	0953	9.30			6.96	16.96	1.211	0.4	12.42	-21.4

Start Time: 0937
Stop Time: 0953
Elapsed Time: 16 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Time: 1000
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 300 mL/min
QA/QC Samples: MS/MSD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: cloudy, 55°F
MONITORING WELL ID: PMAMW02M
SAMPLE ID: PMAMW02M-1109, PMAMW02M-1109-AD

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.60 ft
Constructed Well Depth (btoc): 61.54 ft
Depth to Water (btoc): 10.75 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): 50.85 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) = 59.04 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	1237	10.76	Colorless	hydrocarbon	7.10	16.88	1.944	79.0	8.63	-162.5
1,200	1241	↓	↓	↓	7.11	16.99	1.969	55.4	5.83	-181.9
2,400	1245				7.12	17.03	1.986	30.4	8.20	-187.6
3,600	1249				7.12	17.11	1.988	16.5	8.07	-190.5
4,800	1253				7.13	17.01	1.989	8.7	8.22	-194.1
6,000	1257				7.14	17.07	1.986	6.8	8.02	-195.8

Start Time: 1237
Stop Time: 1257
Elapsed Time: 20 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Time: 1300
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 300 mL/min.
QA/QC Samples: AD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: clouds, 55°F
MONITORING WELL ID: PMAMW02S
SAMPLE ID: PMAMW02S-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.35 ft
Constructed Well Depth (btoc): 27.33 ft
Depth to Water (btoc): 10.54 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): 16.81 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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'	1152	10.65	colorless	odorless	6.98	17.91	1.270	3.8	4.20	-13.3
1,200	1156	↓			6.92	18.12	1.261	3.5	3.38	-4.2
2,400	1200	10.62			6.93	18.18	1.235	2.4	3.36	4.4
3,600	1204				6.94	18.26	1.207	1.6	3.37	13.3
4,800	1208	↓			6.94	18.27	1.196	0.9	3.32	17.1
6,000	1212	10.60			6.94	18.27	1.178	0.5	3.28	22.3
7,200	1216	↓	↓	↓	6.94	18.27	1.182	0.1	3.25	23.7

Start Time: 1152
Stop Time: 1216
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Time: 1220
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 300 mL/min
QA/QC Samples: EB before this well – PMAMW02S-1109-EB

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/24/09
WEATHER: cloudy, windy, 50°F
MONITORING WELL ID: PMAMW03M
SAMPLE ID: PMAMW03M-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.68 ft
Constructed Well Depth (btoc): 61.81 ft
Depth to Water (btoc): 10.78 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): 50.90 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	10.78	brown	hydrocarbon	9.20	16.70	2.315	7.5	-5.49	-211.7
1,200	0953				9.24	16.77	2.335	6.3	-5.36	-233.6
2,400	0956				9.25	16.78	2.346	7.4	-5.23	-243.0
3,600	0959				9.31	16.81	2.360	7.3	-5.40	-261.7
4,800	1002				9.38	16.84	2.386	7.2	-5.50	-286.0
6,000	1005				9.39	16.87	2.394	7.6	-5.99	-295.4
7,200	1008				9.40	16.86	2.408	7.6	-6.06	-299.4
8,400	1011				9.42	16.84	2.411	7.6	-6.08	-310.7
9,600	1014				9.43	16.83	2.414	7.8	-6.20	-317.6
10,800	1017				9.43	16.84	2.415	7.1	-6.19	-326.2
12,000	1020				9.44	16.84	2.430	6.4	-6.00	-335.9
13,200	1023				9.44	16.83	2.428	6.6	-6.10	-337.1

Start Time: 0950
Stop Time: 1023
Elapsed Time: 33 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/24/09

SAMPLING DATA

Sample Date: 11/24/09
Sample Time: 1030
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: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/24/09
WEATHER: cloudy, windy, 50°F
MONITORING WELL ID: PMAMW03S
SAMPLE ID: PMAMW03S-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.42 ft
Constructed Well Depth (btoc): 27.40 ft
Depth to Water (btoc): 10.73 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): 16.69 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	0912	10.75	colorless	odorless	6.73	17.00	2.272	14.5	0.76	112.0
1,200	0916	10.78	↓	↓	6.78	17.63	2.294	5.3	0.18	82.0
2,400	0920	10.79	↓	↓	6.79	17.73	2.313	2.5	0.11	77.3
3,600	0924	↓	↓	↓	6.79	17.77	2.315	1.1	0.08	70.7
4,800	0928	↓	↓	↓	6.79	17.78	2.315	1.1	0.07	66.9

Start Time: 0912
Stop Time: 0928
Elapsed Time: 16 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/24/09

SAMPLING DATA

Sample Date: 11/24/09
Sample Method: Stainless Steel Monsoon
Sample Time: 0930
Sample Flow Rate: 300 mL/min.
Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/24/09
WEATHER: cloudy, rain, 60°F
MONITORING WELL ID: PMAMW04D
SAMPLE ID: PMAMW04D-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 73.45 ft
Constructed Well Depth (btoc): 73.50 ft
Depth to Water (btoc): 9.32 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): 64.13 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) = 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	1130	9.32	colorless	hydrocarbon	6.54	15.81	1.502	5.3	1.80	-155.8
1,200	1133				6.50	15.96	1.469	2.6	1.56	-157.8
2,400	1136				6.49	15.89	1.462	2.3	1.82	-159.2
3,600	1139				6.49	15.91	1.461	2.0	1.58	-159.7
4,800	1142				6.49	15.97	1.454	2.4	1.44	-160.2
6,000	1145				6.48	16.10	1.451	1.5	1.40	-160.6
7,200	1148				6.48	16.05	1.450	1.6	1.24	-161.0
8,400	1151				6.48	16.00	1.449	2.1	1.27	-161.3
9,600	1154				6.47	16.10	1.446	1.2	1.22	-161.6

Start Time: 1130
Stop Time: 1154
Elapsed Time: 24 min.
Average Purge Rate (mL/min): 400
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/24/09

SAMPLING DATA

Sample Date: 11/24/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1200
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: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/24/09
WEATHER: rain, 50°F
MONITORING WELL ID: PMAMW04S
SAMPLE ID: PMAMW04S-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 25.38 ft
Constructed Well Depth (btoc): 25.33 ft
Depth to Water (btoc): 9.68 ft
Depth to LNAPL/DNAPL (btoc): 25.00 ft
Depth to Top of Screen (btoc): 20.33 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 15.32 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) = ~25.30 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: 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)

MC

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

MC

SAMPLING DATA — No GW sample collected.

Sample Date:
Sample Time:
Analysis: Total PCBs
Sample Method: ~~Stainless Steel Monsoon~~ MC Peristaltic
Sample Flow Rate:
QA/QC Samples:

COMMENTS:
Collected DNAPL sample – PMAMW04S-1109-DNAPL @ 1230

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: cloudy, 61°F
MONITORING WELL ID: PMAMW05M
SAMPLE ID: PMAMW05M-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 57.02 ft
Constructed Well Depth (btoc): 56.87 ft
Depth to Water (btoc): 9.03 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): 47.99 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	1354	9.03	colorless	hydrocarbon	7.23	17.40	2.380	2.9	20.70	-143.6
1,200	1358	↓	↓	↓	7.12	17.74	2.290	1.5	17.69	-156.2
2,400	1402				7.11	17.42	2.341	0.4	16.68	-166.1
3,600	1406				7.12	17.39	2.340	0.3	16.32	-169.4
4,800	1410				7.13	17.36	2.337	0.1	16.15	-174.3
6,000	1414				7.13	17.33	2.337	0.2	16.14	-174.8

Start Time: 1354
Stop Time: 1414
Elapsed Time: 20 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Method: Stainless Steel Monsoon
Sample Time: 1420
Sample Flow Rate: mL/min.
Analysis: Total PCBs
QA/QC Samples: none

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00004
FIELD PERSONNEL: Mike Corbett, Craig Williams
DATE: 11/23/09
WEATHER: clouds/sun, 61°F
MONITORING WELL ID: PMAMW06D
SAMPLE ID: PMAMW06D-1109

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 101.41 ft
Constructed Well Depth (btoc): 101.18 ft
Depth to Water (btoc): 5.10 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): 96.31 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): 1,200 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,600 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	1446	5.10	dark gray	hydrocarbon	7.03	16.88	1.250	48.0	14.52	-178.3
1,200	1450	↓	↓	↓	7.03	16.89	1.251	19.7	13.65	-182.3
2,400	1454	↓	colorless	↓	7.04	16.92	1.190	5.6	13.30	-184.2
3,600	1458	↓	↓	↓	7.04	16.91	1.186	2.9	13.18	-184.6
4,800	1502	↓	↓	↓	7.04	16.95	1.179	1.3	12.86	-185.5
6,000	1506	↓	↓	↓	7.05	16.96	1.177	0.7	12.64	-186.2
~~7,200~~	~~1510~~ mL									

Start Time: 1446
Stop Time: 1506
Elapsed Time: 20 min.
Average Purge Rate (mL/min): 300
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/23/09

SAMPLING DATA

Sample Date: 11/23/09
Sample Time: 1510
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 300 mL/min
QA/QC Samples: none

COMMENTS:

Appendix B

Chains-of-Custody

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

COPY

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	Date: 11/23/09	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: FedEx	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. ~~21562156.00004~~ 21562156.00009
St. Louis, MO 63110	Calendar (C) or Work Days (W)			SDG No.
(314) 429-0100 Phone	TAT if different from Below Standard			
(314) 429-0462 FAX	☐ 2 weeks			
Project Name: 4Q09 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:
PMA-MW-01S-1109	11/23/09	1000	G	Water	2		2	
PMA-MW-01S-1109-MS		1000			2		2	
PMA-MW-01S-1109-MSD		1000			2		2	
PMA-MW-01M-1109		1050			2		2	
PMA-MW-02S-1109-EB		1110			2		2	
PMA-MW-02S-1109		1220			2		2	
PMA-MW-02M-1109		1300			2		2	
PMA-MW-02M-1109-AD		1300			2		2	
PMA-MW-05M-1109		1420			2		2	
PMA-MW-06D-1109		1510			2		2	
							1	

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

680-52931
3.8|3.6|3.4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	11/23/09 1700	[signature]	TA	11/23/09 1700
[signature]	TA	11/23/09 1730			
			Georgek Conner	TA SA	11/24/09 0920

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	Date: 11/24/09	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. 21562156.00004
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: 4Q09 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:
PMA-MW-03S-1109	11/24/09	0930	G	Water	2		2	
PMA-MW-03M-1109	↓	1030	↓	↓	2		2	
PMA-MW-04D-1109	↓	1200	↓	↓	2		2	
							1	

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

TEMP 3.2

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	11/24/09 1700	[signature]	TA	11-25-09 10:18
Relinquished by:	Company:	Date/Time:	Received by: 052900 680-52992	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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	Date: 11/24/09	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. 21562156.00004
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: 4Q09 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:
PMA-MW-4S-1109-DNAPL	11/24/09	1230	G	NAPL	2		2	
								680-52990
							1	

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

TEMPERATURE
2.4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	11/24/09 1700	Ruth A Daughtry	TA SAV	11-25-09 1018
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Appendix C

Quality Assurance Report

QUALITY ASSURANCE REPORT

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

PCB Groundwater Quality Assessment Program
4th Quarter 2009 Data Report

Prepared for

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

February 2010

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

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1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in November of 2009 at the Solutia W.G. Krummrich plant as part of the 4th 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 reviews 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) KPM035 and KPM036 utilizing the following USEPA Methods:

- Method 680 for PCBs

Samples were reviewed following procedures outlined in the USEPA National Functional Guidelines for Superfund Organic Data Review, 2008 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 indicate 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 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 SDG KPM036, sample PMA-MW-4S-

1109-DNAPL was extracted one day outside of hold time (hold time is 14 days for PCBs in wastes). Professional judgment was used to qualify, but not reject data, since PCBs are very stable. Detections were qualified as estimated (J) and nondetects were qualified as estimated (UJ). Analytical data that required qualification based on holding time criteria are summarized in the following table:

Field ID	Parameter	Analyte	Qualification
PMA-MW-4S-1109-DNAPL	PCBs	Monochlorobiphenyl	**UJ**
PMA-MW-4S-1109-DNAPL	PCBs	Dichlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Trichlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Tetrachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Pentachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Hexachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Heptachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Octachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Nonachlorobiphenyl	**UJ**
PMA-MW-4S-1109-DNAPL	PCBs	DCB Decachlorobiphenyl	**UJ**

The cooler receipt form did not indicate any problems.

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 Superfund 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.

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 Relative Percent Difference (RPD) was the only factor outside of criteria. Also, USEPA National Functional Guidelines for Superfund Organic Methods Data Review (2008) 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 PMA-MW-01S1109 was spiked and analyzed for PCBs in SDG KPM035. All MS/MSD recoveries were within evaluation criteria. No qualification of data was required due to MS/MSD recoveries.

Although not designated for MS/MSD analyses on the chain of custody form, the laboratory spiked and analyzed sample PMA-MW-4S-1109-DNAPL for PCBs in SDG KPM036. MS/MSD recoveries could not be evaluated due to sample concentrations greater than four times (4X) the spiking concentrations. No qualification of data was required.

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. No qualifications of data were required.

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.

9.0 RESULTS REPORTED FROM DILUTIONS

The PCB DNAPL sample was diluted 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 KPM035

Results of Samples from Monitoring Wells:

PMA-MW-1M
PMA-MW-1S
PMA-MW-2M
PMA-MW-2S
PMA-MW-3M
PMA-MW-3S
PMA-MW-4D
PMA-MW-5M
PMA-MW-6D

Solutia Krummrich Data Review
WGK PCB GW Quality 4Q09

Laboratory SDG: KPM035

Reviewer: Susan Jansen

Date Reviewed: 1/27/2010

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008.

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

Sample Identification	Sample Identification
PMA-MW-01M-1109	PMA-MW-03M-1109
PMA-MW-01S-1109	PMA-MW-03S-1109
PMA-MW-02M-1109	PMA-MW-04D-1109
PMA-MW-02M-1109-AD	PMA-MW-05M-1109
PMA-MW-02S-1109	PMA-MW-06D-1109
PMA-MW-02S-1109-EB	

1.0 Data Package Completeness

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

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

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

No problems were indicated in the laboratory narrative or cooler receipt form.

3.0 Holding Times

Were samples extracted/analyzed within applicable 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 collected as part of this SDG?

Yes, sample PMA-MW-01S-1109 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?

Yes

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
PMA-MW-02M-1109	PMA-MW-02M-1109-AD

Were field duplicates within evaluation criteria?

Yes

11.0 Sample Dilutions

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

Not applicable; samples analyzed did not require a dilution.

12.0 Additional Qualifications

Were additional qualifications applied?

No

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-52931-1

SDG Number: KPM035

Job Description: WGK PCB GW Quality 4Q09 NOV 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
12/30/2009 3:52 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
12/30/2009

Reviewed on:
JAN 27 2010

cc: Mr. Thomas 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
680-52931-1 / SDG KPM035

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

GC/MS Semi VOA
No analytical or quality issues were noted.

Comments
No additional comments.

JAN 27 2010

METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

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

JAN 27 2010

METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Method	Analyst	Analyst ID
EPA 680	Johnson, Brad	BJ

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-52931-1	PMA-MW-01S-1109	Water	11/23/2009 1000	11/24/2009 0920
680-52931-1MS	PMA-MW-01S-1109-MS	Water	11/23/2009 1000	11/24/2009 0920
680-52931-1MSD	PMA-MW-01S-1109-MSD	Water	11/23/2009 1000	11/24/2009 0920
680-52931-2	PMA-MW-01M-1109	Water	11/23/2009 1050	11/24/2009 0920
680-52931-3	PMA-MW-02S-1109-EB	Water	11/23/2009 1110	11/24/2009 0920
680-52931-4	PMA-MW-02S-1109	Water	11/23/2009 1220	11/24/2009 0920
680-52931-5	PMA-MW-02M-1109	Water	11/23/2009 1300	11/24/2009 0920
680-52931-6	PMA-MW-02M-1109-AD	Water	11/23/2009 1300	11/24/2009 0920
680-52931-7	PMA-MW-05M-1109	Water	11/23/2009 1420	11/24/2009 0920
680-52931-8	PMA-MW-06D-1109	Water	11/23/2009 1510	11/24/2009 0920
680-52990-2	PMA-MW-03S-1109	Water	11/24/2009 0930	11/25/2009 1018
680-52990-3	PMA-MW-03M-1109	Water	11/24/2009 1030	11/25/2009 1018
680-52990-4	PMA-MW-04D-1109	Water	11/24/2009 1200	11/25/2009 1018

JAN 27 2010

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-01S-1109**

Lab Sample ID: 680-52931-1
Client Matrix: Water

Date Sampled: 11/23/2009 1000
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1250			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.095	U	0.095
Dichlorobiphenyl	0.095	U	0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

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

JAN 27 2010
SEJ

Analytical Data

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-01M-1109**

Lab Sample ID: 680-52931-2
Client Matrix: Water

Date Sampled: 11/23/2009 1050
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1320			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.27		0.095
Dichlorobiphenyl	0.095	U	0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	63		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-02S-1109-EB**

Lab Sample ID: 680-52931-3
Client Matrix: Water

Date Sampled: 11/23/2009 1110
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1030 mL
Date Analyzed:	12/21/2009 1351			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			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	66		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-02S-1109**

Lab Sample ID: 680-52931-4
Client Matrix: Water

Date Sampled: 11/23/2009 1220
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	12/21/2009 1422			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			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	63		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-02M-1109**

Lab Sample ID: 680-52931-5
Client Matrix: Water

Date Sampled: 11/23/2009 1300
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1453			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	2.7		0.095
Dichlorobiphenyl	0.095	U	0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

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

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-02M-1109-AD**

Lab Sample ID: 680-52931-6
Client Matrix: Water

Date Sampled: 11/23/2009 1300
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	12/21/2009 1523			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	3.4		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	67		25 - 113

JAN 27 2010
SEJ

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-05M-1109**

Lab Sample ID: 680-52931-7
Client Matrix: Water

Date Sampled: 11/23/2009 1420
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1554 /			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.095	U	0.095
Dichlorobiphenyl	0.095	U	0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

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

JAN 27 2010
SEG

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-06D-1109**

Lab Sample ID: 680-52931-8
Client Matrix: Water

Date Sampled: 11/23/2009 1510
Date Received: 11/24/2009 0920

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	12/21/2009 1625			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.30		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	66		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-03S-1109**

Lab Sample ID: 680-52990-2
Client Matrix: Water

Date Sampled: 11/24/2009 0930
Date Received: 11/25/2009 1018

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1656			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	1.8		0.095
Dichlorobiphenyl	0.23		0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	67		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-03M-1109**

Lab Sample ID: 680-52990-3
Client Matrix: Water

Date Sampled: 11/24/2009 1030
Date Received: 11/25/2009 1018

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1060 mL
Date Analyzed:	12/21/2009 1727			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			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	0.47

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	53		25 - 113

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Client Sample ID: **PMA-MW-04D-1109**

Lab Sample ID: 680-52990-4
Client Matrix: Water

Date Sampled: 11/24/2009 1200
Date Received: 11/25/2009 1018

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-156923		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-154828		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1050 mL
Date Analyzed:	12/21/2009 1758			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.27		0.095
Dichlorobiphenyl	0.34		0.095
Trichlorobiphenyl	0.095	U	0.095
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	0.48	U	0.48
DCB Decachlorobiphenyl	0.48	U	0.48

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl-13C12	62		25 - 113

JAN 27 2010

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

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

JAN 27 2010
SEJ

QUALITY CONTROL RESULTS

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 680-154828					
LCS 680-154828/13-A	Lab Control Sample	T	Water	680	
MB 680-154828/12-A	Method Blank	T	Water	680	
680-52931-1	PMA-MW-01S-1109	T	Water	680	
680-52931-1MS	Matrix Spike	T	Water	680	
680-52931-1MSD	Matrix Spike Duplicate	T	Water	680	
680-52931-2	PMA-MW-01M-1109	T	Water	680	
680-52931-3	PMA-MW-02S-1109-EB	T	Water	680	
680-52931-4	PMA-MW-02S-1109	T	Water	680	
680-52931-5	PMA-MW-02M-1109	T	Water	680	
680-52931-6	PMA-MW-02M-1109-AD	T	Water	680	
680-52931-7	PMA-MW-05M-1109	T	Water	680	
680-52931-8	PMA-MW-06D-1109	T	Water	680	
680-52990-2	PMA-MW-03S-1109	T	Water	680	
680-52990-3	PMA-MW-03M-1109	T	Water	680	
680-52990-4	PMA-MW-04D-1109	T	Water	680	
Analysis Batch:680-156923					
LCS 680-154828/13-A	Lab Control Sample	T	Water	680	680-154828
MB 680-154828/12-A	Method Blank	T	Water	680	680-154828
680-52931-1	PMA-MW-01S-1109	T	Water	680	680-154828
680-52931-1MS	Matrix Spike	T	Water	680	680-154828
680-52931-1MSD	Matrix Spike Duplicate	T	Water	680	680-154828
680-52931-2	PMA-MW-01M-1109	T	Water	680	680-154828
680-52931-3	PMA-MW-02S-1109-EB	T	Water	680	680-154828
680-52931-4	PMA-MW-02S-1109	T	Water	680	680-154828
680-52931-5	PMA-MW-02M-1109	T	Water	680	680-154828
680-52931-6	PMA-MW-02M-1109-AD	T	Water	680	680-154828
680-52931-7	PMA-MW-05M-1109	T	Water	680	680-154828
680-52931-8	PMA-MW-06D-1109	T	Water	680	680-154828
680-52990-2	PMA-MW-03S-1109	T	Water	680	680-154828
680-52990-3	PMA-MW-03M-1109	T	Water	680	680-154828
680-52990-4	PMA-MW-04D-1109	T	Water	680	680-154828

Report Basis
T = Total

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Surrogate Recovery Report

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	13DCB %Rec
680-52931-1	PMA-MW-01S-1109	61
680-52931-2	PMA-MW-01M-1109	63
680-52931-3	PMA-MW-02S-1109-EB	66
680-52931-4	PMA-MW-02S-1109	63
680-52931-5	PMA-MW-02M-1109	59
680-52931-6	PMA-MW-02M-1109-AD	67
680-52931-7	PMA-MW-05M-1109	61
680-52931-8	PMA-MW-06D-1109	66
680-52990-2	PMA-MW-03S-1109	67
680-52990-3	PMA-MW-03M-1109	53
680-52990-4	PMA-MW-04D-1109	62
MB 680-154828/12-A		62
LCS 680-154828/13-A		68
680-52931-1 MS	PMA-MW-01S-1109 MS	79
680-52931-1 MSD	PMA-MW-01S-1109 MSD	73

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

JAN 27 2010

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Method Blank - Batch: 680-154828

Method: 680
Preparation: 680

Lab Sample ID:	MB 680-154828/12-A	Analysis Batch:	680-156923	Instrument ID:	GC/MS SemiVolatiles - Y
Client Matrix:	Water	Prep Batch:	680-154828	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	12/21/2009 1148			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			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	62	25 - 113

Lab Control Sample - Batch: 680-154828

Method: 680
Preparation: 680

Lab Sample ID:	LCS 680-154828/13-A	Analysis Batch:	680-156923	Instrument ID:	GC/MS SemiVolatiles - Y
Client Matrix:	Water	Prep Batch:	680-154828	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/L	Initial Weight/Volume:	1000 mL
Date Analyzed:	12/21/2009 1219			Final Weight/Volume:	1 mL
Date Prepared:	11/30/2009 1412			Injection Volume:	

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Monochlorobiphenyl	2.00	0.922	46	10 - 125	
Dichlorobiphenyl	2.00	1.10	55	10 - 110	
Trichlorobiphenyl	2.00	1.19	60	17 - 110	
Tetrachlorobiphenyl	4.00	2.33	58	18 - 110	
Pentachlorobiphenyl	4.00	2.71	68	34 - 110	
Hexachlorobiphenyl	4.00	2.58	64	31 - 110	
Heptachlorobiphenyl	6.00	3.97	66	33 - 110	
Octachlorobiphenyl	6.00	3.99	67	33 - 110	
DCB Decachlorobiphenyl	10.0	6.48	65	26 - 115	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	68	25 - 113

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

JAN 27 2010

Quality Control Results

Client: Solutia Inc.

Job Number: 680-52931-1
Sdg Number: KPM035

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-154828

Method: 680
Preparation: 680

MS Lab Sample ID:	680-52931-1	Analysis Batch: 680-156923	Instrument ID: GC/MS SemiVolatiles - Y
Client Matrix:	Water	Prep Batch: 680-154828	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1050 mL
Date Analyzed:	12/21/2009 1829		Final Weight/Volume: 1 mL
Date Prepared:	11/30/2009 1412		Injection Volume:

MSD Lab Sample ID:	680-52931-1	Analysis Batch: 680-156923	Instrument ID: GC/MS SemiVolatiles - Y
Client Matrix:	Water	Prep Batch: 680-154828	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 1050 mL
Date Analyzed:	12/21/2009 1900		Final Weight/Volume: 1 mL
Date Prepared:	11/30/2009 1412		Injection Volume:

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Monochlorobiphenyl	50	52	10 - 125	3	40		
Dichlorobiphenyl	61	61	10 - 110	1	40		
Trichlorobiphenyl	65	66	17 - 110	1	40		
Tetrachlorobiphenyl	66	65	18 - 110	3	40		
Pentachlorobiphenyl	78	76	34 - 110	3	40		
Hexachlorobiphenyl	76	73	31 - 110	4	40		
Heptachlorobiphenyl	78	74	33 - 110	5	40		
Octachlorobiphenyl	76	74	33 - 110	4	40		
DCB Decachlorobiphenyl	73	71	26 - 115	2	40		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl-13C12	79	73	25 - 113

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

JAN 27 2010

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

COPY

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Adams	Site Contact: Mike Corbett	Date: 11/23/09	COC No:
URS Corporation	Tel/Fax: (314) 743-4228	Lab Contact: Lidya Gulizia	Carrier: FedEx	1 of 1 COCs
1001 Highlands Plaza Drive West, Suite 300	Analysis Turnaround Time			Job No. ~~21562156.00004~~ 21562156.00004
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: 4Q09 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:
PMA-MW-01S-1109	11/23/09	1000	G	Water	2		2	
PMA-MW-01S-1109-MS		1000			2		2	
PMA-MW-01S-1109-MSD		1000			2		2	
PMA-MW-01M-1109		1050			2		2	
PMA-MW-02S-1109-EB		1110			2		2	
PMA-MW-02S-1109		1220			2		2	
PMA-MW-02M-1109		1300			2		2	
PMA-MW-02M-1109-AD		1300			2		2	
PMA-MW-05M-1109		1420			2		2	
PMA-MW-06D-1109		1510			2		2	

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

680-52931
3.7|3.6|3.4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	11/23/09 1700	[signature]	TA	11/23/09 1700
Relinquished by: [signature]	Company: TA	Date/Time: 11/23/09 1730	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by: [signature]	Company: TA SA	Date/Time: 11/24/09 0920

JAN 27 2010

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	Date: 11/24/09	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. 21562156.00004
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: 4Q09 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:
PMA-MW-03S-1109'	11/24/09	0930	G	Water	2		2	
PMA-MW-03M-1109'	↓	1030	↓	↓	2		2	
PMA-MW-04D-1109'	↓	1200	↓	↓	2		2	
							1	

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

TEMP 3.2

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	URS	11/24/09 1700	[signature]	TA	11-25-09 10:48
Relinquished by:	Company:	Date/Time:	Received by: 680-52992	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

JAN 27 2010

Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-52931-1
SDG Number: KPM035

Login Number: 52931
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	3.8, 3.6 and 3.4 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?	N/A	
Sample Preservation Verified	True	

JAN 27 2010

Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-52931-1
SDG Number: KPM035

Login Number: 52990
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	2 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2 (GW) and 2.4 C (DNAPL)
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 not requested in receitp for client SDG
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	

JAN 27 2010

SDG KPM036

Results of Sample from Monitoring Well:

PMA-MW-4S

Solutia Krummrich Data Review
WGK PCB GW Quality 4Q09

Laboratory SDG: KPM036

Reviewer: Susan Jansen

Date Reviewed: 1/27/2010

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008.

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

Sample Identification
PMA-MW-4S-1109-DNAPL

1.0 Data Package Completeness

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

Yes, however the laboratory performed MS/MSD analyses on sample PMA-MW-4S-1109-DNAPL even though MS/MSD analyses were not requested on the COC.

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. MS/MSD recoveries could not be evaluated because sample concentrations were greater than four times (4X) the spiking concentrations. Sample PMA-MW-4S-1109-DNAPL was diluted due to high levels of target analytes. 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 applicable limits?

No, sample PMA-MW-4S-1109-DNAPL was extracted one day 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.

Analytical data that required qualification based on holding time criteria are summarized in the following table:

Field ID	Parameter	Analyte	Qualification
PMA-MW-4S-1109-DNAPL	PCBs	Monochlorobiphenyl	**UJ**
PMA-MW-4S-1109-DNAPL	PCBs	Dichlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Trichlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Tetrachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Pentachlorobiphenyl	**J**
PMA-MW-4S1109-DNAPL	PCBs	Hexachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Heptachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Octachlorobiphenyl	**J**
PMA-MW-4S-1109-DNAPL	PCBs	Nonachlorobiphenyl	**UJ**
PMA-MW-4S-1109-DNAPL	PCBs	DCB Decachlorobiphenyl	**UJ**

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?

PCB surrogates were diluted out and not recovered in sample PMA-MW-4S-1109-DNAPL. No qualification of data was required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

Although not specified for MS/MSD analysis on the chain of custody form, the laboratory spiked and analyzed sample PMA-MW-4S-1109-DNAPL for PCBs.

Were MS/MSD recoveries within evaluation criteria?

MS/MSD recoveries could not be evaluated due to sample concentrations greater than four times (4X) the spiking concentrations.

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Sample Identification	Parameter	Analyte	IS Area Recovery	IS Criteria
PMA-MW-4S-1109-DNAPL-MSD	PCBs	Phenanthrene-d_{10}	**181338**	56567-169701

Sample PMA-MW-4S-1109-MSD is a quality control samples and quality control samples do not require qualification; therefore, no qualification of data was 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?

No

11.0 Sample Dilutions

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

Not applicable; analytes were detected in the diluted sample.

12.0 Additional Qualifications

Were additional qualifications applied?

No

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 680-52990-1

SDG Number: KPM036

Job Description: WGK PCB GW DNAPL MW4S 4Q09 - N0V 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
12/30/2009 3:58 PM

Lidya Gulizia
Project Manager I
lidya.gulizia@testamericainc.com
12/30/2009

Reviewed on:
JAN 27 2010

cc: Mr. Thomas 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

Job Narrative
680-52990-1 / SDG KPM036

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

GC/MS Semi VOA
Method(s) 680: Sample PMA-MW-4S-1109-DNAPL (680-52990-1) and the associated matrix spike/matr spike duplicate samples (680-52990-1 MS and 680-52990-1 MSD) were diluted due to abundance of target analytes. As such, surrogate and spike recoveries are not reported.

No other analytical or quality issues were noted.

Comments
No additional comments.

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METHOD SUMMARY

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

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

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METHOD / ANALYST SUMMARY

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Method	Analyst	Analyst ID
EPA 680	Robbins, Wayne	WR

JAN 27 2010

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-52990-1	PMA-MW-4S-1109-DNAPL	Waste	11/24/2009 1230	11/25/2009 1018

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SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Client Sample ID: **PMA-MW-4S-1109-DNAPL**

Lab Sample ID: 680-52990-1
Client Matrix: Waste

Date Sampled: 11/24/2009 1230
Date Received: 11/25/2009 1018

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method:	680	Analysis Batch: 680-157108		Instrument ID:	MSY
Preparation:	680	Prep Batch: 680-155667		Lab File ID:	N/A
Dilution:	500			Initial Weight/Volume:	1.34 g
Date Analyzed:	12/22/2009 1624			Final Weight/Volume:	10 mL
Date Prepared:	12/09/2009 1200			Injection Volume:	

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Monochlorobiphenyl		370000	"UJ"	370000
Dichlorobiphenyl		6000000	" "	370000
Trichlorobiphenyl		51000000	" "	370000
Tetrachlorobiphenyl		110000000	" "	750000
Pentachlorobiphenyl		88000000	" "	750000
Hexachlorobiphenyl		140000000	" "	750000
Heptachlorobiphenyl		97000000	" "	1100000
Octachlorobiphenyl		20000000	" "	1100000
Nonachlorobiphenyl		1900000	"UJ"	1900000
DCB Decachlorobiphenyl		1900000	"UJ"	1900000

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

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SEJ

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

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

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QUALITY CONTROL RESULTS

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 680-155667					
LCS 680-155667/3-A	Lab Control Sample	T	Waste	680	
MB 680-155667/2-A	Method Blank	T	Waste	680	
680-52990-1	PMA-MW-4S-1109-DNAPL	T	Waste	680	
680-52990-1MS	Matrix Spike	T	Waste	680	
680-52990-1MSD	Matrix Spike Duplicate	T	Waste	680	
Analysis Batch:680-157108					
LCS 680-155667/3-A	Lab Control Sample	T	Waste	680	680-155667
MB 680-155667/2-A	Method Blank	T	Waste	680	680-155667
680-52990-1	PMA-MW-4S-1109-DNAPL	T	Waste	680	680-155667
680-52990-1MS	Matrix Spike	T	Waste	680	680-155667
680-52990-1MSD	Matrix Spike Duplicate	T	Waste	680	680-155667

Report Basis
T = Total

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Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Surrogate Recovery Report

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Client Matrix: Waste

Lab Sample ID	Client Sample ID	13DCB %Rec
680-52990-1	PMA-MW-4S-1109-D NAPL	0D
MB 680-155667/2-A		90
LCS 680-155667/3-A		97
680-52990-1 MS	PMA-MW-4S-1109-D NAPL MS	0D
680-52990-1 MSD	PMA-MW-4S-1109-D NAPL MSD	0D

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

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Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Method Blank - Batch: 680-155667

Method: 680
Preparation: 680

Lab Sample ID:	MB 680-155667/2-A	Analysis Batch:	680-157108	Instrument ID:	GC/MS SemiVolatiles - Y
Client Matrix:	Waste	Prep Batch:	680-155667	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	1.00 g
Date Analyzed:	12/22/2009 1417			Final Weight/Volume:	10 mL
Date Prepared:	12/09/2009 1200			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	90	30 - 130

Lab Control Sample - Batch: 680-155667

Method: 680
Preparation: 680

Lab Sample ID:	LCS 680-155667/3-A	Analysis Batch:	680-157108	Instrument ID:	GC/MS SemiVolatiles - Y
Client Matrix:	Waste	Prep Batch:	680-155667	Lab File ID:	N/A
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	1.00 g
Date Analyzed:	12/22/2009 1316			Final Weight/Volume:	10 mL
Date Prepared:	12/09/2009 1200			Injection Volume:	

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Monochlorobiphenyl	20000	19600	98	30 - 130	
Dichlorobiphenyl	20000	20700	103	30 - 130	
Trichlorobiphenyl	20000	20500	103	30 - 130	
Tetrachlorobiphenyl	40000	39500	99	40 - 140	
Pentachlorobiphenyl	40000	42500	106	40 - 140	
Hexachlorobiphenyl	40000	40800	102	40 - 140	
Heptachlorobiphenyl	60000	59900	100	40 - 140	
Octachlorobiphenyl	60000	59400	99	40 - 140	
DCB Decachlorobiphenyl	100000	102000	102	30 - 130	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl-13C12	97	30 - 130

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

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Quality Control Results

Client: Solutia Inc.

Job Number: 680-52990-1
Sdg Number: KPM036

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-155667

Method: 680
Preparation: 680

MS Lab Sample ID:	680-52990-1	Analysis Batch: 680-157108	Instrument ID:	GC/MS SemiVolatiles - Y	
Client Matrix:	Waste	Prep Batch: 680-155667	Lab File ID:	N/A	
Dilution:	500		Initial Weight/Volume:	1.32 g	
Date Analyzed:	12/22/2009 1655		Final Weight/Volume:	10 mL	
Date Prepared:	12/09/2009 1200		Injection Volume:		

MSD Lab Sample ID:	680-52990-1	Analysis Batch: 680-157108	Instrument ID:	GC/MS SemiVolatiles - Y	
Client Matrix:	Waste	Prep Batch: 680-155667	Lab File ID:	N/A	
Dilution:	500		Initial Weight/Volume:	1.33 g	
Date Analyzed:	12/22/2009 1726		Final Weight/Volume:	10 mL	
Date Prepared:	12/09/2009 1200		Injection Volume:		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Monochlorobiphenyl	NC	NC	30 - 130	NC	50	U	U
Dichlorobiphenyl	-4420	-5130	30 - 130	2	50	4	4
Trichlorobiphenyl	-42200	-75900	30 - 130	12	50	4	4
Tetrachlorobiphenyl	-38300	-47200	40 - 140	3	50	4	4
Pentachlorobiphenyl	-27900	-50500	40 - 140	9	50	4	4
Hexachlorobiphenyl	-52100	-64200	40 - 140	3	50	4	4
Heptachlorobiphenyl	-15300	-23700	40 - 140	4	50	4	4
Octachlorobiphenyl	283	-3400	40 - 140	9	50	4	4
DCB Decachlorobiphenyl	NC	NC	30 - 130	NC	50	U	U

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

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

JAN 27 2010

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	Date: 11/24/09	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. 21562156.00004
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: 4Q09 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:
PMA-MW-4S-1109-DNAPL	11/24/09	1230	G	NAPL	2		2	
								680-52990
							1	

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

TEMPERATURE
2.4

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Mike Corbett	URS	11/24/09 1700	Ruth A Daughtry	TA SAV	11-25-09 1018
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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Login Sample Receipt Check List

Client: URS Corporation

Job Number: 680-52990-1
SDG Number: KPM036

Login Number: 52990
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	2 coolers rec'd on ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2 (GW) and 2.4 C (DNAPL)
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 not requested in receitp for client SDG
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	

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