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August 25, 2011

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

VIA FEDEX

Re: PCB Groundwater Quality Assessment Program  
2<sup>nd</sup> Quarter 2011 Data Report  
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 2<sup>nd</sup> Quarter 2011 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](mailto:gmrina@solutia.com)

Sincerely,

Gerald M. Rinaldi  
Manager, Remediation Services

Enclosure

cc: Distribution List

## **DISTRIBUTION LIST**

**PCB Groundwater Quality Assessment Program  
2<sup>nd</sup> Quarter 2011 Data Report  
Solutia Inc., W. G. Krummrich Plant, Sauget, IL**

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**SECOND QUARTER 2011  
DATA REPORT  
PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM  
SOLUTIA INC.  
W.G. KRUMMRICH FACILITY  
SAUGET, ILLINOIS**

*Prepared for:*

**SOLUTIA INC.**  
St. Louis, Missouri

*Prepared by:*

**GEOTECHNOLOGY, INC.**  
St. Louis, Missouri

Geotechnology, Inc. Report No. J017210.15

August 26, 2011



**SECOND QUARTER 2011**  
**DATA REPORT**  
**PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM**  
**SOLUTIA INC.**  
**W.G. KRUMMRICH FACILITY**  
**SAUGET, ILLINOIS**

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**SECOND QUARTER 2011**  
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**SAUGET, ILLINOIS**

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J017210.15

**SECOND QUARTER 2011**  
**DATA REPORT**  
**PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM**  
**SOLUTIA INC.**  
**W.G. KRUMMRICH FACILITY**  
**SAUGET, ILLINOIS**

**1.0 INTRODUCTION**

This report presents the results of the 2nd Quarter 2011 (1Q11) 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, PMA-MW-4S and PMA-MW-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 (PMA-MW-1S/M, PMA-MW-2S/M and PMA-MW-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 PMA-MW-5M and PMA-MW-6D are located further down-gradient of the source area, with PMA-MW-5M screened in the MHU and PMA-MW-6D screened in the DHU.

Groundwater samples were collected from the ten monitoring wells during the 2Q11 sampling event.

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**

Geotechnology, Inc. (Geotechnology) conducted the 1Q11 PCB Groundwater Quality Assessment Program field activities between May 17 and May 23, 2011.

**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. Periodically, well PMA-MW-4S has contained measurable DNAPL, however none was observed in this well during the second quarter sampling event. 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 2Q11 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 of 233 to 300 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 “PMA-MW#-MMYY-QAC” where:

- PMA-MW# – Monitoring Well Location (PCB Manufacturing Area (PMA)) and Number
- MMY – Month and year of sampling quarter, e.g.: May (second quarter), 2011 (0511)
- QAC – denotes QA/QC samples (when applicable):
  - EB – equipment blank
  - AD – analytical duplicate
  - MS or MSD – Matrix Spike or Matrix Spike Duplicate

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 (FedEx). Field sampling data sheets are included in Appendix A, COC forms are included in Appendix B.

### **3.0 LABORATORY PROCEDURES**

Samples were analyzed by TestAmerica for PCBs using Method 680.

### **4.0 QUALITY ASSURANCE**

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

A total of 12 samples (ten investigative groundwater samples, one field duplicate pair and one equipment blank) were prepared and analyzed by TestAmerica for PCBs. Results for the various analyses were submitted as sample delivery group (SDG) KPM.

The samples contained in SDG KPM042 are listed below:

**SDG KPM042**

PMA-MW-1M-0511  
PMA-MW-01S-0511  
PMA-MW-01S MS-0511  
PMA-MW-01S MSD-0511  
PMA-MW-02M-0511  
PMA-MW-02M AD-0511  
PMA-MW-02S-0511  
PMA-NW-02S EB-0511  
PMA-MW-3M-0511  
PMA-MW-3S-0511  
PMA-MW-04D-0511  
PMA-MW-04S-0511  
PMA-MW-5M-0511  
PMA-MW-6D-0511

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, (USEPA 2008) and the Revised PCB Groundwater Quality Assessment Work Plan (Solutia 2009). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, LCS, surrogate and field duplicate data were achieved for this SDG 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 (J) data was 100 percent.

**5.0 OBSERVATIONS**

This section presents a brief summary of the groundwater analytical results from the 2Q11 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

Historically, measurable DNAPL has been periodically observed in the source area SHU monitoring well PMA-MW-4S during previous sampling events however, none was observed in this well during the first quarter sampling event. Laboratory analytical results for monitoring well PMA-MW-4S, located in the Former PCB Manufacturing Area, indicated a total PCB concentration of 1,014.9 µg/L for the 2Q11 event. PCBs were detected in one of the down-gradient PCB Groundwater Quality Assessment Program SHU monitoring wells at total concentrations of 0.23 µg/L (PMA-MW-3S). PCBs were not detected in the remaining two SHU monitoring wells PMA-MW-1S and PMA-MW-2S. PCB sampling results for the SHU are presented on Figure 4.

## MIDDLE/DEEP HYDROGEOLOGIC UNIT

Laboratory analytical results for monitoring well PMA-MW-4D, located in the Former PCB Manufacturing Area, indicated a total PCB concentration of 1.03 µg/L for the 2Q11 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.37 µg/L (PMA-MW-1M), 3.7/3.1 µg/L (PMA-MW-2M/duplicate), 0.94 µg/L (PMA-MW-3M), and 0.18 µg/L (PMA-MW-6D). Figure 5 displays the 2Q11 PCB sampling results for the MHU/DHU.

The 2Q11 sampling event was the twelfth event conducted under the PCB Groundwater Quality Assessment Program. Mann-Kendall trend analyses data forms of total PCBs in unfiltered samples of groundwater from monitoring wells within (PMA-MW-4D) or downgradient of (PMA-MW-1M, -2M, -3S, -3M, and -6D) the former PCB Manufacturing Area are presented in Tables 3-8. The data indicates an upward trend in PCB concentrations in PMA-MW-1M. The data does not indicate an upward trend in the other wells.

## **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 Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review.



See last page of table for notes.

**TABLE 1**J017210.15  
August 2011**MONITORING WELL GAUGING INFORMATION**

Well ID	Construction Details						May 2011		
	Ground Elevation* (feet)	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)
<b>Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)</b>									
PMA-MW-1S	410.30	410.06	20.18	25.18	390.12	385.12	7.72	24.95	402.34
PMA-MW-2S	412.27	411.66	22.94	27.94	389.33	384.33	8.97	27.36	402.69
PMA-MW-3S	412.37	412.06	22.71	27.71	389.66	384.66	9.30	27.44	402.76
PMA-MW-4S	411.09	410.43	20.99	25.99	390.10	385.10	7.84	25.39	402.59
<b>Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)</b>									
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	7.35	59.67	402.73
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	9.20	61.31	402.73
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	9.31	61.85	402.79
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	6.97	57.10	404.00
PS-MW-1	409.37	412.59	37.78	42.78	371.59	366.59	9.44	46.09	403.15
<b>Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)</b>									
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	11.50	77.07	403.63
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	11.62	115.32	404.12
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	19.96	123.43	404.73
BSA-MW-5D	420.80	420.49	115.85	120.85	304.95	299.95	13.82	121.43	406.67
CPA-MW-1D	408.62	408.32	66.12	71.12	342.50	337.50	6.45	70.73	401.87
CPA-MW-2D	408.51	408.20	96.96	104.96	308.55	303.55	5.16	105.30	403.04
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	5.75	113.36	404.92
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	16.43	121.09	404.77
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	7.69	114.74	405.46
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	12.41	123.28	403.15
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	4.63	112.37	403.09
DNAPL-K-3	412.13	411.91	104.80	119.80	307.33	292.33	8.72	120.50	403.19
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	6.19	115.51	402.96
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	8.75	116.59	403.16
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	7.00	118.46	403.09
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	4.54	116.66	403.18
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	8.08	117.65	403.30
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	1.30	111.28	404.67
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	10.21	120.40	403.04
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	8.59	121.22	403.19
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	8.27	109.66	402.94



See last page of table for notes.

**TABLE 1**J017210.15  
August 2011**MONITORING WELL GAUGING INFORMATION**

Well ID	Construction Details						May 2011		
	Ground Elevation* (feet)	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)
<b>Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)</b>									
GWE-1D (PIEZ-1D)	412.80	415.60	117.00	127.00	295.80	285.80	11.04	128.51	404.56
GWE-2D (PIEZ-2D)	417.45	417.14	127.00	137.00	290.45	280.45	12.95	137.12	404.19
GWE-4D (TRA3-PZADHU)	406.05	405.74	74.00	80.00	332.05	326.05	3.30	78.80	402.44
GWE-10D (PIEZ 6D)	410.15	412.87	102.50	112.50	307.65	297.65	10.43	114.90	402.44
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90.00	96.00	330.47	324.47	19.46	97.00	403.44
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	8.07	73.35	402.81
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	2.76	101.80	404.56
PSMW-6	404.11	406.63	99.80	104.80	304.31	299.31	3.26	110.04	403.37
PSMW-9	403.92	403.52	100.40	105.40	303.52	298.52	0.07	105.34	403.45
PSMW-10	409.63	412.18	101.23	106.23	308.40	303.40	7.25	111.42	404.93
PSMW-13	405.80	405.53	106.08	111.08	299.72	294.72	1.50	110.86	404.03
PSMW-17	420.22	423.26	121.25	126.25	298.97	293.97	18.12	134.06	405.14

**TABLE 2**J017210.15  
August 2011**GROUNDWATER ANALYTICAL DETECTIONS**

Sample ID	Sample Date	Units	Monochlorobiphenyl	Dichlorobiphenyl	Trichlorobiphenyl	Tetrachlorobiphenyl	Pentachlorobiphenyl	Hexachlorobiphenyl	Heptachlorobiphenyl	Octachlorobiphenyl	Nonachlorobiphenyl	Decachlorobiphenyl
<b>Shallow Hydrologic Unit</b>												
PMA-MW-1S-0511	05/20/11	µg/L	<0.095	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48*	<0.48
PMA-MW-2S-0511	05/20/11	µg/L	<0.096	<0.096	<0.096	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48*	<0.48
PMA-MW-3S-0511	05/20/11	µg/L	<b>0.23</b>	<0.10	<0.10	<0.21	<0.21	<0.21	<0.31	<0.31	<0.52*	<0.52
PMA-MW-4S-0511	05/23/11	µg/L	<b>2.6</b>	<b>23</b>	<b>93</b>	<b>190</b>	<b>160</b>	<b>260</b>	<b>240</b>	<b>41</b>	<b>5.3*</b>	<5.0
<b>Middle / Deep Hydrologic Unit</b>												
PMA-MW-1M-0511	05/20/11	µg/L	<b>0.37</b>	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49*	<0.49
PMA-MW-2M-0511	05/20/11	µg/L	<b>3.7</b>	<0.098	<0.098	<0.20	<0.20	<0.20	<0.29	<0.29	<0.49*	<0.49
PMA-MW-2M-0511-AD	05/20/11	µg/L	<b>3.1</b>	<0.10	<0.10	<0.20	<0.20	<0.20	<0.31	<0.31	<0.51*	<0.51
PMA-MW-3M-0511	05/20/11	µg/L	<b>0.94</b>	<0.098	<0.098	<0.20	<0.20	<0.20	<0.30	<0.30	<0.49*	<0.49
PMA-MW-4D-0511	05/23/11	µg/L	<b>0.37</b>	<b>0.66</b>	<0.10	<0.20	<0.20	<0.20	<0.30	<0.30	<0.50*	<0.50
PMA-MW-5M-0511	05/19/11	µg/L	<0.095	<0.095	<0.095	<0.19	<0.19	<0.19	<0.29	<0.29	<0.48*	<0.48
PMA-MW-6D-0511	05/19/11	µg/L	<b>0.18</b>	<0.10	<0.10	<0.20	<0.20	<0.20	<0.30	<0.30	<0.50*	<0.50

## Notes:

µg/L = micrograms per liter

&lt; = Result is non-detect, less than the reporting limit

AD = Analytical Duplicate

**BOLD** indicates concentration greater than the reporting limit

\* = indicates LCS or LCD exceeds the control limits

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	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14	Event 15	Event 16	Event 17	Event 18	Event 19	Event 20	Event 21	Row Total
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	
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	0.20	ND	0.29	0.31	0.59	0.37	
Compare to Event 1		1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	18
Compare to Event 2			-1	-1	1	1	1	-1	-1	1	1	-1	-1	1	1	-1	-1	1	1	1	1	3
Compare to Event 3				-1	1	1	1	-1	-1	1	1	-1	0	1	1	-1	-1	1	1	1	1	5
Compare to Event 4					1	1	1	-1	1	1	1	-1	1	1	1	1	-1	1	1	1	1	11
Compare to Event 5						1	1	-1	-1	1	0	-1	-1	1	1	-1	-1	1	1	1	1	3
Compare to Event 6							1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	0	1	1	1	-4
Compare to Event 7								-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-14
Compare to Event 8									1	1	1	1	1	1	1	1	0	1	1	1	1	12
Compare to Event 9										1	1	-1	1	1	1	1	-1	1	1	1	1	8
Compare to Event 10											-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-9
Compare to Event 11												-1	-1	1	1	-1	-1	1	1	1	1	2
Compare to Event 12													1	1	1	1	-1	1	1	1	1	7
Compare to Event 13														1	1	-1	-1	1	1	1	1	4
Compare to Event 14															0	-1	-1	1	1	1	1	2
Compare to Event 15																-1	-1	1	1	1	1	2
Compare to Event 16																	-1	1	1	1	1	3
Compare to Event 17																		1	1	1	1	4
Compare to Event 18																			1	1	1	3
Compare to Event 19																				1	1	2
Compare to Event 20																					-1	-1

Mann-Kendall Statistic (S)	61
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90 % Confidence Mann-Kendall Statistic	44
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Table 4  
Monitoring Well PMA MW-2M Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-2M Mann-Kendall Trend Analysis																						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14	Event 15	Event 16	Event 17	Event 18	Event 19	Event 20	Event 21	Row Total
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	
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	2.4	3.9	2.25	2.10	4.04	3.40	
Compare to Event 1		1	1	-1	1	1	1	-1	1	1	1	1	1	1	1	1	1	-1	-1	1	1	12
Compare to Event 2			1	-1	1	1	1	-1	1	1	1	1	1	1	1	0	1	-1	-1	1	1	10
Compare to Event 3				-1	1	-1	1	-1	1	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	1	1	1	0	1	1	14
Compare to Event 5						-1	-1	-1	-1	1	-1	-1	1	-1	-1	-1	1	-1	-1	1	1	-6
Compare to Event 6							1	-1	1	1	0	1	1	1	1	-1	1	-1	-1	1	1	6
Compare to Event 7								-1	-1	1	-1	-1	1	0	-1	-1	1	-1	-1	1	1	-3
Compare to Event 8									1	1	1	1	1	1	1	1	1	1	1	1	1	13
Compare to Event 9										1	-1	-1	1	1	-1	-1	1	-1	-1	1	1	0
Compare to Event 10											-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-11
Compare to Event 11												1	1	1	1	-1	1	-1	-1	1	1	4
Compare to Event 12													1	1	1	-1	1	-1	-1	1	1	1
Compare to Event 13														-1	-1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 14															-1	-1	1	-1	-1	1	1	-1
Compare to Event 15																-1	1	-1	-1	1	1	0
Compare to Event 16																	1	-1	-1	1	1	1
Compare to Event 17																		-1	-1	1	-1	-2
Compare to Event 18																			-1	1	1	1
Compare to Event 19																				1	1	2
Compare to Event 20																					-1	-1

Mann-Kendall Statistic (S)	34
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90 % Confidence Mann-Kendall Statistic	44
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Table 5  
Monitoring Well PMA MW-3S Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3S Mann-Kendall Trend Analysis																						
	Event 1 2Q06	Event 2 3Q06	Event 3 4Q06	Event 4 1Q07	Event 5 2Q07	Event 6 3Q07	Event 7 4Q07	Event 8 1Q08	Event 9 2Q08	Event 10 3Q08	Event 11 4Q08	Event 12 1Q09	Event 13 2Q09	Event 14 3Q09	Event 15 4Q09	Event 16 1Q10	Event 17 2Q10	Event 18 3Q10	Event 19 4Q10	Event 20 1Q11	Event 21 2Q11	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	ND	0.63	0.28	0.68	0.71	0.23	
Compare to Event 1		-1	-1	-1	1	-1	-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	-1	1	-1	1	1	-1	-1
Compare to Event 3				1	1	1	1	1	1	1	1	1	-1	1	1	-1	1	1	1	1	1	14
Compare to Event 4					1	-1	-1	-1	1	-1	-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	-1	-1	-1	-1	-1	-1	-14
Compare to Event 6							-1	-1	1	-1	-1	1	-1	1	1	-1	1	-1	1	1	-1	-1
Compare to Event 7								1	1	1	1	1	-1	1	1	-1	1	1	1	1	1	10
Compare to Event 8									1	1	-1	1	-1	1	1	-1	1	1	1	1	-1	5
Compare to Event 9										-1	1	-1	-1	-1	1	-1	-1	1	1	1	-1	-4
Compare to Event 10											-1	1	-1	1	1	-1	1	1	1	1	-1	3
Compare to Event 11												1	-1	1	1	-1	1	1	1	1	-1	4
Compare to Event 12													-1	1	1	-1	-1	-1	-1	-1	-1	-7
Compare to Event 13														1	1	0	1	1	1	1	1	7
Compare to Event 14															1	-1	1	-1	1	1	-1	1
Compare to Event 15																-1	-1	-1	-1	-1	-1	-6
Compare to Event 16																	1	1	1	1	1	5
Compare to Event 17																		-1	1	1	-1	0
Compare to Event 18																			1	1	-1	1
Compare to Event 19																				1	-1	0
Compare to Event 20																					-1	-1

Mann-Kendall Statistic (S)	3
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90 % Confidence Mann-Kendall Statistic	44
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Table 6  
Monitoring Well PMA MW-3M Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3M Mann-Kendall Trend Analysis																						
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14	Event 15	Event 16	Event 17	Event 18	Event 19	Event 20	Event 21	Row Total
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	
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	0.87	0.82	0.75	0.73	1.20	0.94	
Compare to Event 1		-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-20
Compare to Event 2			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-19
Compare to Event 3				1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
Compare to Event 4					-1	1	1	-1	1	1	-1	1	1	1	1	1	1	-1	-1	1	1	5
Compare to Event 5						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Compare to Event 6							-1	1	1	1	-1	1	1	-1	-1	1	-1	-1	-1	1	1	-1
Compare to Event 7								-1	1	1	-1	1	1	1	1	1	1	-1	-1	1	1	6
Compare to Event 8									1	1	1	1	1	1	1	1	1	1	1	1	1	13
Compare to Event 9										1	-1	1	1	-1	-1	-1	-1	-1	-1	1	1	-2
Compare to Event 10											-1	1	0	-1	-1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 11												1	1	1	1	1	1	1	1	1	1	10
Compare to Event 12													-1	-1	-1	-1	-1	-1	-1	-1	-1	-9
Compare to Event 13														-1	-1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 14															0	1	-1	-1	-1	1	1	0
Compare to Event 15																1	-1	-1	-1	1	1	0
Compare to Event 16																	-1	-1	-1	1	1	-1
Compare to Event 17																		-1	-1	1	1	0
Compare to Event 18																			-1	1	1	1
Compare to Event 19																				1	1	2
Compare to Event 20																					-1	-1

Mann-Kendall Statistic (S)	1
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90 % Confidence Mann-Kendall Statistic	44
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Table 7  
Monitoring Well PMA MW-4D Mann-Kendall Trend Analysis

W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-4D Mann-Kendall Trend Analysis																					
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Event 13	Event 14	Event 15	Event 16	Event 17	Event 18	Event 19	Event 20	Row Total
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	4Q08	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	
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	0.54	0.72	0.42	0.31	0.35	1.03	
Compare to Event 1		-1	1	-1	1	1	-1	-1	1	-1	1	1	1	1	1	1	1	-1	1	1	6
Compare to Event 2			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-14
Compare to Event 4					1	1	-1	-1	1	-1	1	1	1	1	1	1	1	-1	1	1	7
Compare to Event 5						-1	-1	-1	-1	-1	1	1	-1	1	1	1	-1	-1	-1	1	-4
Compare to Event 6							-1	-1	1	-1	1	1	1	1	1	1	1	-1	1	1	5
Compare to Event 7								1	1	1	1	1	1	1	1	1	1	1	1	1	12
Compare to Event 8									1	0	1	1	1	1	1	1	1	1	1	1	10
Compare to Event 9										-1	1	1	-1	1	1	1	-1	-1	-1	1	0
Compare to Event 10											1	1	1	1	1	1	1	1	1	1	9
Compare to Event 11												-1	-1	-1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 12													-1	1	-1	1	-1	-1	-1	1	-3
Compare to Event 13														1	1	1	1	-1	-1	1	2
Compare to Event 14															-1	1	-1	-1	-1	1	-3
Compare to Event 15																1	-1	-1	-1	1	-2
Compare to Event 16																	-1	-1	-1	1	-3
Compare to Event 17																		-1	-1	1	-2
Compare to Event 18																			1	1	1
Compare to Event 19																				1	1

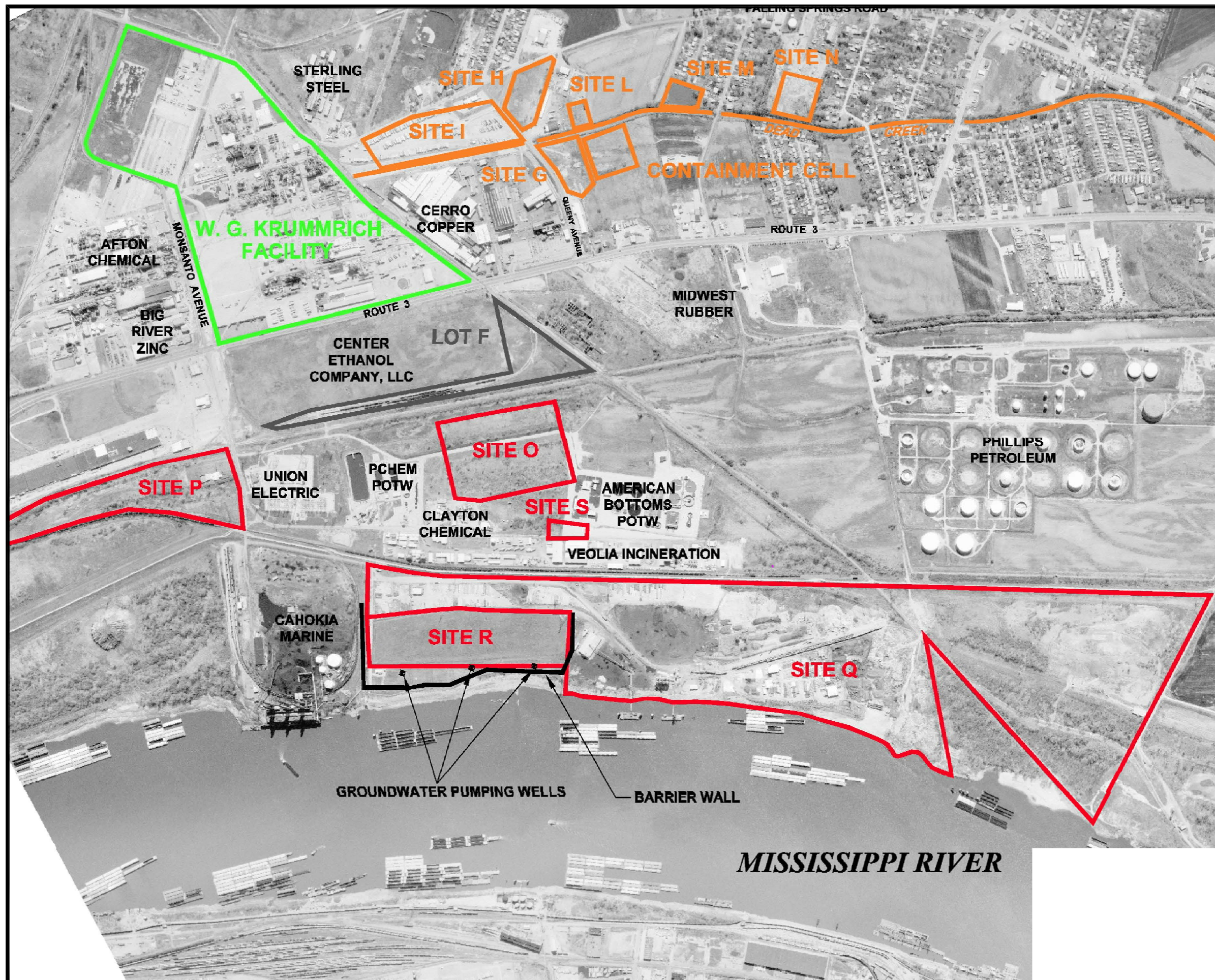
Mann-Kendall Statistic (S)	31
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90 % Confidence Mann-Kendall Statistic	42
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**Table 8**  
**Monitoring Well PMA MW-6D Mann-Kendall Trend Analysis**

W.G.Krummrich Facility Well PMA MW-6D Mann-Kendall Trend Analysis													
	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Event 12	Row
	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	Total
<b>Total PCBs, ug/L</b>	0.21	0.43	0.32	0.29	0.20	0.30	0.19	0.33	0.10	0.65	0.22	0.18	
Compare to Event 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	-8
Compare to Event 3				-1	-1	-1	-1	1	-1	1	-1	-1	-5
Compare to Event 4					-1	1	-1	1	-1	1	-1	-1	-2
Compare to Event 5						1	-1	1	-1	1	1	-1	1
Compare to Event 6							-1	1	-1	1	-1	-1	-2
Compare to Event 7								1	-1	1	1	-1	1
Compare to Event 8									-1	1	-1	-1	-2
Compare to Event 9										1	1	1	3
Compare to Event 10											-1	-1	-2
Compare to Event 11												-1	-1
<b>Mann-Kendall Statistic (S)</b>													<b>-14</b>
<b>90 % Confidence Mann-Kendall Statistic</b>													<b>-20</b>



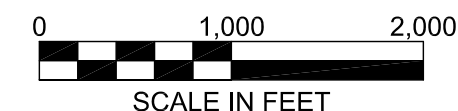
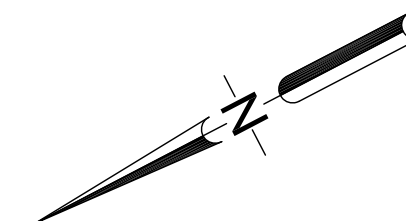


**NOTES:**

1. Plan adapted from a drawing titled "Site Location Map" provided by URS.

**LEGEND:**

- W.G. Krummrich Facility
- Sauget Area #1
- Sauget Area #2



Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 07-06-11	Date: 07-06-11	Date: 07-06-11
2Q 2011 PCB Monitoring Program Sauget, Illinois		
<b>SITE LOCATION MAP</b>		
Project Number J017210.15	<b>PLATE 1</b>	

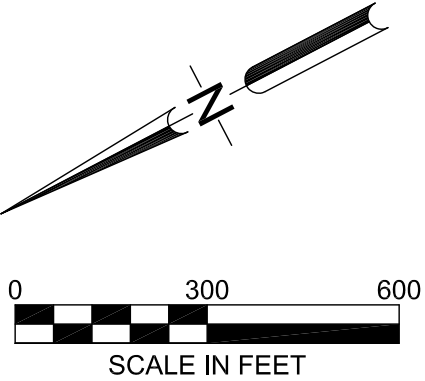



NOTES:

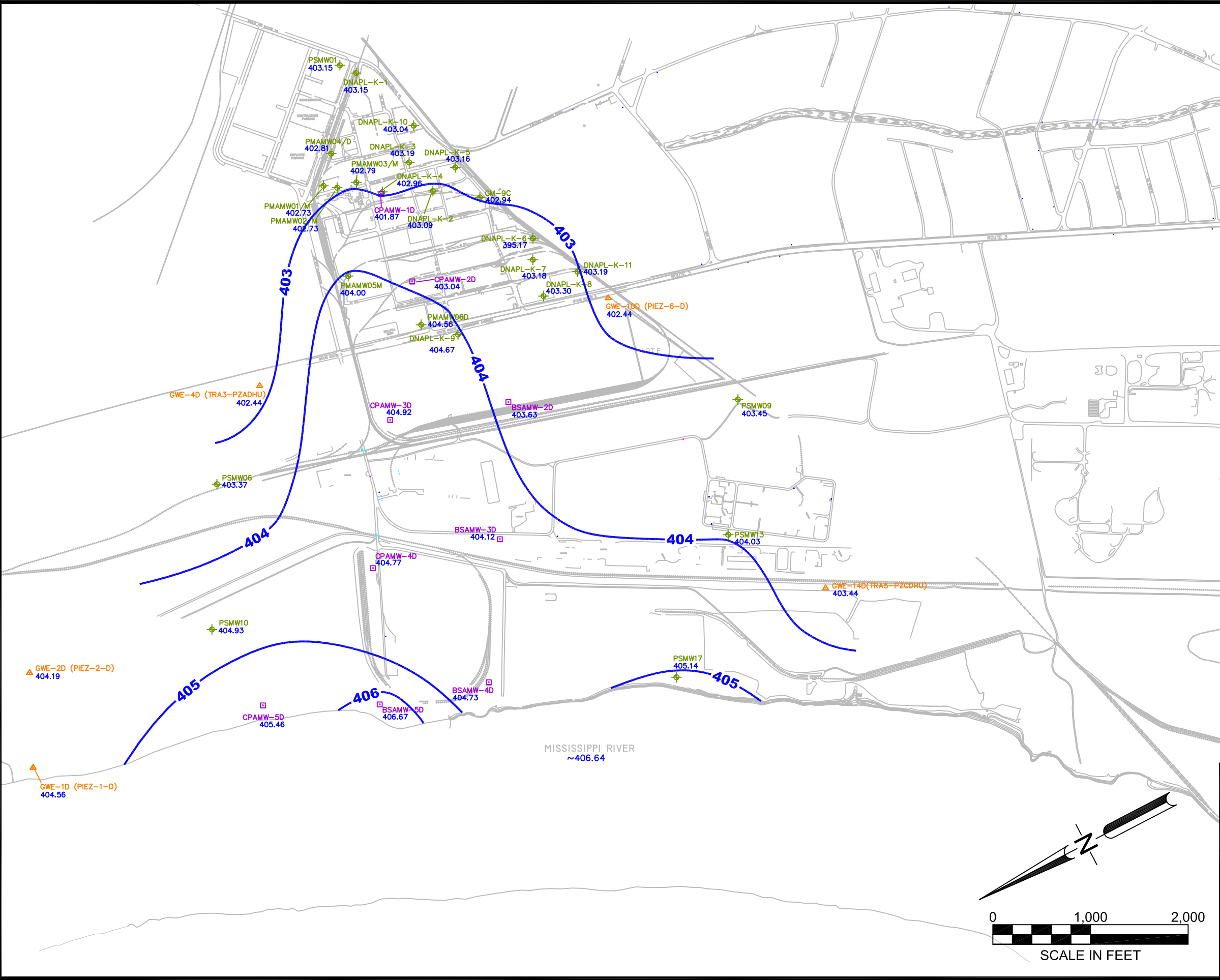
1. Plan adapted from a drawing titled "Former PCB Manufacturing Area Monitoring Well Locations" provided by URS.

LEGEND:

 Monitoring Well Location



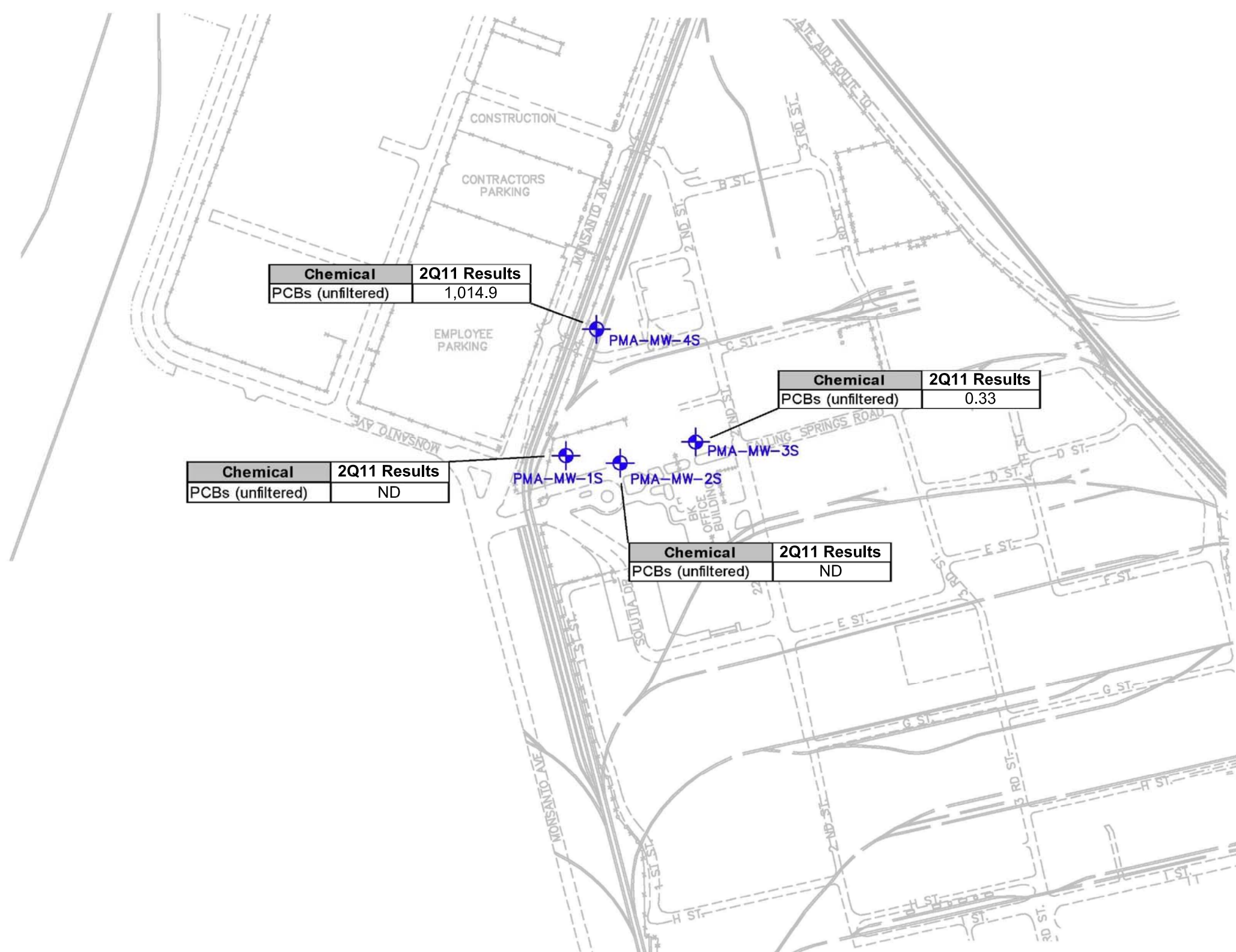
Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 07-06-11	Date: 07-06-11	Date: 07-06-11
 2Q 2011 PCB Monitoring Program Sauget, Illinois		
<b>FORMER PCB MANUFACTURING AREA MONITORING WELL LOCATIONS</b>		
Project Number J017210.15		<b>PLATE 2</b>



- NOTES:**
- 1. Plan adapted from a drawing titled "Potentiometric Surface Map Middle/Deep Hydrogeologic Unit" provide by URS.
  - 2. Groundwater levels were measured May 17 - May 23, 2011.
  - 3. Contours generated primarily using surfer software version 8. Some interpretation was done using professional judgment and contour lines were modified by hand.
  - 4. The Mississippi River stage elevation presented on the figure is an average elevation for the time of the gauging event. The information was obtained from the site R Bubbler.
  - 5. Locations with wells screened in both the MHU and DHU utilized the DHU well for development of the potentiometric surface map.

- LEGEND:**
- Long Term Monitoring Well used for Groundwater Contouring
  - Other Monitoring Well used for Goundwater Contouring
  - Piezometer Cluster used for Groundwater Contouring
  - 402** Groundwater Elevation Contour (ft NAVD)

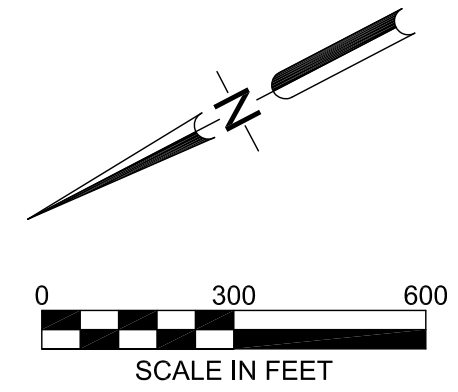
Drawn By: SLC	Ck'd By: DCW	App'vd By: DTK
Date: 07-06-11	Date: 07-06-11	Date: 07-06-11
2Q 2011 Long-Term Monitoring Program Sauget, Illinois		
<b>POTENTIOMETRIC SURFACE MAP MIDDLE/DEEP HYDROGEOLOGIC UNIT</b>		
Project Number J017210.15	<b>PLATE 3</b>	




- NOTES:
1. Plan adapted from a drawing titled "PCB Results - SHU Wells" provided by URS.
  2. Total PCB results include the sum of all method 680 Homologs.
  3. Results are shown in ug/L.
  4. ND = Not Detected.

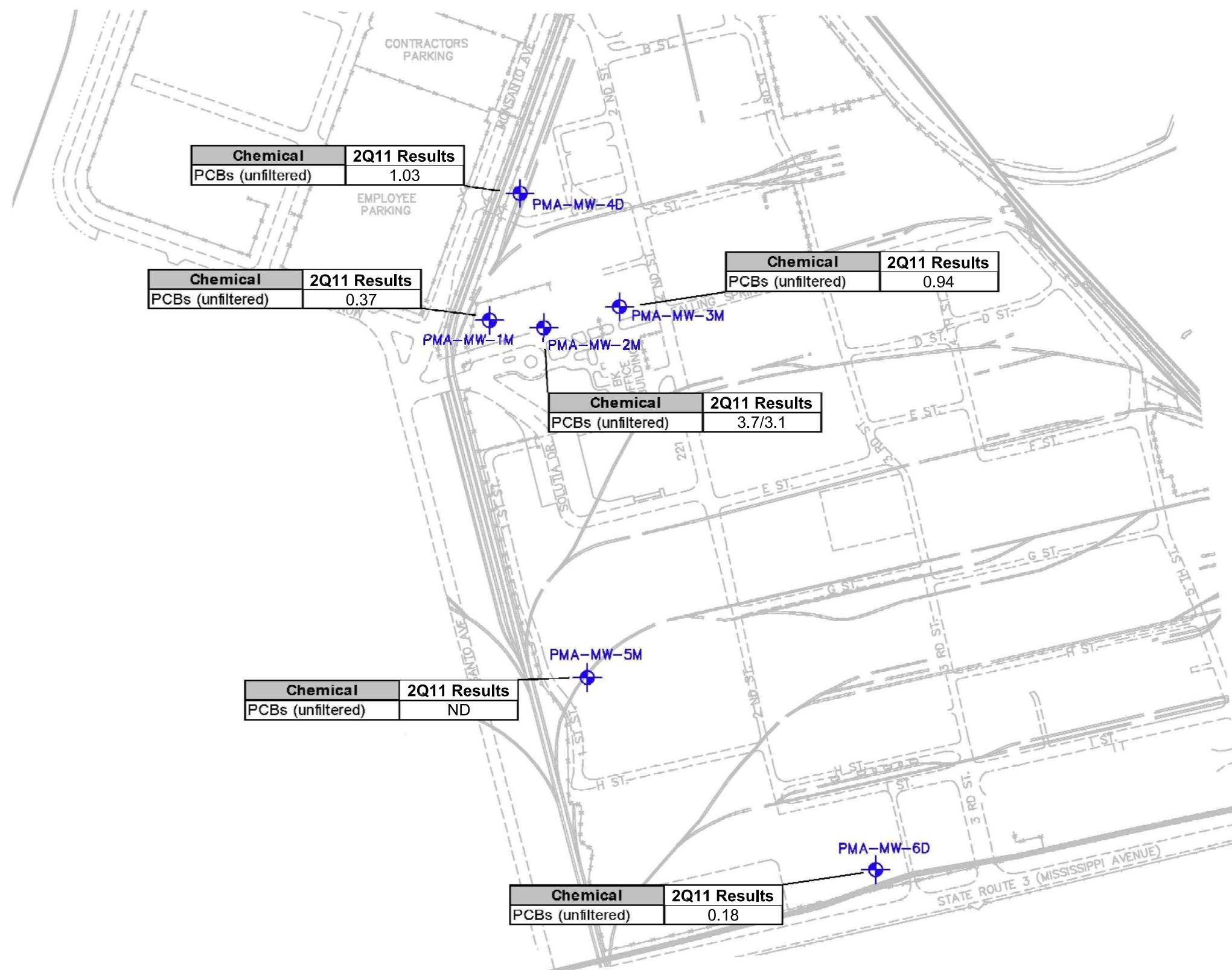
LEGEND:

 Monitoring Well Location



Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 07-06-11	Date: 07-06-11	Date: 07-06-11
 <b>GEOTECHNOLOGY</b> FROM THE GROUND UP		
2Q 2011 PCB Monitoring Program Sauget, Illinois		
<b>PCB RESULTS SHU WELLS</b>		
Project Number J017210.15		<b>PLATE 4</b>



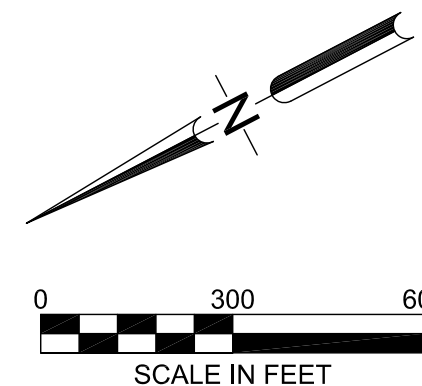



#### NOTES:

1. Plan adapted from a drawing titled "PCB Results - MHU/DHU Wells" provided by URS.
2. Total PCB results include the sum of all method 680 Homologs.
3. Results are shown in ug/L.
4. ND = Not Detected.

#### LEGEND:

 Monitoring Well Location



Drawn By: SLC	Ck'd By: AMS	App'vd By: DTK
Date: 07-06-11	Date: 07-06-11	Date: 07-06-11
 <b>GEOTECHNOLOGY</b> <small>FROM THE GROUND UP</small>		
<b>2Q 2011</b> <b>PCB Monitoring Program</b> <b>Sauget, Illinois</b>		
<b>PCB RESULTS</b> <b>MHU/DHU WELLS</b>		
Project Number J017210.15	<b>PLATE 5</b>	

APPENDIX A

GROUNDWATER PURGING AND SAMPLING FORMS

## LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2Q11  
 DATE: 5-20-11  
 MONITORING WELL ID: PMA-mw-015

PROJECT NUMBER: J017210.15  
 WEATHER: Partly cloudy  
 SAMPLE ID: PMA-mw-015-0511

FIELD PERSONNEL: KCR/VJE

## INITIAL DATA

Well Diameter: 2" in  
 Measured Well Depth (btoc): 24.95 ft  
 Constructed Well Depth (btoc): 24.94 ft  
 Depth to Water (btoc): 7.72 ft  
 Depth to LNAPL/DNAPL (btoc): - ft  
 Depth to Top of Screen (btoc): 19.94 ft  
 Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): \_\_\_\_\_ ft  
 If Depth to Top of Screen is > Depth to Water AND Screen Length 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 <4 ft,  
 Place Pump at: Total Well Depth - )9.5 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 ): 1000 mL  
 Minimum Purge Volume = 3000 mL  
 (3 x Flow Through Cell Volume)  
 Ambient PID/FID Reading: 0.0 ppm  
 Wellbore PID/FID Reading: 11.3 ppm

DNPL Present no If Present, Do Not Sample

## PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
		± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20			
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0758	7.5	-	-	-	-	-	-	-	-
1000	0802	7.71	clear	none	7.40	15.58	1.23	0.0	1.65	101
2000	0806	7.75			7.28	15.51	1.23	0.0	0.62	89
3000	0811	7.76			7.25	15.56	1.23	0.0	0.0	78
4000	0815	7.78			7.22	15.56	1.23	0.0	0.0	69
5000	0819	7.79			7.19	15.64	1.23	0.0	0.0	61

Start Time: 0758  
 Stop Time: 0819  
 Elapsed Time: 21  
 Average Purge Rate (mL/min): 238.1

Water Quality Meter ID: Hanba u-52  
 Date Calibrated: 5-20-11

## SAMPLING DATA

Sample Date: 5-20-11  
 Sample Method: low flow  
 Sample Time: 0825  
 Sample Flow Rate: 238.1 mL/min

Analysis: Total PCB's  
 QA/QC Samples: MS MSD

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: \_\_\_\_\_ Ferrous Iron (Filtered 0.2 micron) = NA

## LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W61K PCB 2Q11  
 DATE: 5-20-11  
 MONITORING WELL ID: PMA-MW-025

PROJECT NUMBER: J017210.15  
 WEATHER: Cloudy 70°  
 SAMPLE ID: PMA-MW-025-0511

FIELD PERSONNEL: KCR/WE

## INITIAL DATA

Well Diameter: 2" in  
 Measured Well Depth (btoc): 27.36 ft  
 Constructed Well Depth (btoc): 27.33 ft  
 Depth to Water (btoc): 8.97 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): — ft  
 If Depth to Top of Screen is > Depth to Water AND Screen Length 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 < 4 ft,  
 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  
 DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
 Minimum Purge Volume =  
 (3 x Flow Through Cell Volume) 3000 mL  
 Ambient PID/FID Reading: 0.0 ppm  
 Wellbore PID/FID Reading: 5.6 ppm

## PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
± 0.2		Record Data Only		± 3%		Record Data Only		± 10% or ± 0.2		± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0932	9.30	—	—	—	—	—	—	—	—
1000	0935	9.39	mostly clear	chemical odor	7.51	18.26	1.34	46.6	0.04	-14
2000	0939	9.35	↓	↓	7.36	18.06	1.35	34.2	0.0	-44
3000	0943	9.39	↓	↓	7.35	17.97	1.35	22.9	0.0	-51
4000	0947	9.34	↓	↓	7.33	17.94	1.35	16.2	0.0	-52
5000	0951	9.35	↓	↓	7.33	17.93	1.35	11.4	0.0	-50

Start Time: 0932  
 Stop Time: 0951

Elapsed Time: 19  
 Average Purge Rate (mL/min): 263.16 min

Water Quality Meter ID: Horiba-4-52  
 Date Calibrated: 5-20-11

## SAMPLING DATA

Sample Date: 5-20-11  
 Sample Method: low flow

Sample Time: 0955  
 Sample Flow Rate: 263.16 mL/min

Analysis: Total PCB's  
 QA/QC Samples: EB

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: Ferrous Iron (Filtered 0.2 micron) = NA



**LOW FLOW GROUNDWATER SAMPLING DATA SHEET**

J017210.02

PROJECT NAME: WGK PCB 2Q11  
 DATE: 5-20-11  
 MONITORING WELL ID: PMA-MW-035

PROJECT NUMBER: J017210.15  
 WEATHER: Sunny 85°F  
 SAMPLE ID: PMA-MW-035-0511

FIELD PERSONNEL: KCR/VJE

**INITIAL DATA**

Well Diameter: 2' in  
 Measured Well Depth (btoc): 27.44 ft  
 Constructed Well Depth (btoc): 27.40 ft  
 Depth to Water (btoc): 9.30 ft  
 Depth to LNAPL/DNAPL (btoc): — ft  
 Depth to Top of Screen (btoc): 22.4 ft  
 Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): — ft  
 If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet  
 Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 24.9 ft btoc  
 If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,  
 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  
 DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
 Minimum Purge Volume = 3000 mL  
 (3 x Flow Through Cell Volume)  
 Ambient PID/FID Reading: 0.0 ppm  
 Wellbore PID/FID Reading: 1.5 ppm

**PURGE DATA**

Pump Type: RED sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20					
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1228	9.52	—	—	—	—	—	—	—	—
1000	1232	9.59	yellow	chemical odor	7.22	20.71	2.89	70.4	8.80	57
2000	1237	9.60	↓	↓	7.15	20.03	2.94	44.9	7.13	35
3000	1241	9.60	↓	↓	7.13	19.85	2.95	32.1	5.81	30
4000	1246	9.60	↓	↓	7.07	19.57	2.96	26.0	4.61	30
5000	1250	9.61	↓	↓	7.10	19.65	2.97	23.7	3.79	29
6000	1253	9.64	↓	↓	7.10	19.51	2.97	16.5	2.99	31
7000	1257	9.63	↓	↓	7.10	19.55	2.95	14.3	2.24	33
8000	1300	9.63	↓	↓	7.10	19.63	2.95	12.3	1.87	35
9000	1304	9.61	↓	↓	7.09	19.55	2.95	10.6	1.43	38
10000	1307	9.62	↓	↓	7.09	19.45	2.95	9.2	1.23	40

Start Time: 1228  
 Stop Time: 1307

Elapsed Time: 39  
 Average Purge Rate (mL/min): 256.41

Water Quality Meter ID: Hanna U-52  
 Date Calibrated: 5-20-11

**SAMPLING DATA**

Sample Date: 5-20-11  
 Sample Method: LOW FLOW  
 Sample Time: 1310  
 Sample Flow Rate: 256.41 mL/min  
 Analysis: Total PCB's  
 QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: DO not stablizing quickly.  
 Ferrous Iron (Filtered 0.2 micron) = NA

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2Q.1  
DATE: 5-23-11  
MONITORING WELL ID: PMA-mw-045

PROJECT NUMBER: J017210.15  
WEATHER: Sunny 75°  
SAMPLE ID: PMA-mw-045-0511

FIELD PERSONNEL: KCR/VJE

INITIAL DATA

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

Water Column Height (do not include LNAPL or DNAPL):                      ft  
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet  
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 22.83 ft btoc  
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,  
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  
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
Minimum Purge Volume =                       
(3 x Flow Through Cell Volume) 3000 mL  
Ambient PID/FID Reading: 0.0 ppm  
Wellbore PID/FID Reading: 2.1 ppm

PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
± 0.2		Record Data Only		± 3%		Record Data Only		± 10% or ± 0.2		± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0845	8.15	-	-	-	-	-	-	-	-
1000	0849	8.27	Grayish yellow	Chemical odor	6.94	17.66	1.39	128	0.08	-87
2000	0853	8.34	↓	↓	6.92	17.25	1.97	126	0.0	-85
3000	0856	8.35	↓	↓	6.98	17.16	2.15	113	0.0	-88
4000	0859	8.38	↓	↓	7.01	17.20	2.23	94.1	0.0	-90
5000	0902	8.36	↓	↓	7.03	17.25	2.28	74.8	0.0	-91
6000	0905	8.38	↓	↓	7.02	17.32	2.29	57.2	0.0	-91

Start Time: 0845 Elapsed Time: 20 min Water Quality Meter ID: Honba 4-52  
Stop Time: 0905 Average Purge Rate (mL/min): 300 Date Calibrated: 5-23-11

SAMPLING DATA

Sample Date: 5-23-11 Sample Time: 0910 Analysis: Total PCB's  
Sample Method: 100 Flow Sample Flow Rate: 300 mL/min QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: KCR

COMMENTS: Ferrous Iron (Filtered 0.2 micron) = NA

## LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2Q11  
 DATE: 5-20-11  
 MONITORING WELL ID: PMA-mw-1m

PROJECT NUMBER: J017210.15  
 WEATHER: Partly cloudy 60°F  
 SAMPLE ID: PMA-mw-01m-0511

FIELD PERSONNEL: KCR/VJE

## INITIAL DATA

Well Diameter: 2" in  
 Measured Well Depth (btoc): 59.67 ft  
 Constructed Well Depth (btoc): 59.30 ft  
 Depth to Water (btoc): 7.35 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):        ft  
 If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet  
 Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 56.8 ft btoc  
 If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft,  
 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  
 DNPL Present no If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
 Minimum Purge Volume =         
 (3 x Flow Through Cell Volume) 3000 mL  
 Ambient PID/FID Reading: 0.0 ppm  
 Wellbore PID/FID Reading: 6.6 ppm

## PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
		± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20			
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0848	7.69	—	—	—	—	—	—	—	—
1000	0851	7.72	clear	none	7.19	16.81	1.97	4.9	0.0	-129
2000	0855	7.75	↓	↓	7.23	16.77	2.04	0.9	0.0	-139
3000	0859	7.75	↓	↓	7.23	16.78	2.04	0.0	0.0	-141
4000	0903	7.75	↓	↓	7.22	16.68	2.04	9.2	0.0	-143
5000	0907	7.75	↓	↓	7.24	16.71	2.04	1.7	0.0	-143

Start Time: 0848 Elapsed Time: 19 min Water Quality Meter ID: Horiba 4-52  
 Stop Time: 0907 Average Purge Rate (mL/min): 263.16 Date Calibrated: 5-20-11

## SAMPLING DATA

Sample Date: 5-20-11 Sample Time: 0910 Analysis: Total PCB'S  
 Sample Method: low flow Sample Flow Rate: 263.16 mL/min QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: Ferrous Iron (Filtered 0.2 micron) = NA

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2011  
DATE: 5-20-11  
MONITORING WELL ID: PMA-mw-02m

PROJECT NUMBER: J017210.15  
WEATHER: Sunny 72°F  
SAMPLE ID: PMA-mw-02m-0511

FIELD PERSONNEL: KCR/VJE

INITIAL DATA

Well Diameter: 2' in  
Measured Well Depth (btoc): 61.31 ft  
Constructed Well Depth (btoc): 61.54 ft  
Depth to Water (btoc): 9.20 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): - ft  
If Depth to Top of Screen is > Depth to Water AND Screen Length 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 <4 ft,  
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  
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
Minimum Purge Volume = 3000 mL  
(3 x Flow Through Cell Volume)  
Ambient PID/FID Reading: 0 ppm  
Wellbore PID/FID Reading: 2.6 ppm

PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
± 0.2		Record Data Only		± 3%		Record Data Only		± 10% or ± 0.2		± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1012	9.52	-	-	-	-	-	-	-	-
1000	1015	9.50	yellow to clear	chemical odor	7.53	18.89	1.81	13.5	3.26	-110
2000	1020	9.52	↓	↓	7.56	18.83	1.85	14.3	2.09	-131
3000	1024	9.55	Yellowish black	↓	7.60	18.49	1.85	13.2	0.60	-139
4000	1028	9.52	↓	↓	7.64	18.51	1.85	10.0	0.13	-144
5000	1032	9.50	↓	↓	7.64	18.41	1.85	10.7	0.0	-148
6000	1036	-	-	-	7.68	18.46	1.85	9.6	0.0	-151

Start Time: 1012  
Stop Time: 1036

Elapsed Time: 24 min  
Average Purge Rate (mL/min): 250

Water Quality Meter ID: Horiba U-52  
Date Calibrated: 5-20-11

SAMPLING DATA

Sample Date: 5-20-11  
Sample Method: low flow

Sample Time: 1040  
Sample Flow Rate: 250 mL/min

Analysis: Total PCB's  
QA/QC Samples: Analytical Duplicate (AD)

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: Ferrous Iron (Filtered 0.2 micron) = NA

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB ZQ11  
DATE: 5-20-11  
MONITORING WELL ID: PMA-MW-03m

PROJECT NUMBER: J017210.15  
WEATHER: Sunny 85°  
SAMPLE ID: PMA-MW-03m-0511

FIELD PERSONNEL: KCR / USE

INITIAL DATA

Well Diameter: 2' in  
Measured Well Depth (btoc): 61.85 ft  
Constructed Well Depth (btoc): 61.81 ft  
Depth to Water (btoc): 9.31 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): \_\_\_\_\_ ft  
If Depth to Top of Screen is > Depth to Water AND Screen Length 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 <4 ft,  
Place Pump at: Total Well Depth - )9.5 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  
DNPL Present no If Present, Do Not Sample

Volume of Flow Through Cell ): 1000 mL  
Minimum Purge Volume =  
(3 x Flow Through Cell Volume) 3000 mL  
Ambient PID/FID Reading: 0.0 ppm  
Wellbore PID/FID Reading: 3.6 ppm

PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
		± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20			
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1323	9.60	-	-	-	-	-	-	-	-
1000	1326	9.60	grayish black	chemical odor	9.64	21.11	2.14	2.5	0.75	-97
2000	1330	9.60	↓	↓	9.74	20.28	2.16	2.1	0.10	-113
3000	1335	9.60	↓	↓	9.80	20.19	2.16	1.0	0.0	-127
4000	1338	9.59	↓	↓	9.75	19.90	2.16	1.7	0.0	-135
5000	1342		↓	↓	9.78	19.86	2.17	0.0	0.0	-132

Start Time: 1323  
Stop Time: 1342  
Elapsed Time: 19 min  
Average Purge Rate (mL/min): 263.16  
Water Quality Meter ID: Haniba U-52  
Date Calibrated: 5-20-11

SAMPLING DATA

Sample Date: 5-20-11  
Sample Method: low flow  
Sample Time: 1345  
Sample Flow Rate: 263.16 mL/min  
Analysis: Total PCB's  
QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: \_\_\_\_\_ Ferrous Iron (Filtered 0.2 micron) = NA

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2QV  
DATE: 5-23-11  
MONITORING WELL ID: PMA-MW-04D

PROJECT NUMBER: J017210.15  
WEATHER: 70F, Sunny  
SAMPLE ID: PMA-MW-04D-0511

FIELD PERSONNEL: KCR / VJE

INITIAL DATA

Well Diameter: 2" in  
Measured Well Depth (btoc): 73.35 ft  
Constructed Well Depth (btoc): 74.18 ft  
Depth to Water (btoc): 8.07 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): \_\_\_\_\_ ft  
If Depth to Top of Screen is > Depth to Water AND Screen Length is < 4 feet  
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 71.68 ft btoc  
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4 ft,  
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  
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
Minimum Purge Volume = 3000 mL  
(3 x Flow Through Cell Volume)  
Ambient PID/FID Reading: 0.0 ppm  
Wellbore PID/FID Reading: 42.7 ppm

PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
± 0.2		Record Data Only		± 3%		Record Data Only		± 10% or ± 0.2		± 20
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0758	8.41	-	-	-	-	-	-	-	-
1000	0803	8.45	grayish yellow	chem. cel odor	7.20	17.70	1.45	347	1.77	-107
2000	0807	8.43	↓	↓	7.15	17.29	1.47	289	0.95	-122
3000	0812	8.42	↓	↓	7.09	17.18	1.46	244	0.51	-125
4000	0816	8.46	↓	↓	7.09	17.11	1.46	189	0.32	-127
5000	0820	8.45	↓	↓	7.08	17.10	1.45	153	0.05	-128
6000	0824	8.44	↓	↓	7.09	17.08	1.44	135	0.0	-128
7000	0828	8.44	↓	↓	7.09	17.07	1.43	107	0.0	-128

Start Time: 0758  
Stop Time: 0828

Elapsed Time: 30 min  
Average Purge Rate (mL/min): 233.33

Water Quality Meter ID: Horiba U-52  
Date Calibrated: 5-23-11

SAMPLING DATA

Sample Date: 5-23-11  
Sample Method: low flow

Sample Time: 0830  
Sample Flow Rate: 233.33 mL/min

Analysis: Total PCB's  
QA/QC Samples: none

VOA Vials, No Headspace ☒ none Initials: KCR

COMMENTS: \_\_\_\_\_ Ferrous Iron (Filtered 0.2 micron) = NA

## LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2a11  
 DATE: 5-19-11  
 MONITORING WELL ID: PMA-MW-05m

PROJECT NUMBER: J017210.15  
 WEATHER: Cloudy 60°  
 SAMPLE ID: PMA-MW-05m-0511

FIELD PERSONNEL: KCR/VJE

## INITIAL DATA

Well Diameter: 2" in  
 Measured Well Depth (btoc): 57.10 ft  
 Constructed Well Depth (btoc): 56.87 ft  
 Depth to Water (btoc): 6.97 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): \_\_\_\_\_ ft  
 If Depth to Top of Screen is > Depth to Water AND Screen Length 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 <4 ft,  
 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  
 DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell): 1000 mL  
 Minimum Purge Volume = (3 x Flow Through Cell Volume) 3000 mL  
 Ambient PID/FID Reading: 0.0 ppm  
 Wellbore PID/FID Reading: 0.1 ppm

## PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
		± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20			
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	1049	7.30								
1000	1052	7.35	clear	slight odor	7.46	16.89	2.29	17.5	0.24	-59
2000	1055	7.38			7.46	16.85	2.51	13.2	0.0	-74
3000	1059	7.36			7.46	16.89	2.54	9.7	0.0	-81
4000	1103	7.35			7.44	16.88	2.55	8.5	0.0	-83
5000	1107	7.35			7.47	16.92	2.55	7.0	0.0	-85

Start Time: 1049  
 Stop Time: 1107

Elapsed Time: 18  
 Average Purge Rate (mL/min): 277.78

Water Quality Meter ID: Haniba 4-52  
 Date Calibrated: 5-19-11

## SAMPLING DATA

Sample Date: 5-19-11  
 Sample Method: low flow  
 Sample Time: 1110  
 Sample Flow Rate: 277.78 mL/min  
 Analysis: Total PCB'S  
 QA/QC Samples: none

VOA Vials, No Headspace ☒ Initials: KCR  
none

COMMENTS: \_\_\_\_\_ Ferrous Iron (Filtered 0.2 micron) = NA

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

J017210.02

PROJECT NAME: W6K PCB 2Q11  
DATE: 5-19-11  
MONITORING WELL ID: PMA-mw-06D

PROJECT NUMBER: J017210-15  
WEATHER: cloudy 60°  
SAMPLE ID: PMA-mw-06D-0511

FIELD PERSONNEL: KCR / VJE

INITIAL DATA

Well Diameter: 2" in  
Measured Well Depth (btoc): 101.80 ft  
Constructed Well Depth (btoc): 101.80 ft  
Depth to Water (btoc): 2.76 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): \_\_\_\_\_ ft  
If Depth to Top of Screen is > Depth to Water AND Screen Length is <4 feet  
Place Pump at: Total Well Depth - 0.5 (Screen Length + DNAPL Column Height) = 99.3 ft btoc  
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are <4 ft, \_\_\_\_\_ ft btoc  
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  
DNPL Present NO If Present, Do Not Sample

Volume of Flow Through Cell: 1000 mL  
Minimum Purge Volume = 3000 mL  
(3 x Flow Through Cell Volume)  
Ambient PID/FID Reading: 0.0 ppm  
Wellbore PID/FID Reading: 9.2 ppm

PURGE DATA

Pump Type: QED Sample Pro

HAVE THE STABILIZATION PARAMETERS BEEN SATISFIED? All are units unless %										
		± 0.2	Record Data Only	± 3%	Record Data Only	± 10% or ± 0.2	± 20			
Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. Ms/cm	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
0	0957	3.14	-	-	-	-	-	-	-	-
1000	1001	3.14	mostly clear	slightly sweet	7.64	16.95	1.25	46.2	0.36	-125
2000	1005	3.18	↓	↓	7.63	16.85	1.29	36.6	0.0	-132
3000	1009	3.14	↓	↓	7.62	16.85	1.30	32.7	0.0	-134
4000	1013	3.14	↓	↓	7.63	16.87	1.30	30.8	0.0	-136
5000	1017		↓	↓	7.63	16.90	1.31	31.3	0.0	-137

Start Time: 0957  
Stop Time: 1017  
Elapsed Time: 20  
Average Purge Rate (mL/min): 250  
Water Quality Meter ID: Horiba u-52  
Date Calibrated: 5-19-11

SAMPLING DATA

Sample Date: 5-19-11  
Sample Method: low flow  
Sample Time: 1020  
Sample Flow Rate: 250 mL/min  
Analysis: Total PCB'S  
QA/QC Samples: none

VOA Vials, No Headspace ☒ none Initials: KCR

COMMENTS: \_\_\_\_\_ Ferrous Iron (Filtered 0.2 micron) = NA




**APPENDIX B**  
**CHAINS-OF-CUSTODY**

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

# TestAmerica

2Q11 PCB Samples

THE LEADER IN ENVIRONMENTAL TESTING

 **TestAmerica Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

[illegible]

Serial Number 041307

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location

Phone:  
Fax:


PROJECT REFERENCE <b>W6K PCB 2Q11</b>		PROJECT NO. <b>J017210.15</b>	PROJECT LOCATION (STATE) <b>IL</b>	MATRIX TYPE	REQUIRED ANALYSIS										PAGE <b>1</b>	OF <b>1</b>	
TAL (LAB) PROJECT MANAGER <b>Gm Rinaldi</b>		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Total PCBs <b>None</b>	<b>PRESERVATIVE</b>										STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>	
CLIENT (SITE) PM <b>Gm Rinaldi</b>		CLIENT PHONE <b>314-674-3312</b>	CLIENT FAX <b>314-674-8808</b>													DATE DUE _____	
CLIENT NAME <b>Solutia, Inc</b>		CLIENT E-MAIL <b>gmrcina@solutia.com</b>														EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>	
CLIENT ADDRESS <b>575 Maymaring Center Drive, St. Louis, MO</b>		COMPANY CONTRACTING THIS WORK (if applicable)														DATE DUE _____	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS		
DATE	TIME																
5-20-11	0825	PMA-MW-01S-0511			6A												
	0825	PMA-MW-01S-0511 - MS			6A											MS	
	0825	PMA-MW-01S-0511 - MSD			6A											MSD	
	0910	PMA-MW-01M-0511			6A												
	0955	PMA-MW-02S-0511			6A												
	0955	PMA-MW-02S-0511 - EB			6A											EB	
	1040	PMA-MW-02M-0511			6A												
	1040	PMA-MW-02M-0511 - AD			6A											AD	
	1310	PMA-MW-03S-0511			6A												
✓	1345	PMA-MW-03M-0511			6A												
RELINQUISHED BY: (SIGNATURE) <b>K C Val</b>		DATE <b>5-20-11</b>	TIME <b>3:05 pm</b>	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME		
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME		
LABORATORY USE ONLY																	
RECEIVED FOR LABORATORY BY: (SIGNATURE) <b>[Signature]</b>		DATE <b>05/21/11</b>	TIME <b>1009</b>	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.	SAVANNAH LOG NO. <b>ESD-68626</b>	LABORATORY REMARKS <b>08, 10, 14</b>									

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## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

 **TestAmerica Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

[illegible]

APPENDIX C

QUALITY ASSURANCE REPORT

**SECOND QUARTER 2011  
PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM  
QUALITY ASSURANCE REPORT  
SOLUTIA INC.  
W.G. KRUMMRICH FACILITY  
SAUGET, ILLINOIS**

*Prepared for:*

**SOLUTIA INC.**  
St. Louis, Missouri

*Prepared by:*

**GEOTECHNOLOGY, INC.**  
St. Louis, Missouri

Geotechnology, Inc. Report No. J017210.15

August 26, 2011



J017210.15

**SECOND QUARTER 2011**  
**PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM**  
**QUALITY ASSURANCE REPORT**  
**SOLUTIA INC.**  
**W.G. KRUMMRICH FACILITY**  
**SAUGET, ILLINOIS**

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**SECOND QUARTER 2011**  
**PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM**  
**QUALITY ASSURANCE REPORT**  
**SOLUTIA INC.**  
**W.G. KRUMMRICH FACILITY**  
**SAUGET, ILLINOIS**

**1.0 INTRODUCTION**

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in May of 2011 at the Solutia W.G. Krummrich plant as part of the 2nd Quarter 2011 PCB Groundwater Quality Assessment Program. The samples were collected by Geotechnology, Inc. (Geotechnology) personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Groundwater samples were analyzed for polychlorinated biphenyls (PCBs).

Geotechnology subcontracted with the M.J.W. Corporation to conduct third party Level III and Level IV data validation. One hundred percent of the data was subjected to a data quality review (Level III validation). M.J.W. Corporation selected four random groundwater samples for Level IV data validation (PMA-MW-6D-0511, PMA-MW-5M-0511, PMA-MW-4D-0511, PMA-MW-4S-0511). The Level III and Level IV 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 (ten investigative groundwater samples, 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 Group (SDG) KPM042 utilizing the following USEPA SW-846 Methods:

- Method 680 for PCBs

Samples were reviewed following procedures outlined in the USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 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	Indicates the analyte was analyzed for but not detected.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.

Table 2 – Geotechnology (M.J.W. Corporation) Data Qualifiers

M.J.W. Corp. Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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 of 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
- Mass spectrometer tuning
- Calibration
- Compound identification
- Other problems/documentation

## **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.

Extractions and/or analyses were conducted within the recommended holding time requirements.

The cooler receipt form indicated that four coolers were received by the laboratory at temperatures within the  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  criteria. Samples received were in good condition and not frozen; therefore, no qualification of data was required.

## **3.0 LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES**

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

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. 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 Methods Data Review state how data is qualified, if surrogate spike recoveries do not meet evaluation criteria. Sample PMA-MW-4S-0511 had a 0% recovery for 13DCB and was diluted and re-ran. Remaining surrogate recoveries were within evaluation criteria; therefore, 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 (one per 20 investigative samples or 5%). Geotechnology submitted one MS/MSD sample set for ten investigative samples, meeting the work plan frequency requirement.

No qualifications were made to the data if the MS/MSD percent recoveries were zero due to dilutions or if the Relative Percent Difference (RPD) was the only factor outside of criteria. Also, USEPA National Functional Guidelines for Superfund Organic Methods Data Review (2008) states that organic data does not need qualification 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-1S-0211 was spiked and analyzed for PCBs in SDG KPM042. All MS/MSD recoveries were within evaluation criteria. 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.

## **9.0 RESULTS REPORTED FROM DILUTIONS**

Analytes were detected in diluted samples; therefore, undiluted results were not reported.

## **10. MASS SPECTROMETER TUNING**

Instrument performance was determined to be satisfactory; therefore, no qualifications of data were required.

## **11.0 CALIBRATION**

Percent Relative Standard Deviation (%RSD) is used to indicate the stability of a specific compound response factor over increasing concentration. Percent D (%D) is a measure of the instrument's daily performance. Percent RSD must be <30% and Percent D must be <25%. Percent RSD and percent D were within control limits; therefore, no qualifications of data were required.

## **12.0 COMPOUND IDENTIFICATION**

Form X was not completed for those samples in which there was a positive result for PCBs. Compound identification was determined to be satisfactory; therefore, no qualifications of data were required.



Solutia Inc.  
August 26, 2011  
Page 6

J017210.15

### **13.0 OTHER PROBLEMS/DOCUMENTATION**

Other problems with non-compliance, field documentation, etc., were not identified; therefore, no qualifications of data were required.

**APPENDIX D**

**GROUNDWATER ANALYTICAL RESULTS (WITH DATA REVIEW SHEETS)**

**SDG KPM042**

**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-4S**

**PMA-MW-5M**

**PMA-MW-6D**

**APPENDIX D**

**GROUNDWATER ANALYTICAL RESULTS (WITH DATA REVIEW SHEETS)**



**SDG KPM042**

**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-4S**

**PMA-MW-5M**

**PMA-MW-6D**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

TestAmerica Job ID: 680-68608-1  
TestAmerica Sample Delivery Group: KPM042  
Client Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

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

Attn: Mr. Jerry Rinaldi

*Lidya Gulizia*

Authorized for release by:  
06/17/2011 09:48:33 AM

Lidya Gulizia  
Project Manager II  
lidya.gulizia@testamericainc.com

cc: Duane Kreuger

### LINKS

Review your project  
results through

**Total Access**

Have a Question?

**Ask  
The  
Expert**

Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC requirements for accredited parameters, exceptions are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*7/11/11  
AG*

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## Case Narrative

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Job ID: 680-68608-1

Laboratory: TestAmerica Savannah

### Narrative

#### Job Narrative

680-68608-1 / SDG KPM042

#### Receipt

All samples were received in good condition within temperature requirements.

#### GC/MS Semi VOA

Method(s) 680: The following sample(s) was diluted due to abundance of target analytes : PMA-MW-04S-0511 (680-68655-2). As such, surrogate recoveries are not reported, and elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

#### Comments

No additional comments.

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KPM

## Sample Summary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-68608-1	PMA-MW-06D-0511	Water	05/19/11 10:20	05/20/11 09:37
680-68608-2	PMA-MW-05M-0511	Water	05/19/11 11:10	05/20/11 09:37
680-68626-1	PMA-MW-01S-0511	Water	05/20/11 08:25	05/21/11 10:09
680-68626-2	PMA-MW-01M-0511	Water	05/20/11 09:10	05/21/11 10:09
680-68626-3	PMA-MW-02S-0511	Water	05/20/11 09:55	05/21/11 10:09
680-68626-4	PMA-MW-02S-0511-EB	Water	05/20/11 09:55	05/21/11 10:09
680-68626-5	PMA-MW-02M-0511	Water	05/20/11 10:40	05/21/11 10:09
680-68626-6	PMA-MW-02M-0511-AD	Water	05/20/11 10:40	05/21/11 10:09
680-68626-7	PMA-MW-03S-0511	Water	05/20/11 13:10	05/21/11 10:09
680-68626-8	PMA-MW-03M-0511	Water	05/20/11 13:45	05/21/11 10:09
680-68655-1	PMA-MW-04D-0511	Water	05/23/11 08:30	05/24/11 09:41
680-68655-2	PMA-MW-04S-0511	Water	05/23/11 09:10	05/24/11 09:41

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AC

## Method Summary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Method	Method Description	Protocol	Laboratory
680	Polychlorinated Biphenyls (PCBs) (GC/MS)	EPA	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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AK

## Definitions/Glossary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

### Qualifiers

#### GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
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.
U	Indicates the analyte was analyzed for but not detected.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☆	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

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7/11/11  
ALC



## Detection Summary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-06D-0511

Lab Sample ID: 680-68608-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	0.18		0.10		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-05M-0511

Lab Sample ID: 680-68608-2

No Detections.

Client Sample ID: PMA-MW-01S-0511

Lab Sample ID: 680-68626-1

No Detections.

Client Sample ID: PMA-MW-01M-0511

Lab Sample ID: 680-68626-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	0.37		0.097		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-02S-0511

Lab Sample ID: 680-68626-3

No Detections.

Client Sample ID: PMA-MW-02S-0511-EB

Lab Sample ID: 680-68626-4

No Detections.

Client Sample ID: PMA-MW-02M-0511

Lab Sample ID: 680-68626-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	3.7		0.098		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-02M-0511-AD

Lab Sample ID: 680-68626-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	3.1		0.10		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-03S-0511

Lab Sample ID: 680-68626-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	0.23		0.10		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-03M-0511

Lab Sample ID: 680-68626-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	0.94		0.098		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-04D-0511

Lab Sample ID: 680-68655-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	0.37		0.10		ug/L	1		680	Total/NA
Dichlorobiphenyl	0.66		0.10		ug/L	1		680	Total/NA

Client Sample ID: PMA-MW-04S-0511

Lab Sample ID: 680-68655-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Monochlorobiphenyl	2.6		0.99		ug/L	10		680	Total/NA
Dichlorobiphenyl	23		0.99		ug/L	10		680	Total/NA

TestAmerica Savannah

*Handwritten signature/initials*

## Detection Summary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-04S-0511 (Continued)

Lab Sample ID: 680-68655-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichlorobiphenyl	93		0.99		ug/L	10		680	Total/NA
Tetrachlorobiphenyl	190		2.0		ug/L	10		680	Total/NA
Pentachlorobiphenyl	160		2.0		ug/L	10		680	Total/NA
Hexachlorobiphenyl	260		2.0		ug/L	10		680	Total/NA
Heptachlorobiphenyl	240		3.0		ug/L	10		680	Total/NA
Octachlorobiphenyl	41		3.0		ug/L	10		680	Total/NA
Nonachlorobiphenyl	5.3 *		5.0		ug/L	10		680	Total/NA

7

*Theresa*  
*AK*

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-06D-0511

Date Collected: 05/19/11 10:20

Date Received: 05/20/11 09:37

Lab Sample ID: 680-68608-1

Matrix: Water

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.18		0.10		ug/L		05/24/11 14:47	06/07/11 19:42	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/07/11 19:42	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/07/11 19:42	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 19:42	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 19:42	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 19:42	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/07/11 19:42	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/07/11 19:42	1
Nonachlorobiphenyl	0.50	U *	0.50		ug/L		05/24/11 14:47	06/07/11 19:42	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		05/24/11 14:47	06/07/11 19:42	1
<b>Surrogate</b>	<b>% Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Decachlorobiphenyl-13C12	67		25 - 113				05/24/11 14:47	06/07/11 19:42	1

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AK

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-05M-0511

Date Collected: 05/19/11 11:10

Date Received: 05/20/11 09:37

Lab Sample ID: 680-68608-2

Matrix: Water

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:12	1
Dichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:12	1
Trichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:12	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:12	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:12	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:12	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 20:12	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 20:12	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		05/24/11 14:47	06/07/11 20:12	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		05/24/11 14:47	06/07/11 20:12	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	67		25 - 113				05/24/11 14:47	06/07/11 20:12	1

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AC

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-01S-0511

Lab Sample ID: 680-68626-1

Date Collected: 05/20/11 08:25

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:43	1
Dichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:43	1
Trichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/07/11 20:43	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:43	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:43	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 20:43	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 20:43	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 20:43	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		05/24/11 14:47	06/07/11 20:43	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		05/24/11 14:47	06/07/11 20:43	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	74		25 - 113				05/24/11 14:47	06/07/11 20:43	1

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AC

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-01M-0511

Lab Sample ID: 680-68626-2

Date Collected: 05/20/11 09:10

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.37		0.097		ug/L		05/24/11 14:47	06/07/11 21:13	1
Dichlorobiphenyl	0.097	U	0.097		ug/L		05/24/11 14:47	06/07/11 21:13	1
Trichlorobiphenyl	0.097	U	0.097		ug/L		05/24/11 14:47	06/07/11 21:13	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:13	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:13	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:13	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 21:13	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 21:13	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		05/24/11 14:47	06/07/11 21:13	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		05/24/11 14:47	06/07/11 21:13	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	67		25 - 113				05/24/11 14:47	06/07/11 21:13	1

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TestAmerica Savannah

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# Client Sample Results

Client: Solutia Inc.

Project/Site: W GK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-02S-0511

Date Collected: 05/20/11 09:55

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-3

Matrix: Water

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.096	U	0.096		ug/L		05/24/11 14:47	06/07/11 21:44	1
Dichlorobiphenyl	0.096	U	0.096		ug/L		05/24/11 14:47	06/07/11 21:44	1
Trichlorobiphenyl	0.096	U	0.096		ug/L		05/24/11 14:47	06/07/11 21:44	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:44	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:44	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/07/11 21:44	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 21:44	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/07/11 21:44	1
Nonachlorobiphenyl	0.48	U *	0.48		ug/L		05/24/11 14:47	06/07/11 21:44	1
DCB Decachlorobiphenyl	0.48	U	0.48		ug/L		05/24/11 14:47	06/07/11 21:44	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	63		25 - 113				05/24/11 14:47	06/07/11 21:44	1

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N



# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-02S-0511-EB

Lab Sample ID: 680-68626-4

Date Collected: 05/20/11 09:55

Matrix: Water

Date Received: 05/21/11 10:09

Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/08/11 01:50	1
Dichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/08/11 01:50	1
Trichlorobiphenyl	0.095	U	0.095		ug/L		05/24/11 14:47	06/08/11 01:50	1
Tetrachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/08/11 01:50	1
Pentachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/08/11 01:50	1
Hexachlorobiphenyl	0.19	U	0.19		ug/L		05/24/11 14:47	06/08/11 01:50	1
Heptachlorobiphenyl	0.28	U	0.28		ug/L		05/24/11 14:47	06/08/11 01:50	1
Octachlorobiphenyl	0.28	U	0.28		ug/L		05/24/11 14:47	06/08/11 01:50	1
Nonachlorobiphenyl	0.47	U *	0.47		ug/L		05/24/11 14:47	06/08/11 01:50	1
DCB Decachlorobiphenyl	0.47	U	0.47		ug/L		05/24/11 14:47	06/08/11 01:50	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	75		25 - 113				05/24/11 14:47	06/08/11 01:50	1

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AG

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-02M-0511

Lab Sample ID: 680-68626-5

Date Collected: 05/20/11 10:40

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	3.7		0.098		ug/L		05/24/11 14:47	06/08/11 02:20	1
Dichlorobiphenyl	0.098	U	0.098		ug/L		05/24/11 14:47	06/08/11 02:20	1
Trichlorobiphenyl	0.098	U	0.098		ug/L		05/24/11 14:47	06/08/11 02:20	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:20	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:20	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:20	1
Heptachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/08/11 02:20	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		05/24/11 14:47	06/08/11 02:20	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		05/24/11 14:47	06/08/11 02:20	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		05/24/11 14:47	06/08/11 02:20	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	72		25 - 113				05/24/11 14:47	06/08/11 02:20	1

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# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-02M-0511-AD

Lab Sample ID: 680-68626-6

Date Collected: 05/20/11 10:40

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	3.1		0.10		ug/L		05/24/11 14:47	06/08/11 02:50	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/08/11 02:50	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/08/11 02:50	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:50	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:50	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 02:50	1
Heptachlorobiphenyl	0.31	U	0.31		ug/L		05/24/11 14:47	06/08/11 02:50	1
Octachlorobiphenyl	0.31	U	0.31		ug/L		05/24/11 14:47	06/08/11 02:50	1
Nonachlorobiphenyl	0.51	U*	0.51		ug/L		05/24/11 14:47	06/08/11 02:50	1
DCB Decachlorobiphenyl	0.51	U	0.51		ug/L		05/24/11 14:47	06/08/11 02:50	1
<b>Surrogate</b>	<b>% Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Decachlorobiphenyl-13C12	70		25 - 113				05/24/11 14:47	06/08/11 02:50	1

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AC

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-03S-0511

Lab Sample ID: 680-68626-7

Date Collected: 05/20/11 13:10

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.23		0.10		ug/L		05/24/11 14:47	06/08/11 03:20	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/08/11 03:20	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/08/11 03:20	1
Tetrachlorobiphenyl	0.21	U	0.21		ug/L		05/24/11 14:47	06/08/11 03:20	1
Pentachlorobiphenyl	0.21	U	0.21		ug/L		05/24/11 14:47	06/08/11 03:20	1
Hexachlorobiphenyl	0.21	U	0.21		ug/L		05/24/11 14:47	06/08/11 03:20	1
Heptachlorobiphenyl	0.31	U	0.31		ug/L		05/24/11 14:47	06/08/11 03:20	1
Octachlorobiphenyl	0.31	U	0.31		ug/L		05/24/11 14:47	06/08/11 03:20	1
Nonachlorobiphenyl	0.52	U *	0.52		ug/L		05/24/11 14:47	06/08/11 03:20	1
DCB Decachlorobiphenyl	0.52	U	0.52		ug/L		05/24/11 14:47	06/08/11 03:20	1
<b>Surrogate</b>	<b>% Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Decachlorobiphenyl-13C12	74		25 - 113				05/24/11 14:47	06/08/11 03:20	1

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TestAmerica Savannah

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AG

# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-03M-0511

Lab Sample ID: 680-68626-8

Date Collected: 05/20/11 13:45

Matrix: Water

Date Received: 05/21/11 10:09

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.94		0.098		ug/L		05/24/11 14:47	06/08/11 03:50	1
Dichlorobiphenyl	0.098	U	0.098		ug/L		05/24/11 14:47	06/08/11 03:50	1
Trichlorobiphenyl	0.098	U	0.098		ug/L		05/24/11 14:47	06/08/11 03:50	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 03:50	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 03:50	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/08/11 03:50	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/08/11 03:50	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/08/11 03:50	1
Nonachlorobiphenyl	0.49	U *	0.49		ug/L		05/24/11 14:47	06/08/11 03:50	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		05/24/11 14:47	06/08/11 03:50	1
<b>Surrogate</b>	<b>% Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Decachlorobiphenyl-13C12	71		25 - 113				05/24/11 14:47	06/08/11 03:50	1

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TestAmerica Savannah

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# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-04D-0511

Date Collected: 05/23/11 08:30

Date Received: 05/24/11 09:41

Lab Sample ID: 680-68655-1

Matrix: Water

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.37		0.10		ug/L		05/26/11 14:29	06/08/11 04:20	1
Dichlorobiphenyl	0.66		0.10		ug/L		05/26/11 14:29	06/08/11 04:20	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/26/11 14:29	06/08/11 04:20	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 04:20	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 04:20	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 04:20	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		05/26/11 14:29	06/08/11 04:20	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		05/26/11 14:29	06/08/11 04:20	1
Nonachlorobiphenyl	0.50	U *	0.50		ug/L		05/26/11 14:29	06/08/11 04:20	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		05/26/11 14:29	06/08/11 04:20	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	69		25 - 113				05/26/11 14:29	06/08/11 04:20	1

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# Client Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-04S-0511

Date Collected: 05/23/11 09:10

Date Received: 05/24/11 09:41

Lab Sample ID: 680-68655-2

Matrix: Water

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	2.6		0.99		ug/L		05/26/11 14:29	06/08/11 04:50	10
Dichlorobiphenyl	23		0.99		ug/L		05/26/11 14:29	06/08/11 04:50	10
Trichlorobiphenyl	93		0.99		ug/L		05/26/11 14:29	06/08/11 04:50	10
Tetrachlorobiphenyl	190		2.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
Pentachlorobiphenyl	160		2.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
Hexachlorobiphenyl	260		2.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
Heptachlorobiphenyl	240		3.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
Octachlorobiphenyl	41		3.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
Nonachlorobiphenyl	5.3 *		5.0		ug/L		05/26/11 14:29	06/08/11 04:50	10
DCB Decachlorobiphenyl	5.0 U		5.0		ug/L		05/26/11 14:29	06/08/11 04:50	10

Surrogate	% Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	0	D	25 - 113	05/26/11 14:29	06/08/11 04:50	10

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## Surrogate Summary

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

**Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)**

**Matrix: Water**

**Prep Type: Total/NA**

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	13DCB (25-113)
680-68608-1	PMA-MW-06D-0511	67
680-68608-2	PMA-MW-05M-0511	67
680-68626-1	PMA-MW-01S-0511	74
680-68626-1 MS	PMA-MW-01S-0511	76
680-68626-1 MSD	PMA-MW-01S-0511	74
680-68626-2	PMA-MW-01M-0511	67
680-68626-3	PMA-MW-02S-0511	63
680-68626-4	PMA-MW-02S-0511-EB	75
680-68626-5	PMA-MW-02M-0511	72
680-68626-6	PMA-MW-02M-0511-AD	70
680-68626-7	PMA-MW-03S-0511	74
680-68626-8	PMA-MW-03M-0511	71
680-68655-1	PMA-MW-04D-0511	69
680-68655-1 MS	PMA-MW-04D-0511	71
680-68655-1 MSD	PMA-MW-04D-0511	72
680-68655-2	PMA-MW-04S-0511	0 D
LCS 680-203835/12-A	Lab Control Sample	85
LCS 680-204122/4-A	Lab Control Sample	87
MB 680-203835/11-A	Method Blank	75
MB 680-204122/3-A	Method Blank	76

#### Surrogate Legend

13DCB = Decachlorobiphenyl-13C12

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# QC Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS)

Lab Sample ID: MB 680-203835/11-A						Client Sample ID: Method Blank			
Matrix: Water						Prep Type: Total/NA			
Analysis Batch: 205448						Prep Batch: 203835			
Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Monochlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/07/11 17:39	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/07/11 17:39	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/24/11 14:47	06/07/11 17:39	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 17:39	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 17:39	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/24/11 14:47	06/07/11 17:39	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/07/11 17:39	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		05/24/11 14:47	06/07/11 17:39	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		05/24/11 14:47	06/07/11 17:39	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		05/24/11 14:47	06/07/11 17:39	1
Surrogate	MB MB		Limits				Prepared	Analyzed	Dil Fac
	% Recovery	Qualifier							
Decachlorobiphenyl-13C12	75		25 - 113				05/24/11 14:47	06/07/11 17:39	1

Lab Sample ID: LCS 680-203835/12-A						Client Sample ID: Lab Control Sample			
Matrix: Water						Prep Type: Total/NA			
Analysis Batch: 205448						Prep Batch: 203835			
Analyte	Spike Added	LCS LCS		Unit	D	% Rec	% Rec.	Limits	
		Result	Qualifier						
Monochlorobiphenyl	2.00	1.01		ug/L		50		10 - 125	
Dichlorobiphenyl	2.00	1.20		ug/L		60		10 - 110	
Trichlorobiphenyl	2.00	1.32		ug/L		66		17 - 110	
Tetrachlorobiphenyl	4.00	2.68		ug/L		67		18 - 110	
Pentachlorobiphenyl	4.00	3.09		ug/L		77		34 - 110	
Hexachlorobiphenyl	4.00	3.08		ug/L		77		31 - 110	
Heptachlorobiphenyl	6.00	4.73		ug/L		79		33 - 110	
Octachlorobiphenyl	6.00	4.93		ug/L		82		33 - 110	
Nonachlorobiphenyl	10.0	12.5	*	ug/L		125		26 - 115	
DCB Decachlorobiphenyl	10.0	8.15		ug/L		81		26 - 115	
Surrogate	LCS LCS		Limits						
	% Recovery	Qualifier							
Decachlorobiphenyl-13C12	85		25 - 113						

Lab Sample ID: 680-68626-1 MS						Client Sample ID: PMA-MW-01S-0511			
Matrix: Water						Prep Type: Total/NA			
Analysis Batch: 205448						Prep Batch: 203835			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	% Rec	% Rec.
				Result	Qualifier				
Monochlorobiphenyl	0.095	U	1.91	0.736		ug/L		39	10 - 125
Dichlorobiphenyl	0.095	U	1.91	0.886		ug/L		46	10 - 110
Trichlorobiphenyl	0.095	U	1.91	0.997		ug/L		52	17 - 110
Tetrachlorobiphenyl	0.19	U	3.82	2.04		ug/L		53	18 - 110
Pentachlorobiphenyl	0.19	U	3.82	2.54		ug/L		67	34 - 110
Hexachlorobiphenyl	0.19	U	3.82	2.50		ug/L		65	31 - 110
Heptachlorobiphenyl	0.29	U	5.73	3.91		ug/L		68	33 - 110
Octachlorobiphenyl	0.29	U	5.73	3.99		ug/L		70	33 - 110
Nonachlorobiphenyl	0.48	U *	9.55	10.4		ug/L		109	26 - 115
DCB Decachlorobiphenyl	0.48	U	9.55	6.78		ug/L		71	26 - 115

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: W GK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1  
SDG: KPM042

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS) (Continued)

Lab Sample ID: 680-68626-1 MS

Matrix: Water

Analysis Batch: 205448

Client Sample ID: PMA-MW-01S-0511

Prep Type: Total/NA

Prep Batch: 203835

Surrogate	MS MS % Recovery	Qualifier	Limits
Decachlorobiphenyl-13C12	76		25 - 113

Lab Sample ID: 680-68626-1 MSD

Matrix: Water

Analysis Batch: 205448

Client Sample ID: PMA-MW-01S-0511

Prep Type: Total/NA

Prep Batch: 203835

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	Limits	RPD	Limit
Monochlorobiphenyl	0.095	U	1.91	0.675		ug/L		35	10 - 125	9	40
Dichlorobiphenyl	0.095	U	1.91	0.883		ug/L		46	10 - 110	0	40
Trichlorobiphenyl	0.095	U	1.91	1.04		ug/L		54	17 - 110	4	40
Tetrachlorobiphenyl	0.19	U	3.82	2.11		ug/L		55	18 - 110	3	40
Pentachlorobiphenyl	0.19	U	3.82	2.64		ug/L		69	34 - 110	4	40
Hexachlorobiphenyl	0.19	U	3.82	2.57		ug/L		67	31 - 110	3	40
Heptachlorobiphenyl	0.29	U	5.73	3.97		ug/L		69	33 - 110	2	40
Octachlorobiphenyl	0.29	U	5.73	4.20		ug/L		73	33 - 110	5	40
Nonachlorobiphenyl	0.48	U *	9.55	10.5		ug/L		110	26 - 115	1	40
DCB Decachlorobiphenyl	0.48	U	9.55	7.03		ug/L		74	26 - 115	4	40

Surrogate	MSD MSD % Recovery	Qualifier	Limits
Decachlorobiphenyl-13C12	74		25 - 113

Lab Sample ID: MB 680-204122/3-A

Matrix: Water

Analysis Batch: 205839

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 204122

Analyte	MB MB Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochlorobiphenyl	0.10	U	0.10		ug/L		05/26/11 14:29	06/08/11 00:49	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		05/26/11 14:29	06/08/11 00:49	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		05/26/11 14:29	06/08/11 00:49	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 00:49	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 00:49	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		05/26/11 14:29	06/08/11 00:49	1
Heptachlorobiphenyl	0.30	U	0.30		ug/L		05/26/11 14:29	06/08/11 00:49	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		05/26/11 14:29	06/08/11 00:49	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		05/26/11 14:29	06/08/11 00:49	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		05/26/11 14:29	06/08/11 00:49	1

Surrogate	MB MB % Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Decachlorobiphenyl-13C12	76		25 - 113	05/26/11 14:29	06/08/11 00:49	1

Lab Sample ID: LCS 680-204122/4-A

Matrix: Water

Analysis Batch: 205839

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 204122

Analyte	Spike Added	LCS LCS Result	Qualifier	Unit	D	% Rec	Limits
Monochlorobiphenyl	2.00	1.23		ug/L		61	10 - 125
Dichlorobiphenyl	2.00	1.37		ug/L		68	10 - 110
Trichlorobiphenyl	2.00	1.38		ug/L		69	17 - 110
Tetrachlorobiphenyl	4.00	2.77		ug/L		69	18 - 110

TestAmerica Savannah

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# QC Sample Results

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

## Method: 680 - Polychlorinated Biphenyls (PCBs) (GC/MS) (Continued)

Lab Sample ID: LCS 680-204122/4-A

Matrix: Water

Analysis Batch: 205839

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 204122

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Pentachlorobiphenyl	4.00	3.15		ug/L		79	34 - 110
Hexachlorobiphenyl	4.00	3.12		ug/L		78	31 - 110
Heptachlorobiphenyl	6.00	4.73		ug/L		79	33 - 110
Octachlorobiphenyl	6.00	5.05		ug/L		84	33 - 110
Nonachlorobiphenyl	10.0	13.0	*	ug/L		130	26 - 115
DCB Decachlorobiphenyl	10.0	8.36		ug/L		84	26 - 115

Surrogate	LCS % Recovery	LCS Qualifier	Limits
Decachlorobiphenyl-13C12	87		25 - 113

Lab Sample ID: 680-68655-1 MS

Matrix: Water

Analysis Batch: 205839

Client Sample ID: PMA-MW-04D-0511

Prep Type: Total/NA

Prep Batch: 204122

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Monochlorobiphenyl	0.37		1.98	1.29		ug/L		46	10 - 125
Dichlorobiphenyl	0.66		1.98	1.78		ug/L		56	10 - 110
Trichlorobiphenyl	0.10	U	1.98	1.25		ug/L		62	17 - 110
Tetrachlorobiphenyl	0.20	U	3.96	2.44		ug/L		62	18 - 110
Pentachlorobiphenyl	0.20	U	3.96	2.76		ug/L		70	34 - 110
Hexachlorobiphenyl	0.20	U	3.96	2.65		ug/L		67	31 - 110
Heptachlorobiphenyl	0.30	U	5.94	4.08		ug/L		69	33 - 110
Octachlorobiphenyl	0.30	U	5.94	4.31		ug/L		72	33 - 110
Nonachlorobiphenyl	0.50	U *	9.90	10.2		ug/L		103	26 - 115
DCB Decachlorobiphenyl	0.50	U	9.90	6.63		ug/L		67	26 - 115

Surrogate	MS % Recovery	MS Qualifier	Limits
Decachlorobiphenyl-13C12	71		25 - 113

Lab Sample ID: 680-68655-1 MSD

Matrix: Water

Analysis Batch: 205839

Client Sample ID: PMA-MW-04D-0511

Prep Type: Total/NA

Prep Batch: 204122

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	Limit
Monochlorobiphenyl	0.37		2.04	1.29		ug/L		45	10 - 125	0	40
Dichlorobiphenyl	0.66		2.04	1.82		ug/L		57	10 - 110	2	40
Trichlorobiphenyl	0.10	U	2.04	1.19		ug/L		57	17 - 110	5	40
Tetrachlorobiphenyl	0.20	U	4.08	2.37		ug/L		58	18 - 110	3	40
Pentachlorobiphenyl	0.20	U	4.08	2.70		ug/L		66	34 - 110	2	40
Hexachlorobiphenyl	0.20	U	4.08	2.61		ug/L		64	31 - 110	2	40
Heptachlorobiphenyl	0.30	U	6.12	3.96		ug/L		65	33 - 110	3	40
Octachlorobiphenyl	0.30	U	6.12	4.26		ug/L		70	33 - 110	1	40
Nonachlorobiphenyl	0.50	U *	10.2	10.0		ug/L		98	26 - 115	2	40
DCB Decachlorobiphenyl	0.50	U	10.2	6.87		ug/L		67	26 - 115	4	40

Surrogate	MSD % Recovery	MSD Qualifier	Limits
Decachlorobiphenyl-13C12	72		25 - 113

TestAmerica Savannah

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# Lab Chronicle

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-06D-0511

Date Collected: 05/19/11 10:20

Date Received: 05/20/11 09:37

Lab Sample ID: 680-68608-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1004.0 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205448	06/07/11 19:42	ND	TAL SAV

Client Sample ID: PMA-MW-05M-0511

Date Collected: 05/19/11 11:10

Date Received: 05/20/11 09:37

Lab Sample ID: 680-68608-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1049.0 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205448	06/07/11 20:12	ND	TAL SAV

Client Sample ID: PMA-MW-01S-0511

Date Collected: 05/20/11 08:25

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1048.9 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205448	06/07/11 20:43	ND	TAL SAV

Client Sample ID: PMA-MW-01M-0511

Date Collected: 05/20/11 09:10

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1029.9 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205448	06/07/11 21:13	ND	TAL SAV

Client Sample ID: PMA-MW-02S-0511

Date Collected: 05/20/11 09:55

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1046.8 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205448	06/07/11 21:44	ND	TAL SAV

Client Sample ID: PMA-MW-02S-0511-EB

Date Collected: 05/20/11 09:55

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1053.7 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 01:50	ND	TAL SAV

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# Lab Chronicle

Client: Solutia Inc.

Project/Site: WGK PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Client Sample ID: PMA-MW-02M-0511

Date Collected: 05/20/11 10:40

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1025.5 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 02:20	ND	TAL SAV

Client Sample ID: PMA-MW-02M-0511-AD

Date Collected: 05/20/11 10:40

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			980.2 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 02:50	ND	TAL SAV

Client Sample ID: PMA-MW-03S-0511

Date Collected: 05/20/11 13:10

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			964.8 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 03:20	ND	TAL SAV

Client Sample ID: PMA-MW-03M-0511

Date Collected: 05/20/11 13:45

Date Received: 05/21/11 10:09

Lab Sample ID: 680-68626-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1016.4 mL	1 mL	203835	05/24/11 14:47	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 03:50	ND	TAL SAV

Client Sample ID: PMA-MW-04D-0511

Date Collected: 05/23/11 08:30

Date Received: 05/24/11 09:41

Lab Sample ID: 680-68655-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			500.4 mL	0.5 mL	204122	05/26/11 14:29	RBS	TAL SAV
Total/NA	Analysis	680		1			205839	06/08/11 04:20	ND	TAL SAV

Client Sample ID: PMA-MW-04S-0511

Date Collected: 05/23/11 09:10

Date Received: 05/24/11 09:41

Lab Sample ID: 680-68655-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	680			1006.4 mL	1 mL	204122	05/26/11 14:29	RBS	TAL SAV
Total/NA	Analysis	680		10			205839	06/08/11 04:50	ND	TAL SAV

## Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

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## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

# TestAmerica

ZQ11 PCB Samples

THE LEADER IN ENVIRONMENTAL TESTING

~~TestAmerica Savannah~~  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE WGK PCB 2Q11		PROJECT NO. J017210.15		PROJECT LOCATION (STATE) IL		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 1		OF 1	
TAL (LAB) PROJECT MANAGER Gm Rinaldi		P.O. NUMBER		CONTRACT NO.		COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...)		Total PCBs None <b>PRESERVATIVE</b>										STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>			
CLIENT (SITE) PM Gm Rinaldi		CLIENT PHONE 314-674-3312		CLIENT FAX 314-674-8808														DATE DUE _____			
CLIENT NAME Solutia, Inc		CLIENT E-MAIL		EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>																	
CLIENT ADDRESS 575 Maryville Center Dr, St. Louis, MO 63141																		DATE DUE _____			
COMPANY CONTRACTING THIS WORK (if applicable)																		NUMBER OF COOLERS SUBMITTED PER SHIPMENT:			
SAMPLE		SAMPLE IDENTIFICATION						NUMBER OF CONTAINERS SUBMITTED										REMARKS			
DATE	TIME																				
5-19-11	1020	PMA-MW-06D-0511																			
↓	1110	PMA-MW-05M-0511																			
RELINQUISHED BY: (SIGNATURE) K. R.		DATE 5-19-11	TIME 3:00	RELINQUISHED BY: (SIGNATURE)				DATE	TIME	RELINQUISHED BY: (SIGNATURE)				DATE	TIME						
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)				DATE	TIME	RECEIVED BY: (SIGNATURE)				DATE	TIME						
LABORATORY USE ONLY																					
RECEIVED FOR LABORATORY BY: (SIGNATURE) H. R.		DATE 5/20/11	TIME 0937	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO. 680-68608		LABORATORY REMARKS 1.1°C											

Serial Number 041307

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location


Phone:  
Fax:

PROJECT REFERENCE W6K PCB 2Q11		PROJECT NO. J017210.15	PROJECT LOCATION (STATE) FL	MATRIX TYPE	REQUIRED ANALYSIS										PAGE 1	OF 1								
TAL (LAB) PROJECT MANAGER Gm Rinaldi		P.O. NUMBER	CONTRACT NO.	COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL SOLVENT...)	Total PCBs none	PRESERVATIVE											STANDARD REPORT DELIVERY	<input checked="" type="checkbox"/>						
CLIENT (SITE) PM Gm Rinaldi		CLIENT PHONE 314-674-3312	CLIENT FAX 314-674-8508														DATE DUE	<input checked="" type="checkbox"/>						
CLIENT NAME Solutia, Inc		CLIENT E-MAIL gm.rinaldi@solutia.com															EXPEDITED REPORT DELIVERY (SURCHARGE)	<input type="checkbox"/>						
CLIENT ADDRESS 575 Maymune Center Drive, St. Louis, MO												DATE DUE												
COMPANY CONTRACTING THIS WORK (if applicable)															NUMBER OF COOLERS SUBMITTED PER SHIPMENT:									
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED										REMARKS									
DATE	TIME																							
5-20-11	0825	PMA-MW-015-0511			6	A																		
	0825	PMA-MW-015-0511 - MS			6	A											MS							
	0825	PMA-MW-015-0511 - MSD			6	A											MSD							
	0910	PMA-MW-01M-0511			6	A																		
	0955	PMA-MW-02S-0511			6	A																		
	0955	PMA-MW-02S-0511 - EB			6	A											EB							
	1040	PMA-MW-02M-0511			6	A																		
	1040	PMA-MW-02M-0511 - AD			6	A											AD							
	1310	PMA-MW-03S-0511			6	A																		
✓	1345	PMA-MW-03M-0511			6	A																		
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME									
K C Rinaldi		5-20-11	3:05 PM																					
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME									
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS																	
Solutia		05/21/11	1009			ESD-68626	08, 10, 14																	

Page 28 of 33



# TestAmerica

 **TestAmerica Savannah**  
5102 LaRoche Avenue  
Savannah, GA 31404

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

☐ Alternate Laboratory Name/Location

Phone:  
Fax:

PROJECT REFERENCE W6K PCB 2Q11		PROJECT NO. J017210-15		PROJECT LOCATION (STATE) IL		MATRIX TYPE		REQUIRED ANALYSIS										PAGE 1		OF 1	
TAL (LAB) PROJECT MANAGER Gm Rinaldi		P.O. NUMBER		CONTRACT NO.		COMPOSITE (C) OR GRAB (G) INDICATE AQUEOUS (WATER) SOLID OR SEMISOLID AIR NONAQUEOUS LIQUID (OIL, SOLVENT, ...) Total PCBs		PRESERVATIVE										STANDARD REPORT DELIVERY <input checked="" type="checkbox"/>			
CLIENT (SITE) PM Gm Rinaldi		CLIENT PHONE 314-674-3312		CLIENT FAX 314-674-8808														DATE DUE _____			
CLIENT NAME Solutia, Inc		CLIENT E-MAIL gm_rinaldi@solutia.com																EXPEDITED REPORT DELIVERY (SURCHARGE) <input type="checkbox"/>			
CLIENT ADDRESS 575 Mayville Center Dr, St. Louis, MO																		DATE DUE _____			
COMPANY CONTRACTING THIS WORK (if applicable)																		NUMBER OF COOLERS SUBMITTED PER SHIPMENT:			
SAMPLE		SAMPLE IDENTIFICATION				NUMBER OF CONTAINERS SUBMITTED										REMARKS					
DATE	TIME																				
5-23-11	0830	PMA - MW - 04D - 0511																			
5-23-11	0910	PMA - MW - 04S - 0511																			
RELINQUISHED BY: (SIGNATURE) Jc [Signature]		DATE 5-23-11	TIME 1330	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME										
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME										
LABORATORY USE ONLY																					
RECEIVED FOR LABORATORY BY: (SIGNATURE) Bitha Doughty		DATE 5/24/11	TIME 0941	CUSTODY INTACT YES <input type="radio"/> NO <input type="radio"/>		CUSTODY SEAL NO.		SAVANNAH LOG NO. 1680- 681055		LABORATORY REMARKS Temp 0.4°C											

## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-68608-1

SDG Number: KPM042

Login Number: 68608

List Number: 1

List Source: TestAmerica Savannah

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
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	
Sample Preservation Verified.	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	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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*Handwritten signature*

## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-68608-1

SDG Number: KPM042

Login Number: 68626

List Number: 1

List Source: TestAmerica Savannah

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
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	
Sample Preservation Verified.	N/A	
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	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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7/11/19  
AL

## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-68608-1

SDG Number: KPM042

Login Number: 68655

List Number: 1

List Source: TestAmerica Savannah

Creator: Daughtry, Beth

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	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	
Sample Preservation Verified.	N/A	
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	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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7/11/14  
AG

## Certification Summary

Client: Solutia Inc.

Project/Site: WGG PCB GW Quality - 2Q11 - MAY 2011

TestAmerica Job ID: 680-68608-1

SDG: KPM042

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP	0	0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025	0	399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kansas	NELAC	7	E-10322
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	Nevada	State Program	9	GA6
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9964
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA	0	SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Savannah

*July 11*



# MJW CORPORATION

Radiation Consulting Professionals

August 2, 2011

Mr. Duane T. Kreuger  
Geotechnology, Inc.  
11816 Lackland Road Suite 150  
St. Louis, MO 63146

Dear Mr. Kreuger:

The data reported by Test America Laboratories under SDG KPM042 has been reviewed for quality assurance validation. Data was reported for PCB's for 14 samples as requested by Geotechnology, Inc. The 14 samples listed below were validated by MJW. The samples in **bold type** have been validated for level IV validation. The data in this report has been approved for use as no samples required qualification.

- **PMA-MW-6D-0511 (Lab ID: 680-68608-1)**
- **PMA-MW-5M-0511 (Lab ID: 680-68608-2)**
- **PMA-MW-4D-0511 (Lab ID: 680-68655-1)**
- **PMA-MW-4S-0511 (Lab ID: 680-68655-2)**
- PMA-MW-3M-0511 (Lab ID: 680-68626-8)
- PMA-MW-3S-0511 (Lab ID: 680-68626-7)
- PMA-MW-1M-0511 (Lab ID: 680-68626-2)
- PMA-MW-1S-0511 (Lab ID: 680-68626-1)
- PMA-MW-1S-0511MS (Lab ID: 680-68626-1 MS)
- PMA-MW-1S-0511 MSD (Lab ID: 680-68626-1 MSD)
- PMA-MW-2M-0511 (Lab ID: 680-68626-5)
- PMA-MW-2M-0511-AD (Lab ID: 680-68626-6 FD)
- PMA-MW-2S-0511 (Lab ID: 680-68626-3)
- PMA-MW-2S-0511-EB (Lab ID: 680-68626-4 EB)

If you have any questions concerning this data validation report, please contact me at 585-344-7197.

Very truly yours,

**MJW Corporation Inc.**

Annette Guilds, CES  
Senior Scientist

Approved by:

David A. Dooley, Ph.D., CHP  
President, MJW Corporation Inc.

# QUALITY ASSURANCE REPORT

Solutia Inc.

W.G. Krummrich Facility

Sauget, Illinois

2<sup>nd</sup> Quarter 2011 Data Validation Report

WGK-PCB Site

SDG: KPM042

*Prepared for*

**GEOTECHNOLOGY, INC.**

11816 Lackland Road, Suite 150

St. Louis, MO 63146

August 2011

**MJW**

MJW Corporation, Inc.

1900 Sweet Home Road

Amherst, NY 14228

(716)-631-8291

**Project # 2010-1918**

**DATA ASSESSMENT NARRATIVE  
(ORGANICS)**



## ORGANIC DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE NO.: \_\_\_\_\_ SDG NO.: KPM042 LABORATORY: Test America  
SITE: Solutia W.G. Krummrich Plant (PCB Site)

---

### DATA ASSESSMENT

All data were found to be valid and acceptable except those analytes that have been rejected, "R" (unusable). Due to various QC problems some analytes may have been qualified with a "J" (estimated), "N" (presumptive evidence for the presence of the material), "U" (non-detect), or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

**All data is fully acceptable and usable.**

Reviewer's  
Signature: Annette Gentel Date: 8/02/2011

MJW Approval: Low Henry Date: 8/02/2011

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

**No action necessary.**

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

**The surrogate recovery for sample PMA-MW-04S-0511 is 0%. This was due to the fact that the sample results were out of range and had to be diluted and rerun. Thus, qualification of this sample is not required.**

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

**No action necessary.**

4. LABORATORY CONTROL SAMPLE/DUPLICATE, LCS/LCSD

**Although the LCS was out of control for Nonachlorobiphenyl, no data was qualified as all other QC was acceptable.**

## 5. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

### A) Method blank contamination:

**No action necessary.**

### B) Field or rinse blank contamination:

**No action necessary.**

### C) Trip blank contamination:

**No action necessary.**

## 6. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenyl-phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

**No action necessary.**

## 7. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

### A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be  $\geq 0.05$  in both initial and continuing calibrations. A value  $< 0.05$  indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

**No action necessary.**

8. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be  $< 30\%$  and %D must be  $< 25\%$ . A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

**No action necessary.**

9. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than  $\pm 30$  seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

**No action necessary.**

10. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within  $\pm 0.06$  RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

**Form X was not completed for those samples in which there was a positive hit for PCB's.**

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

N/A

11. CONTRACT PROBLEMS NON-COMPLIANCE: **None**

12. FIELD DOCUMENTATION:

**A field duplicate was analyzed for sample PMA-MW-02M-0511 and all %RPD's were acceptable.**

13. OTHER PROBLEMS: **None**

14. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified to be used.

**None**