SOLUTIA

Solutions for a better life.

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March 13, 2009

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

VIA FEDEX

Re: PCB Groundwater Quality Assessment Program
4th Quarter 2008 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the PCB Groundwater Quality Assessment Program 4th Quarter 2008 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. Included is an updated trend analysis, adding data for the 3rd and 4th quarters of 2008 to the comparable analysis submitted October 31, 2008, for data through the 2nd quarter of 2008.

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

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

PCB Groundwater Quality Assessment Program
4th Quarter 2008 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

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4TH QUARTER 2008
DATA REPORT

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM

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

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

March 2009

URS Corporation
1001 Highland Plaza Drive West, Suite 300
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Project # 21562047.00003

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1.0 INTRODUCTION

This report presents the results of the 4th Quarter 2008 (4Q08) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with the PCB Groundwater Quality Assessment Program Work Plan (Solutia 2008). The Site location map is presented in **Figure 1**.

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

- Two source area wells, PMAMW04S and PMAMW04D (formerly designated PSMW02, and listed as such on the chain of custody), are screened in the Shallow Hydrogeologic Unit (SHU) and Deep Hydrogeologic Unit (DHU), respectively.
- Three well clusters (PMAMW01S/M, PMAMW02S/M and PMAMW03S/M) are located down-gradient of the source area and outside of the 25 mg/kg total PCB in soil isoconcentration line. These clusters include wells screened in the SHU (designated with an "S") and Middle Hydrogeologic Unit (MHU) (designated with an "M").
- Two individual wells designated PMAMW05M and PMAMW06D are located down-gradient of the source area, with PMAMW05M screened in the MHU and PMAMW06D screened in the DHU (designated with a "D").

Groundwater samples were collected from nine of the ten monitoring wells during the 4Q08 sampling event. A DNAPL sample was collected from monitoring well PMAMW04S based on dense non-aqueous phase liquid (DNAPL) being present in the monitoring well during sampling.

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

2.0 FIELD PROCEDURES

URS Corporation (URS) conducted the 4Q08 PCB Groundwater Quality Assessment Program field activities November 17 through 19, 2008.

Groundwater Level Measurements – On November 17, 2008, an oil/water interface probe was used to measure depth to static groundwater levels and determine the presence of non-aqueous phase liquids (NAPL) in the PCB Groundwater Quality Assessment Program well network. NAPL was not detected within any of the ten monitoring wells during gauging, but it was collected during sampling of PMAMW04S. Depth to groundwater measurements were collected from accessible existing wells (i.e., GM-, K- , PSMW- and PMA-series) and

piezometers clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the PCB Groundwater Quality Assessment Program Work Plan.

Well gauging information for the 4Q08 event is presented in **Table 1**. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the MHU and DHU is presented as (**Figure 3)**.

Groundwater Sampling - Low-flow sampling techniques were used for groundwater sample collection on November 18 and 19, 2008. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate of 200 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

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

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

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

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

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

- **PMAMW# – Monitoring Well Location (PCB Manufacturing Area (PMA)) and Number**
- **MMYY – Month and year of sampling quarter**, **e.g.: November (Fourth quarter),**

2008 (1108)

- **QAC – will denote 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 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 FedEx overnight delivery service. Field sampling data sheets are included in **Appendix A**, COC forms are included in **Appendix B**.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for PCBs using Method 680.

4.0 QUALITY ASSURANCE

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

A total of 14 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one MS/MSD pair, one equipment blank) were prepared and analyzed by Test America for PCBs. The results for the various analyses were submitted as sample delivery groups (SDGs) KPM026 and KPM027. The latter consisted of the results from the PMAMW04S DNAPL sample. The results for all other samples were reported under SDG KPM026.

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 1999) and the PCB Water Quality Assessment Work Plan (Solutia 2008). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, LCS, surrogate and field duplicate data were achieved for these SDGs to meet the project objectives. Completeness,

which is defined to be the percentage of analytical results which are judged to be valid, including estimated (**J/UJ**) data was 100 percent.

5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 4Q08 PCB Groundwater Quality Assessment sampling event. A summary of the laboratory results is provided in **Table 2** and the entire laboratory data package is proved in **Appendix D.**

Shallow Hydrogeologic Unit

A DNAPL sample was collected from source area SHU monitoring well PMAMW04S, and total PCBs were detected at a concentration of 297,300,000 µg/kg. Historically, measurable DNAPL has been observed in PMAMW04S during previous sampling events.

Of the three down-gradient PCB Groundwater Quality Assessment Program SHU monitoring wells (PMAMW01S through PMAMW03S), PCBs were only detected in monitoring well PMAMW03S, at a concentration of 0.24 µg/L. These data indicate that PCBs in the SHU attenuated over the 300 to 400 ft distance between PMAMW04S and the three downgradient monitoring wells. PCB sampling results for the SHU are presented on **Figure 4**.

Middle/Deep Hydrogeologic Unit

Laboratory analytical results for monitoring well PMAMW04D (formerly designated PSMW02) located in the Former PCB Manufacturing Area indicated a total PCB concentration of 0.27 µg/L for the 4Q08 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.26 µg/L (PMAMW01M), 2.5 µg/L (PMAMW02M)/(2.7 µg/L duplicate), 0.71 µg/L (PMAMW03M), and 0.43 µg/L (PMAMW06D). PCBs were not detected in the groundwater samples collected from monitoring well PMAMW05M. **Figure 5** displays the 4Q08 PCB sampling results for the MHU/DHU.

The 4Q08 sampling event is the second event conducted under the PCB Groundwater Quality Assessment Program. Mann-Kendall trend analyses of total PCBs in unfiltered samples of groundwater from monitoring wells within (PMAMW04D) or downgradient of (PMAMW 01M, 02M, 03S, and 03M) the former PCB Manufacturing Area are presented in **Tables 3** through **7**. There is a statistically significant upward trend in concentrations at PMAMW01M, but no trends at any of the other wells.

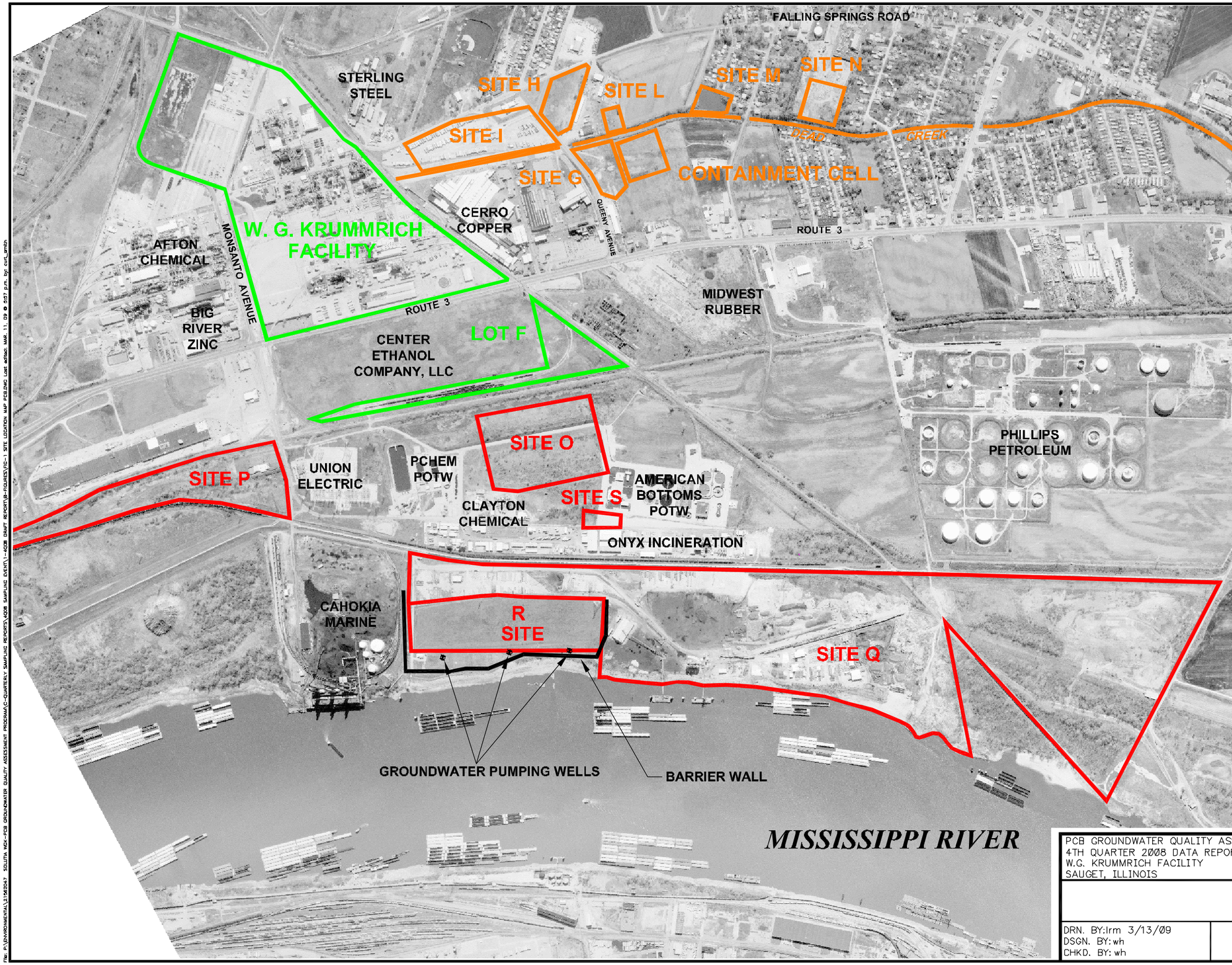
After eight quarters of sampling under the PCB Groundwater Quality Assessment Program, the Mann-Whitney U Test will be performed to determine whether or not concentrations in the second four quarters were higher or lower than the first four quarters. Linear regression analysis will be done for the eight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

6.0 REFERENCES

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

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

Figures



LEGEND

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

0 1000
SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2008 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

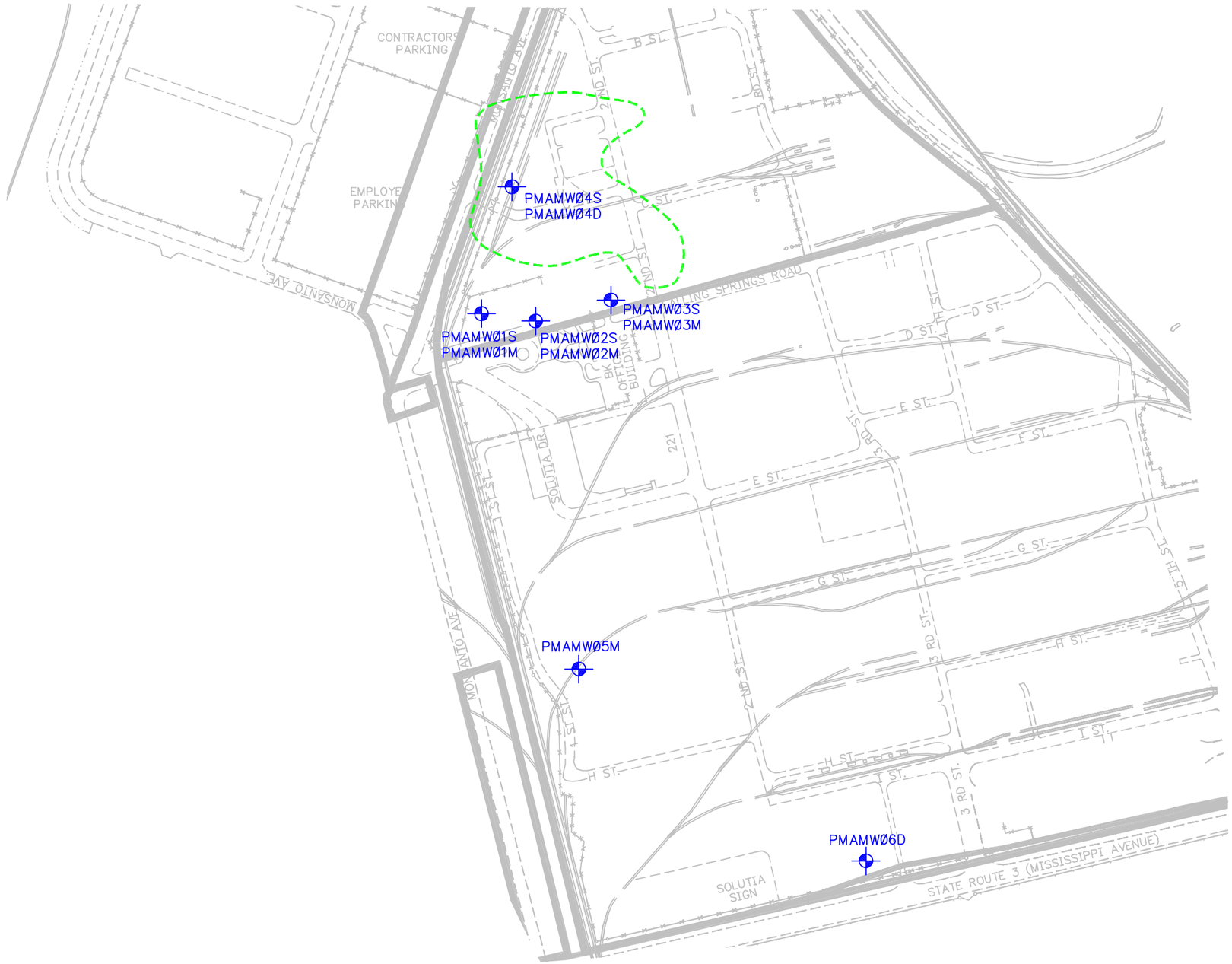
PROJECT NO. 21562047

URS

DRN. BY: lrm 3/13/09
DSGN. BY: wh
CHKD. BY: wh

Site Location Map

FIG. NO. 1



LEGEND

MONITORING WELL LOCATION

APPROXIMATE 25 mg/kg TOTAL PCB CONTOUR LINE (SOIL)

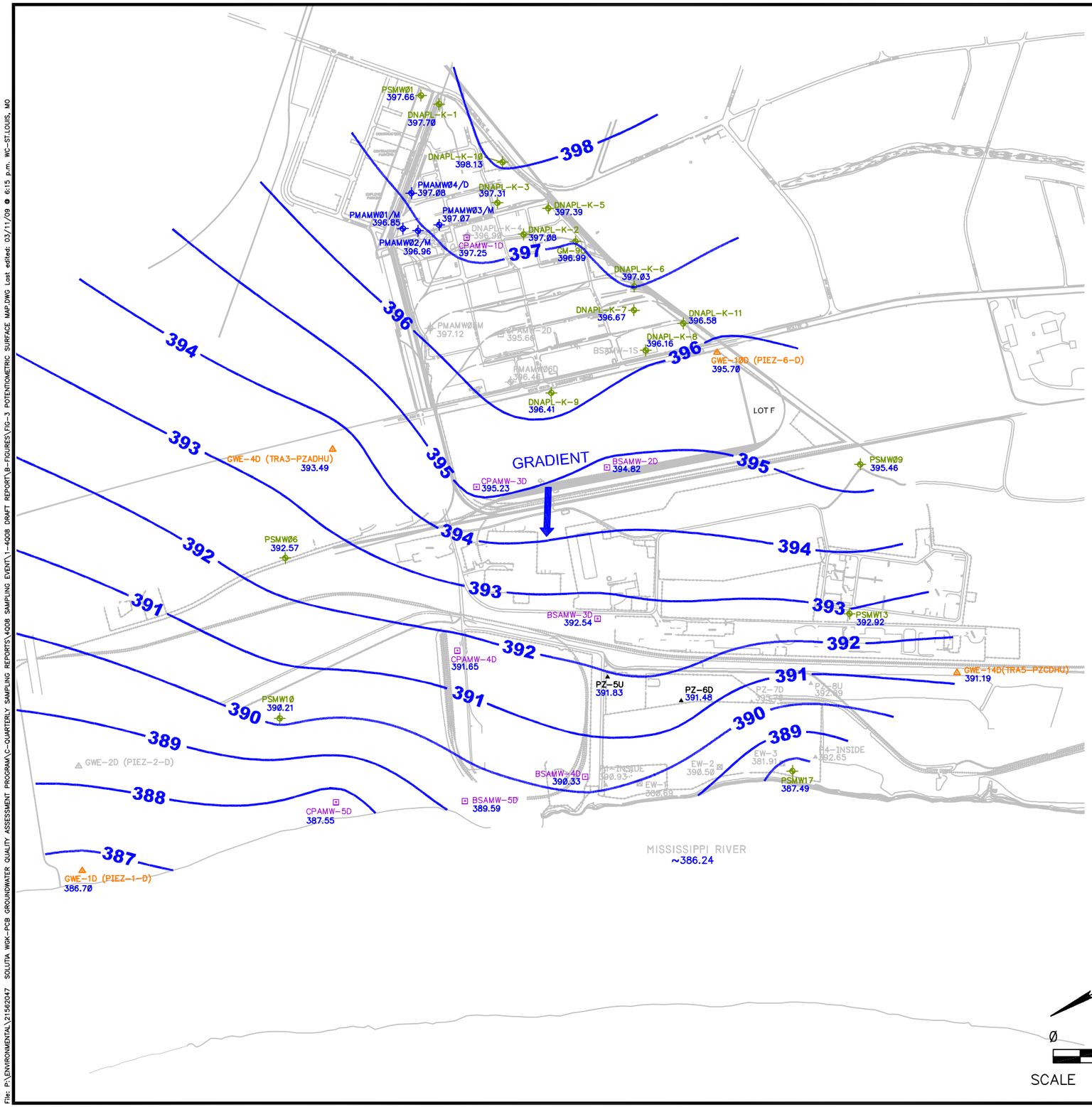
N E S W

0 300

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 4TH QUARTER 2008 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562047
URS	
DRN. BY: lrm 3/13/09 DSGN. BY: ekf CHKD. BY: ekf	Former PCB Manufacturing Area Monitoring Well Locations
	FIG. NO. 2

File: P:\ENVIRONMENTAL\21562047 SOLUTIA WGK-PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM\C-QUARTERLY SAMPLING REPORTS\4Q08 SAMPLING EVENT\1-4Q08 DRAFT REPORT\B-FIGURES\FIG-2 FORMER PCB MANUFACTURING AREA MW LOCATIONS.DWG Last edited: MAR. 11, 09 @ 5:58 p.m. by: curt_smith



LEGEND

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

NOTES:

1. GROUNDWATER LEVELS WERE MEASURED NOVEMBER 17th, 2008.
2. CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND.
3. WELLS/PIEZOMETERS SHOWN IN GRAYSCALE WERE NOT USED FOR CONTOURING.
4. THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE TIME OF THE GAUGING EVENT. THE INFORMATION WAS OBTAINED FROM THE SITE R BUBBLER.
5. THE POTENTIOMETRIC SURFACE OBSERVED AROUND SITE R MAY BE ASSOCIATED WITH THE OPERATION OF THE SA2 GMCS.
6. NEITHER THE PHYSICAL NOR THE HYDROLOGIC BARRIERS CREATED BY THE SA2 GMCS WERE INCORPORATED INTO THE DEVELOPMENT OF THESE CONTOURS.
7. LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.
8. GROUNDWATER ELEVATION DATA FROM EW-1, EW-2, EW-3, PZ-7D, PZ-8U, P1-INSIDE, AND P4-INSIDE WERE NOT USED IN THE DEVELOPMENT OF THE POTENTIOMETRIC SURFACE DUE TO THE GROUNDWATER ELEVATIONS IN THESE WELLS APPEARING ANOMALOUS TO SURROUNDING WELLS. THE ANOMALOUS GROUNDWATER ELEVATIONS WERE A LIKELY RESULT OF EW-1 AND EW-3 OPERATING DURING THE GAUGING EVENT.
9. DATA FROM BSAMW-1S, WAS NOT INCLUDED IN THE DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP SINCE THE WELL IS SCREENED IN THE SHALLOW HYDROGEOLOGIC UNIT.
10. DATA FROM PMAMW05M, CPAMW-2D, DNAPL-K-4, AND PMAMW06D WERE NOT INCLUDED IN THE DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP DUE TO THE DATA APPEARING ANOMALOUS TO SURROUNDING GROUNDWATER LEVELS AND A REVIEW OF HISTORICAL POTENTOMETRIC SURFACE MAPS.

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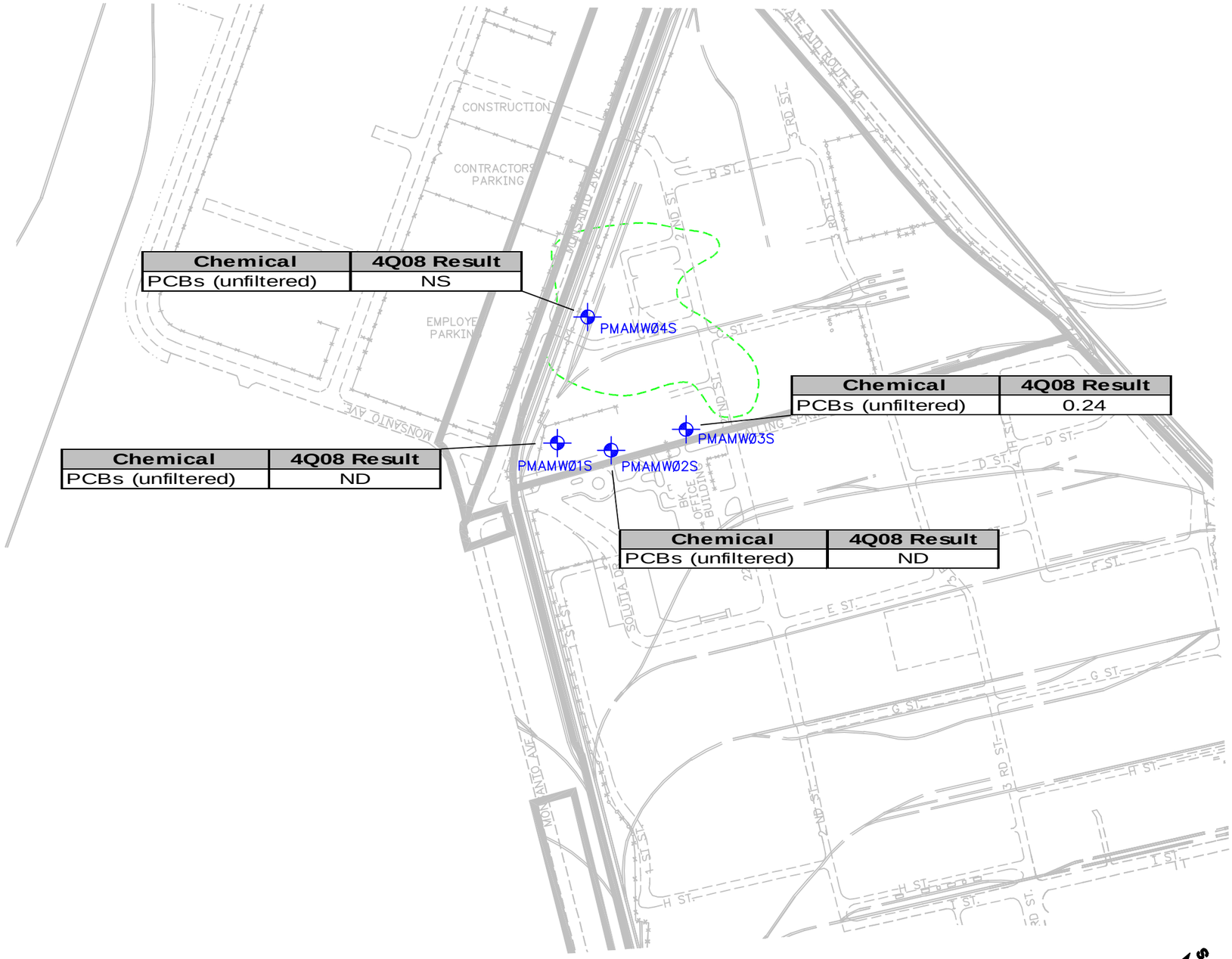
SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM 4TH QUARTER 2008 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS	PROJECT NO. 21562047
URS	
DRN. BY:lrm 3/13/09 DSGN. BY:ekf CHKD. BY:tja	Potentiometric Surface Map Middle Deep Hydrogeologic Unit
	FIG. NO. 3

File: P:\ENVIRONMENTAL\21562047 SOLUTIA WGK-PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM\C-QUARTERLY SAMPLING REPORTS\4Q08 SAMPLING EVENT\1-4Q08 DRAFT REPORT\8-FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 03/11/09 @ 6:15 p.m. WG-ST.LOUIS, MO



Chemical	4Q08 Result
PCBs (unfiltered)	NS

Chemical	4Q08 Result
PCBs (unfiltered)	0.24

Chemical	4Q08 Result
PCBs (unfiltered)	ND

Chemical	4Q08 Result
PCBs (unfiltered)	ND

LEGEND

MONITORING WELL LOCATION

APPROXIMATE 25 mg/kg TOTAL PCB CONTOUR LINE (SOIL)

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND DENOTES NOT DETECTED.
4. NS DENOTES NOT SAMPLED. PMAMW04S CONTAINED DNAPL AND THE GROUNDWATER WAS NOT SAMPLED DURING THE 3Q08 AND 4Q08 SAMPLING EVENT.

N E S W

0 300

SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2008 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562047

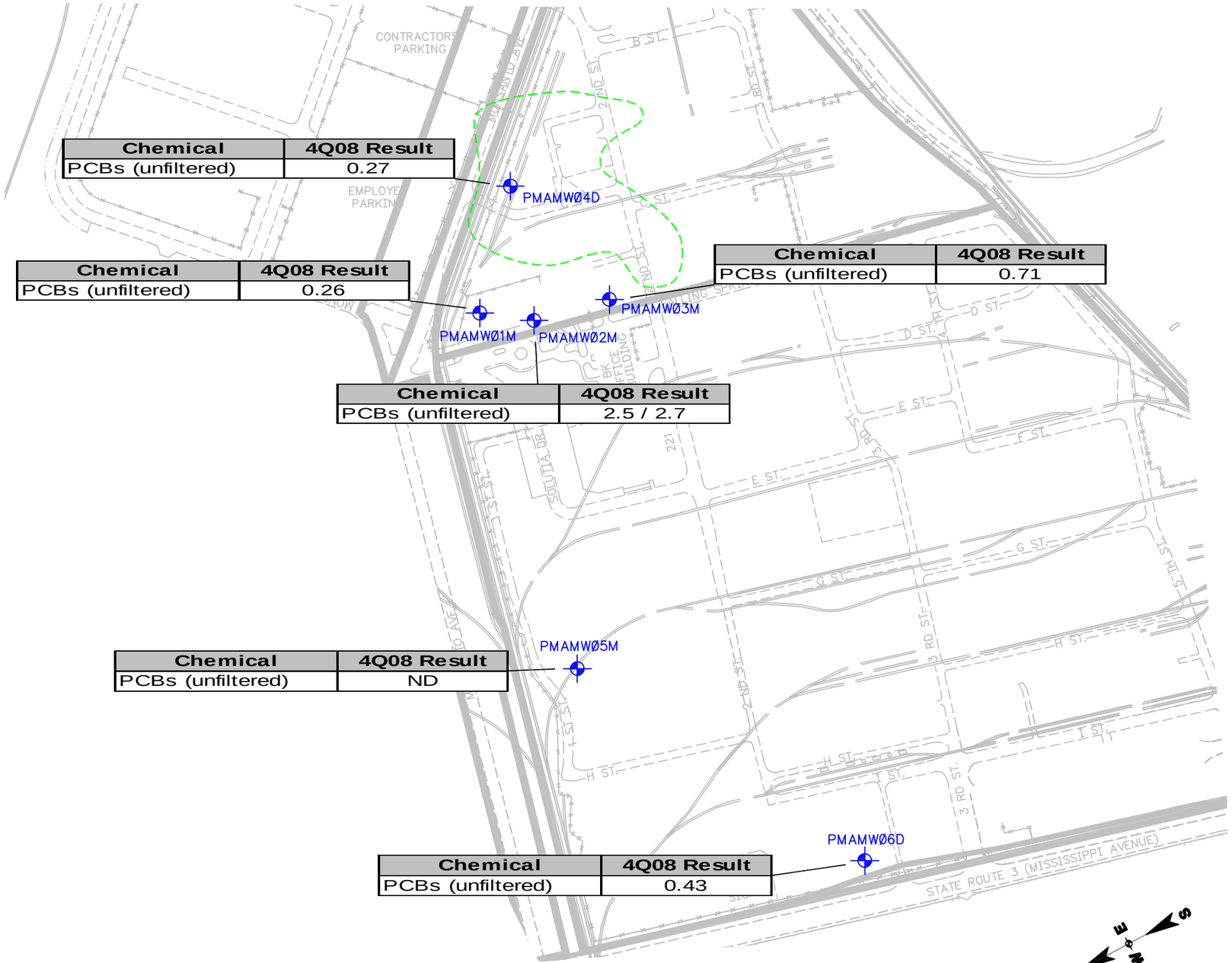
URS

DRN. BY: lrm 3/13/09
DSGN. BY: ekf
CHKD. BY: tja

PCB Results – SHU Wells

FIG. NO. 4

File: P:\ENVIRONMENTAL\21562047 SOLUTIA WGK-PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM\C-QUARTERLY SAMPLING REPORTS\4Q08 SAMPLING EVENT\1-4Q08 DRAFT REPORT\B-FIGURES\FIG-4 TOTAL PCBS SHU WELLS.DWG Last edited: MAR. 12, 09 @ 09:39 a.m. by: curt_smith



Chemical	4Q08 Result
PCBs (unfiltered)	0.27

Chemical	4Q08 Result
PCBs (unfiltered)	0.26

Chemical	4Q08 Result
PCBs (unfiltered)	0.71

Chemical	4Q08 Result
PCBs (unfiltered)	2.5 / 2.7

Chemical	4Q08 Result
PCBs (unfiltered)	ND

Chemical	4Q08 Result
PCBs (unfiltered)	0.43

LEGEND

MONITORING WELL LOCATION

APPROXIMATE 25 mg/kg TOTAL PCB CONTOUR LINE (SOIL)

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND DENOTES NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE

0 300
SCALE FEET

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
4TH QUARTER 2008 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562047

URS

DRN. BY: lrm 3/13/09
DSGN. BY: ekf
CHKD. BY: tja

PCB Results – MHU/DHU Wells

FIG. NO. 5

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Tables

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						17-Nov-08				Area
	Ground Elevation* (feet)	Top of Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Depth to Product (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)	
Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)											
BSAMW-1S (PSMW05)	409.49	412.31	19.68	24.86	389.63	384.63	16.00	--	27.32	396.31	WGK
PMAMW01S	410.06	410.06	20.18	25.18	389.88	384.88	12.16	-	24.92	397.90	WGK
PMAMW02S	411.66	411.66	22.94	27.94	388.72	383.72	14.64	-	27.35	397.02	WGK
PMAMW03S	412.06	412.06	22.71	27.71	389.35	384.35	14.91	-	27.40	397.15	WGK
PMAMW04S	410.43	410.43	20.99	25.99	389.44	384.44	13.21	-	25.36	397.22	WGK
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)											
PMAMW01M	410.08	410.08	54.54	59.54	355.54	350.54	13.23	-	59.63	396.85	WGK
PMAMW02M	411.93	411.93	56.87	61.87	355.06	350.06	14.97	-	61.55	396.96	WGK
PMAMW03M	412.10	412.10	57.07	62.07	355.03	350.03	15.03	-	61.82	397.07	WGK
PMAMW05M	411.27	410.97	52.17	57.17	359.10	354.10	13.85	-	56.97	397.12	WGK
PSMW01	409.37	412.59	34.56	39.56	374.81	369.81	14.93	--	46.06	397.66	WGK
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)											
BSAMW-2D (PSMW08)	412.00	415.13	65.79	70.79	346.21	341.21	20.31	--	77.05	394.82	WGK
BSAMW-3D (PSMW12)	412.91	415.74	104.80	109.80	308.11	303.11	23.20	--	114.82	392.54	WGK
BSAMW-4D (PSMW16D)	425.00	424.69	118.54	123.54	306.46	301.46	34.36	--	123.21	390.33	WGK
BSAMW-5D (PSMW15D(R))	420.80	420.49	116.25	120.85	304.95	299.95	30.90	--	120.95	389.59	WGK
CPAMW-1D (PSMW03)	408.62	408.32	66.12	71.12	342.50	337.50	11.07	--	70.81	397.25	WGK
CPAMW-2D (PSMW04)	408.51	408.20	99.96	104.96	308.55	303.55	12.54	--	104.67	395.66	WGK
CPAMW-3D (PSMW07)	410.87	410.67	101.90	106.90	308.97	303.97	15.44	--	112.87	395.23	WGK
CPAMW-4D (PSMW11)	421.57	421.20	116.44	121.44	305.13	300.13	29.55	--	121.02	391.65	WGK
CPAMW-5D (PSMW14D)	411.03	413.15	105.51	110.51	305.52	300.52	25.60	--	114.69	387.55	WGK
DNAPL-K-1	413.07	415.56	108.2	123.2	304.87	289.87	17.86	--	123.18	397.70	WGK
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	10.64	--	112.40	397.08	WGK
DNAPL-K-3	412.13	411.91	104.8	119.8	307.33	292.33	14.60	--	119.33	397.31	WGK
DNAPL-K-4	409.48	409.15	102.55	117.55	306.93	291.93	12.25	--	NG	396.90	WGK
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	14.52	--	116.50	397.39	WGK
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	13.06	--	116.95	397.03	WGK
DNAPL-K-7	408.32	407.72	100.4	115.4	307.92	292.92	11.05	--	115.38	396.67	WGK
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	15.22	--	117.20	396.16	WGK
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	9.56	--	111.20	396.41	WGK
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	15.12	--	120.35	398.13	WGK
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	15.20	--	120.30	396.58	WGK
EW-1	442.02	422.72	53	131	369.02	291.02	NG	NG	NG	380.69	Site R
EW-2	418.53	419.84	41.50	104.90	377.03	313.63	NG	NG	NG	390.50	Site R
EW-3	420.58	421.45	56.70	126.00	363.88	294.58	NG	NG	NG	381.91	Site R
GM-9C	409.54	411.21	88	108	321.54	301.54	14.22	--	108.40	396.99	WGK
GWE-1D (PIEZ-1D)	412.80	415.60	117	127	295.80	285.80	28.90	--	NG	386.70	Sauget Area 2
GWE-2D (PIEZ-2D)	417.45	417.14	127	137	290.45	280.45	NG	NG	NG	--	Sauget Area 2
GWE-4D (TRA3-PZADHU)	406.05	405.74	74	80	332.05	326.05	12.25	--	78.80	393.49	WGK
GWE-10D (PIEZ-6D)	410.15	412.87	102.5	112.5	307.65	297.65	17.17	--	114.88	395.70	Lot F
GWE-14D (TRA5-PZCDHU)	420.47	422.90	90	96	330.47	324.47	31.71	--	96.98	391.19	WGK

See last page of table for notes.

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						17-Nov-08				Area
	Ground Elevation* (feet)	Top of Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	Depth to Product (feet btoc)	Depth to Bottom (feet btoc)	Water Elevation* (feet)	
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock) (continued)											
P1-INSIDE	423.00	424.26	55.00	130.00	368.00	293.00	NG	NG	NG	--	Site R
P4- INSIDE	420.50	423.64	52.50	132.50	368.00	288.00	NG	NG	NG	--	Site R
PMAMW04D (PSMW02)	411.22	410.88	68.84	73.84	342.38	337.38	13.8	-	73.37	397.08	WGK
PMAMW06D	407.63	407.32	96.49	101.49	311.14	306.14	10.86	-	101.29	396.46	WGK
PSMW06	404.11	406.63	99.80	104.80	304.31	299.31	14.06	--	109.84	392.57	WGK
PSMW09	403.92	403.52	100.40	105.40	303.52	298.52	8.06	--	105.15	395.46	WGK
PSMW10	409.63	412.18	101.23	106.23	308.40	303.40	21.97	--	111.31	390.21	WGK
PSMW13	405.80	405.53	106.08	111.08	299.72	294.72	12.61	--	110.24	392.92	WGK
PSMW17 (BWMW-4D)	420.22	423.26	121.25	126.25	298.97	293.97	35.77	--	134.06	387.49	WGK
PZ-5U	421.52	420.99	40.00	140.00	381.52	281.52	NG	NG	NG	391.83	Site R
PZ-6D	421.64	418.64	41.70	131.70	377.55	287.55	NG	NG	NG	391.48	Site R
PZ-7D	417.51	422.16	44.50	124.50	373.01	293.01	26.41	--	NG	395.75	Site R
PZ-8U	422.75	419.69	43.10	133.10	376.89	286.89	26.80	--	NG	392.89	Site R

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

Table 2
Groundwater and DNAPL Analytical Detections

Sample ID	Sample Date	Units	Monochlorobiphenyl	Dichlorobiphenyl	Trichlorobiphenyl	Tetrachlorobiphenyl	Pentachlorobiphenyl	Hexachlorobiphenyl	Heptachlorobiphenyl	Octachlorobiphenyl	Nonachlorobiphenyl	Decachlorobiphenyl
Shallow Hydrologic Unit												
PMAMW01S-1108	11/18/2008	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW02S-1108	11/18/2008	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW03S-1108	11/19/2008	µg/L	**0.24**	<0.1	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.5	<0.5
PMAMW-4S-1108-DNAPL	11/19/2008	µg/kg	<500,000	**4,300,000**	**25,000,000**	**59,000,000**	**46,000,000**	**79,000,000**	**73,000,000**	**11,000,000**	<2,600,000	<2,600,000
Middle / Deep Hydrologic Unit												
PMAMW01M-1108	11/18/2008	µg/L	**0.26**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW02M-1108	11/18/2008	µg/L	**2.5**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW02M-1108-AD	11/18/2008	µg/L	**2.7**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.29	<0.29	<0.49	<0.49
PMAMW03M-1108	11/19/2008	µg/L	**0.71**	<0.1	<0.1	<0.21	<0.21	<0.31	<0.31	<0.31	<0.52	<0.52
PMAMW05M-1108	11/18/2008	µg/L	<0.097	<0.097	<0.097	<0.19	<0.19	<0.19	<0.28	<0.28	<0.49	<0.49
PMAMW04D-1108	11/19/2008	µg/L	**0.15**	**0.12**	<0.097	<0.19	<0.19	<0.19	<0.28	<0.28	<0.49	<0.49
PMAMW06D-1108	11/18/2008	µg/L	**0.43**	<0.097	<0.097	<0.19	<0.19	<0.19	<0.28	<0.28	<0.49	<0.49

Notes:
AD = Analytical Duplicate
µg/L = micrograms per liter
µg/Kg = micrograms per kilogram
< = Result is non-detect, less than the reporting limit
BOLD indicates concentration greater than the reporting limit

Table 3

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

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

Mann-Kendall Statistic (S)	**18**

90 % Confidence Mann-Kendall Statistic	**17**

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	Row
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	Total
Total PCBs, ug/L	2.3	2.4	2.8	2.1	3.3	2.5	3.1	1.7	3.0	4.3	2.5	
Compare to Event 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	5
Compare to Event 3				-1	1	-1	1	-1	1	1	-1	0
Compare to Event 4					1	1	1	-1	1	1	1	5
Compare to Event 5						-1	-1	-1	-1	1	-1	-4
Compare to Event 6							1	-1	1	1	1	3
Compare to Event 7								-1	-1	1	-1	-2
Compare to Event 8									1	1	1	3
Compare to Event 9										1	-1	0
Compare to Event 10											-1	-1

Mann-Kendall Statistic (S)	**15**

90 % Confidence Mann-Kendall Statistic	**17**

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	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11	Row
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	Total
Total PCBs, ug/L	0.66	0.32	0.20	0.35	0.80	0.30	0.21	0.25	0.64	0.26	0.24	
Compare to Event 1		-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-8
Compare to Event 2			-1	1	1	-1	-1	-1	1	-1	-1	-3
Compare to Event 3				1	1	1	1	1	1	1	1	8
Compare to Event 4					1	-1	-1	-1	1	-1	-1	-3
Compare to Event 5						-1	-1	-1	-1	-1	-1	-6
Compare to Event 6							-1	-1	1	-1	-1	-3
Compare to Event 7								1	1	1	1	4
Compare to Event 8									1	1	-1	1
Compare to Event 9										-1	-1	-2
Compare to Event 10											-1	-1

Mann-Kendall Statistic (S)	**-13**

90 % Confidence Mann-Kendall Statistic	**-17**

Table 6

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

W.G.Krummrich Facility PCB Mobility and Migration 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	Row
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	Total
Total PCBs, ug/L	5.18	1.90	ND	0.77	ND	0.86	0.76	0.39	0.92	1.3	0.71	
Compare to Event 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	-9
Compare to Event 3				1	NA	1	1	1	1	1	1	7
Compare to Event 4					-1	1	-1	-1	1	1	-1	-1
Compare to Event 5						1	1	1	1	1	1	6
Compare to Event 6							-1	-1	1	1	-1	-1
Compare to Event 7								-1	1	1	-1	0
Compare to Event 8									1	1	1	3
Compare to Event 9										1	-1	0
Compare to Event 10											-1	-1

Mann-Kendall Statistic (S)	**-6**

90 % Confidence Mann-Kendall Statistic	**-17**

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	Row
	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	4Q08	Total
Total PCBs, ug/L	0.34	0.10	2.07	0.33	0.50	0.35	0.23	0.27	0.44	0.27	
Compare to Event 1		-1	1	-1	1	1	-1	-1	1	-1	-1
Compare to Event 2			1	1	1	1	1	1	1	1	8
Compare to Event 3				-1	-1	-1	-1	-1	-1	-1	-7
Compare to Event 4					1	1	-1	-1	1	-1	0
Compare to Event 5						-1	-1	-1	-1	-1	-5
Compare to Event 6							-1	-1	1	-1	-2
Compare to Event 7								1	1	1	3
Compare to Event 8									1	1	2
Compare to Event 9										-1	-1

Mann-Kendall Statistic (S)	**-3**

90 % Confidence Mann-Kendall Statistic	**-15**

* Formerly known as PS MW-2

Appendix A

Groundwater Purging and Sampling Forms

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moon, M. Corbett
DATE: 11/ 18 /2008 WEATHER: 30s, fair
MONITORING WELL ID: PMAMW01S SAMPLE ID: PMAMW01S-[redacted]08

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 24.94 ft
Depth to Water (btoc): 12.35 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): 12.59 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 22.44 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 500 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 1500 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
500	0920	12.63	colorless	None	7.01	16.24	1.313	1.3	2.07	117.1
1000	0923	12.57			6.91	16.31	1.326	-0.3	1.48	112.1
1500	0926	12.47			6.94	16.46	1.350	-1.2	1.25	105.3
2000	0929	12.47			6.91	16.27	1.370	-3.3	0.93	100.6
2500	0932	12.47			6.91	16.35	1.371	-4.0	100	99.7
3000	0935	12.47			6.90	16.39	1.381	-4.6	0.79	98.4
4000	0938	12.47			6.93	17.01	1.396	-4.9	0.78	97.2
4500	0941	12.47	✓	✓	6.89	16.97	1.403	-5.1	0.76	96.3

Start Time: 0917
Stop Time: 0941
Elapsed Time: 24 min
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/ 18 /2008

SAMPLING DATA

Sample Date: 11/18 /2008
Sample Method: Stainless Steel Monsoon
Sample Time: 1000
Sample Flow Rate: 200
Analysis: Total PCBs
QA/QC: MS/MSD

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562047.00004
FIELD PERSONNEL: Mike Corbett, Sherry Moore
DATE: 11/18/2008
WEATHER: sunny, 35°
MONITORING WELL ID: PMAMW01M
SAMPLE ID: PMAMW01M-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 59.3 ft
Depth to Water (btoc): 13.55 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 54.3 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 45.95 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 56.80 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): ~~500~~ 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
0	1022	13.35	colorless	hydrocarbon	7.16	15.36	2.440	3.6	0.60	-119.1
1200	1028	↓	↓	↓	7.17	14.86	2.417	1.9	0.60	-122.0
2400	1034				7.16	14.66	2.374	2.1	0.42	-124.4
3600	1040				7.16	13.83	2.359	0.1	0.38	-123.6
4800	1046				7.16	14.88	2.322	-0.9	0.31	-126.5
6000	1052				7.17	15.13	2.297	-2.0	0.28	-131.8
7200	1058				7.16	15.46	2.273	-2.4	0.28	-133.2

Start Time: 1022
Stop Time: 1058
Elapsed Time: 36 min
Average Purge Rate (mL/min): 200 mL/min
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/18/2008

SAMPLING DATA

Sample Date: 11/18/2008
Sample Time: 1100
Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 200 mL/min
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S Moore, M. Corbett
DATE: 11/ 18 /2008 WEATHER: 30s, fair
MONITORING WELL ID: PMAMW02S SAMPLE ID: PMAMW02S-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 27.33 ft
Depth to Water (btoc): 14.75 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): 12.58 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.83 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ~~500~~ 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
400	1134	14.80	colorless	none	7.37	18.06	1.172	41.5	1.53	67.2
1600	1142	14.80	↓		7.22	17.50	1.163	32.7	0.84	56.6
2300	1145	14.80		↓	7.21	18.05	1.172	0.6	0.50	60.2
4000	1154	14.80			7.13	18.12	1.148	-2.0	0.48	64.8
5200	1200	14.80			7.19	14.32	1.168	-4.5	0.43	69.5
6400	1206	14.80	↓	↓	7.17	17.43	1.167	-4.7	0.43	73.1

Start Time: 1134
Stop Time: 1206
Elapsed Time: 32 min
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/ 18 /2008

SAMPLING DATA

Sample Date: 11/ 18 /2008
Sample Method: Stainless Steel Monsoon
Sample Time: 1215
Sample Flow Rate: 200
Analysis: Total PCBs
QA/QC: EB after this well (PMA MW02M-1108-EB)

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S Moss, N Perbet
DATE: 11/ 18 /2008 WEATHER: 30s, Sunny
MONITORING WELL ID: PMAMW02M SAMPLE ID: PMAMW02M-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 61.54 ft
Depth to Water (btoc): 15.05 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): 46.49 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 59.04 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): ~~500~~ 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
200	1232	15.05	Colorless	Slight PCB	7.30	16.57	2.197	55.5	2.17	-90.1
1400	1235	15.05			7.33	16.18	2.326	38.9	0.72	-117.2
2600	1244	15.05			7.33	16.07	2.302	19.9	0.57	-120.4
3800	1250	15.05			7.32	16.05	2.314	10.8	0.43	-123.0
5000	1256	15.05			7.28	16.17	2.296	6.0	0.33	-123.1
6200	1302	15.05			7.30	16.12	2.298	2.6	0.33	-123.5
7400	1308	15.05			7.31	16.14	2.300	0.5	0.29	-123.4

Start Time: 1230
Stop Time: 1308
Elapsed Time: 38 min
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/ 18 /2008

SAMPLING DATA

Sample Date: 11/ 18 /2008
Sample Method: Stainless Steel Monsoon
Sample Time: 1310
Sample Flow Rate: 200
Analysis: Total PCBs
QA/QC: DUP (PMAMW02M-1108-FD
EB before this well (PMAMW02M-1108-RD)

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moore, N Sattam
DATE: 11/ 18 /2008 WEATHER: 30s, windy
MONITORING WELL ID: PMAMW03S SAMPLE ID: PMAMW03S-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 27.40 ft
Depth to Water (btoc): 14.67 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 22.40 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 12.73 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is (4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.9 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are (4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ~~(500)~~ 11.50 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~(1500)~~ 34.50 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
300	0917	14.71	cloudy	chem. like	6.68	15.54	1.381	0.8	8.23	56.5
1500	0923	14.68	↓		7.00	15.65	1.453	22.7	1.23	-8.7
2700	0929	14.68	colorless		7.02	15.96	1.483	9.6	0.94	-10.2
3900	0935	14.68			7.03	16.04	1.491	6.3	0.53	-7.4
5100	0941	14.68			7.03	15.80	1.493	2.6	0.46	-2.3
6300	0947	14.68			7.02	15.70	1.494	1.8	0.47	-0.5
7500	0953	14.68	↓	↓	7.02	15.78	1.491	0.7	0.46	2.6

Start Time: 0915 Elapsed Time: 38 min Water Quality Meter ID: YSI 6920
Stop Time: 0953 Average Purge Rate (mL/min): 200 Date Calibrated: 11/ 19 /2008

SAMPLING DATA

Sample Date: 11/ 19 /2008 Sample Time: 1000 Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon Sample Flow Rate: 200 Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moon, V. Saltern
DATE: 11/19/2008 WEATHER: Cool Sunny
MONITORING WELL ID: PMAMW03M SAMPLE ID: PMAMW03M-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 61.81 ft
Depth to Water (btoc): 14.78 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 56.81 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): ~~47.14~~ 47.06 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is < 4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 35.78 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): 500 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 1500 3450 mL
Ambient PID/FID Reading: NM ppm
Wellbore PID/FID Reading: NM ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
200	1015	14.78	dark	Chemical	8.30	16.72	3.69	201.2	1.10	-27.8
1350	1020	14.80	dark		8.72	16.82	3.45	225.0	2.09	-145.5
2500	1025	14.80	dark		8.81	16.93	3.35	182.0	0.24	-159.4
3650	1030	14.80	dark		8.94	17.02	3.16	103.2	0.20	-178.8
4800	1035	14.80	dark		9.02	17.20	3.11	90.3	0.23	-182.8
5950	1040	14.80	dark		9.04	17.23	3.04	73.2	0.27	-188.9
7100	1045	14.80	dark		9.11	17.22	2.92 ~~0.24~~	64.7	0.20	-194.8
8250	1050	14.80	dark		9.18	17.28	2.93	60.4	0.17	-197.6
9400	1100	14.80			9.22	17.28	2.85	48.8	0.16	-202.6
10550	1105	14.80			9.26	17.33	2.81	43.6	0.15	-203.6
11600	1110	14.80			9.28	17.33	2.97	42.1	0.15	-207.3
12770	1115	14.80			9.27	17.32	2.29	41.7	0.15	-207.3

Start Time: 1015
Stop Time: 1115
Elapsed Time: 1 hr
Average Purge Rate (mL/min): 200 mL/min
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/19/2008

SAMPLING DATA

Sample Date: 11/19/2008
Sample Method: Stainless Steel Monsoon
Sample Time: 1115
Sample Flow Rate: 200 mL/m
Analysis: Total PCBs
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moore, N. Satam
DATE: 11/19/2008 WEATHER:
MONITORING WELL ID: PMAMW04S SAMPLE ID: PMAMW04S-1108

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 btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = ft btoc

Volume of Flow Through Cell): 500 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 1500 mL
Ambient PID/FID Reading: ppm
Wellbore PID/FID Reading: ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

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

Start Time: Elapsed Time: Water Quality Meter ID: YSI 6920
Stop Time: Average Purge Rate (mL/min): Date Calibrated: 11/ /2008

SAMPLING DATA

Sample Date: 11/ /2008 Sample Time: Analysis: Total PCBs
Sample Method: Stainless Steel Monsoon Sample Flow Rate: Date Calibrated: NA

COMMENTS:
Well not sampled for groundwater. Product sample collected (PMAMW-4S-1108-DNAPL) for total PCBs.

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moore, N. Sultan
DATE: 11/19/2008 WEATHER: 40s, windy
MONITORING WELL ID: ~~PSMW02~~ PMA MW04D SAMPLE ID: PSMW02-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): — ft
Constructed Well Depth (btoc): 73.50 ft
Depth to Water (btoc): 13.43 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 68.50 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 60.07 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 40.96 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): ~~500~~ 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3450 mL
Ambient PID/FID Reading: NM ppm
Wellbore PID/FID Reading: NM ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
700	1155	13.47	dark	chemical	8.04	16.83	2.075	600	2.25	-100.6
1350	1200	13.47			6.86	16.62	2.213	439.7	0.05	105.7
1355	1205	13.47			6.85	16.60	2.221	343.0	0.33	-116.7
2500	1210	13.47			6.84	16.64	2.223	325	0.30	-116.2
3650	1215	13.47			6.83	16.67	2.274	200.0	0.29	-117.9
4800	1220	13.47			6.84	16.70	2.320	84.6	0.28	-118.1
5050	1225	13.47			6.85	16.71	2.323	MR	0.27	-118.6
7100	1230	13.47	Clear		6.82	16.65	2.349	57.6	0.20	-118.4
8150	1235	13.47			6.81	16.63	2.362	33.4	0.19	-118.6
9200	1240				6.82	16.63	2.360	23.17	0.19	-118.2
10250	1245				6.82	16.68	2.380	34.6	0.18	-117.6
11600	1250				6.81	16.72	2.386	19.03	0.20	-117.6
12750	1255	13.47	Clear		6.81	16.73	2.386	18.0	0.21	-117.6

Start Time: 1155
Stop Time: 1200
Elapsed Time: 1 hr
Average Purge Rate (mL/min): 700 mL/hr
Water Quality Meter ID: YSI 6920
Date Calibrated: 6/19/2008

SAMPLING DATA

Sample Date: 11/19/2008
Sample Time: 1300
Analysis: PCBs, Dissolved PCBs (0.45 Micron filter), Dissolved PCBs (10 Micron filter)
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 200 ml/min
Date Calibrated: ~~NA~~ 11/19/08

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moore, M. Corbett
DATE: 11/18/2008 WEATHER: 30s, Sunny
MONITORING WELL ID: PMAMW05 SAMPLE ID: PMAMW05-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 57.05 ft
Constructed Well Depth (btoc): ~ ft
Depth to Water (btoc): 13.83 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): ft 52.05
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 43.22 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 54.55 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): ~~500~~ 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
400	1405	13.86	cloudy	none	7.33	17.87	2.344	20.3	1.06	-89.4
1600	1411	13.86			7.28	17.33	2.358	8.4	0.76	-113.2
2800	1417	13.86			7.27	16.95	2.338	5.2	0.49	-133.8
4000	1423	13.86			7.24	17.13	2.331	4.6	0.37	-143.8
5200	1429	13.86			7.24	16.66	2.338	3.5	0.40	-150.6
6400	1435	13.86			7.24	16.22	2.334	2.4	0.41	-153.1
7600	1441	13.86			7.23	16.44	2.335	2.2	0.39	-156.3

Start Time: 1402
Stop Time: 1441
Elapsed Time: 39 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/18/2008

SAMPLING DATA

Sample Date: 11/18/2008
Sample Method: Stainless Steel Monsoon
Sample Time: 1445
Sample Flow Rate: 200
Analysis: Total PCBs, ~~Dissolved PCBs (0.45 micron filter)~~ Sm
Date Calibrated: NA

COMMENTS:

LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality PROJECT NUMBER: 21562047.00004 FIELD PERSONNEL: S. Moon, M. Garrett
DATE: 11/18/2008 WEATHER: 30s, sunny
MONITORING WELL ID: PMAMW06 SAMPLE ID: PMAMW06-1108

INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 101.40 ft
Constructed Well Depth (btoc): — ft
Depth to Water (btoc): 10.86 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): ft 96.4
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 90.54 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 98.9 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell): ~~500~~ 1150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) ~~1500~~ 3450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Pump Type: Stainless Steel Monsoon

Purge Volume (mL)	Time	Depth to Water (ft)	Color	Odor	pH (±0.2 units)	Temp (°C)	Cond. (ms/cm) (±3 %)	Turbidity (NTUs)	DO (mg/l) (±10 % or ±2 mg/L)	ORP (mv) (±20 mV)
200	1522	10.86	cloudy	hydrocarbon	7.32	18.34	1.293	15.0	2.91	-104.4
1400	1528	10.86	colorless		7.13	17.78	1.325	0.9	0.90	-137.2
2600	1534	10.86			7.12	17.64	1.342	-1.2	0.56	-144.0
3800	1540	10.86			7.12	17.45	1.345	-2.4	0.56	-145.3
5000	1546	10.86			7.12	17.53	1.346	-2.7	0.43	-146.2
~~6200~~	~~1552~~	~~10.86~~	sm							

Start Time: 1516
Stop Time: 1546
Elapsed Time: 30 min
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 11/18/2008

SAMPLING DATA

Sample Date: 11/18/2008
Sample Time: 1550
Analysis: Total PCBs, ~~Dissolved PCBs (0.45 micron filter), PCBs Dissolved (10 micron filter)~~ sm
Sample Method: Stainless Steel Monsoon
Sample Flow Rate: 200
Date Calibrated: NA

COMMENTS:

Appendix B

Chains-of-Custody

Serial Number 011908

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: LGK PCB GW Quality	PROJECT NO.: 21562447.0004	PROJECT LOCATION (STATE): IL
TAL (LAB) PROJECT MANAGER: Layne Gulizia	P.O. NUMBER: —	CONTRACT NO.:
CLIENT (SITE) PM: T. Adams	CLIENT PHONE: 314-431-0110	CLIENT FAX: 314-431-0162
CLIENT NAME: URS	CLIENT E-MAIL: thomas.adams@urscorp.com	
CLIENT ADDRESS: 1001 Highlands Plaza Dr. W Ste 300 St. Louis, MO 63110		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT...)	REQUIRED ANALYSIS: PCB (Total)	REMARKS
11/18/08	1000	PMAMW01S-1108 ✓	G	X				2	
	1000	PMAMW01S-1108-MS ✓	G	X				2	
	1000	PMAMW01S-1108-MSD ✓	G	X				2	
	1100	PMAMW01M-1108 ✓	G	X				2	
	1215	PMAMW02S-1108 ✓	G	X				2	
	1230	PMAMW02M-1108-EB ✓	G	X				2	
	1310	PMAMW02M-1108 ✓	G	X				2	
	1310	PMAMW02M-1108-AD ✓	G	X				2	
	1445	PMAMW05-1108 ✓	G	X				2	
	1550	PMAMW06-1108 ✓	G	X				2	
11/19/08	1010	PMAMW03S-1108 ✓	G	X				2	
	1115	PMAMW03M-1108 ✓	G	X				2	

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

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KG	11/20/08	1009	YES ◯ NO ◯		680-42497	3.8/3.0/4.1

TAL8240-680 (1207)

Serial Number 011909

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

◯ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WGK & BGW Quarterly	21562447.0001	IL

TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
Lloyd Gulizia	—	—

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
J. Adams	314-429-6100	314-429-6460

CLIENT NAME	CLIENT E-MAIL
URS Corp	thomas.adams@urscorp.com

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

COMPANY CONTRACTING THIS WORK (if applicable): —

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS: PCB (Total)

PAGE 2 OF 2

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: None

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
11/19/08	1300	~~DATA~~ PSMW02-1108 ✓	G	X				2	

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

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
KS	11/20/08	1009	YES ◯ NO ◯		620 12497	3.3/3.5/4.1

TAL8240-680 (1207)

Serial Number 019044

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: BIG KPCB GW Quality	PROJECT NO: 21562047.00004	PROJECT LOCATION (STATE): IL	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: Lidya Gulizia	P.O. NUMBER: —	CONTRACT NO.: —	STANDARD REPORT DELIVERY ○
CLIENT (SITE) PM: J. Adams	CLIENT PHONE: 314-429-0100	CLIENT FAX: 314-429-0462	DATE DUE _____
CLIENT NAME: URS	CLIENT E-MAIL: thomas_adams@urscorp.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 1001 Highlands Plaza Dr. W Ste 300 St. Louis MO 63110			DATE DUE _____
COMPANY CONTRACTING THIS WORK (if applicable): —			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: nonvol Total PCB

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
11/19/08	1315	PMAMW-4S-1108-DNAPL	G				X	2	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/21/08	1800						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	112208	0950	YES ○ NO ○		68042580	0.4 EMP

TAL8240-680 (1207)

Appendix C

Quality Assurance Report

QUALITY ASSURANCE REPORT

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

PCB Groundwater Quality Assessment
4th Quarter 2008 Data Report

Prepared for

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

March 2009

URS Corporation
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1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in November 2008 at the Solutia W.G. Krummrich plant as part of the 4th Quarter 2008 PCB Groundwater Quality Assessment. The samples were collected by URS Corporation personnel and analyzed by Test America Laboratories located in Savannah, Georgia using USEPA methodologies. Samples were analyzed for polychlorinated biphenyls (PCBs).

One hundred percent of the data were subjected to a data quality review (Level III validation). The Level III validations were performed in order to confirm that the analytical data provided by Test America were acceptable in quality for their intended use.

A total of 14 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one matrix spike and matrix spike duplicate (MS/MSD) pair, and one equipment blank) were analyzed by Test America. These samples were analyzed as Sample Delivery Groups (SDGs) KPM026 and KPM027, utilizing the following USEPA Methods:

- Method 680 for PCBs

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999, and the PCB Groundwater Quality Assessment Work Plan, (Solutia 2008).

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

TABLE 1 Laboratory Data Qualifiers

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

TABLE 2 URS Data Qualifiers

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

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined to be the percentage of analytical results which are judged to be valid, including estimated detect (**J**) or estimated non-detect (**UJ**) values was 100 percent, which meets the completeness goal of 95 percent.

The data review included evaluation of the following criteria:

Organics

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

2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance. Upon review of the data, the cooler receipt form indicated that no problems were encountered by the laboratory. However, the COC was not signed or dated by URS personnel; therefore samples were not relinquished properly. Although the COC was not signed all samples were received by the laboratory and in good condition. No qualification of data was required.

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

3.0 LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

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

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. All analytes were not detected in the equipment blank samples.

4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. All samples analyzed for PCBs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Organic Data Review state how data is qualified, if surrogate spike recoveries do not meet evaluation criteria. Surrogate recoveries were

within evaluation criteria with the exception of those surrogates in data reviews discussed further in Appendix D. No qualifications of data were required due to surrogate recoveries.

5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. All LCS recoveries were within evaluation criteria. No qualification of data was required due to LCS recoveries.

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

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

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

Sample PMAMW01S-1108 was spiked and analyzed for PCBs. All MS/MSD recoveries were within evaluation criteria. No qualification of data was required due to MS/MSD recoveries.

7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within 2.5 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

One field duplicate sample was collected for the nine investigative samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). All field duplicate RPDs were within evaluation criteria.

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, in samples with the exception of the IS responses in the data reviews discussed further in Appendix D. No qualifications of data were required due to internal standard responses.

9.0 RESULTS REPORTED FROM DILUTIONS

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

Appendix D

Groundwater Analytical Results

(and Data Review Sheets)

SDG KPM026

Results of Samples from Wells:

PMAMW01S
PMAMW01M
PMAMW02S
PMAMW02M
PMAMW03S
PMAMW03M
PMAMW04D
PMAMW05M
PMAMW06D

Solutia Krummrich Data Review

Laboratory SDG: KPM026

Reviewer: Elizabeth Kunkel

Date Reviewed: 01/08/2009

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

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

Sample Identification #	Sample Identification #
PMAMW01S-1108	PMAMW01M-1108
PMAMW02S-1108	PMAMW02M-1108-EB
PMAMW02M-1108	PMAMW02M-1108-AD
PMAMW05-1108	PMAMW06-1108
PMAMW03S-1108	PMAMW03M-1108
PSMW02-1108	

1.0 Data Package Completeness

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

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

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

Although not noted in the laboratory case narrative, one internal standard recovery was outside evaluation criteria. This issue is addressed further in the appropriate section below.

The cooler receipt form did not indicate any problems. However, the COC was not signed or dated by URS personnel; therefore samples were not relinquished properly. Although the COC was not signed all samples were received by the laboratory and in good condition. No qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

Yes

Field ID	Parameter	Analyte	Qualification
N/A			

4.0 Blank Contamination

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

No

Blank ID	Parameter	Analyte	Concentration	Units
N/A				

Qualifications due to blank contamination are included in the table below.

Field ID	Parameter	Analyte	New RL	Qualification
N/A				

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

LCS ID	Parameter	Analyte	LCS/LCSD Recovery	RPD	LCS/LCSD/RPD Criteria
N/A					

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

Field ID	Parameter	Analyte	Qualification
N/A			

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

Field ID	Parameter	Surrogate	Recovery	Criteria
N/A				

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

Field ID	Parameter	Analyte	Qualification
N/A			

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

Yes, sample PMAMW01S was spiked with PCBs.

Were MS/MSD recoveries within evaluation criteria?

Yes

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery	RPD	MS/MSD/RPD Criteria
N/A					

Analytical data that required qualification based on MS/MSD data are included in the table below.

Field ID	Parameter	Analyte	Qualification
N/A			

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Field ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMAMW01M-1108	PCBs	Phenanthrene-d_{10}	**185082**	188975-350955

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

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

Field ID	Parameter	Analyte	Qualification
N/A			

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

Were laboratory duplicate sample RPDs within criteria?

N/A

Field ID	Parameter	Analyte	RPD	Criteria
N/A				

Data qualified due to outlying laboratory duplicate recoveries are identified below:

Field ID	Parameter	Analyte	Qualification
N/A			

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
PMAMW02M-1108	PMAMW02M-1108-AD

Were field duplicates within evaluation criteria?

Yes

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
N/A					

11.0 Sample Dilutions

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

Samples were not analyzed at a dilution.

The following table identifies the analyses which were reported as nondetect, diluted, and an undiluted run ***was not*** reported:

Field ID	Parameter	Dilution Factor
N/A		

12.0 Additional Qualifications

Were additional qualifications applied?

No

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-42497-1	PMAMW01S-1108	Water	11/18/2008 1000	11/20/2008 1009
680-42497-1MS	PMAMW01S-1108-MS	Water	11/18/2008 1000	11/20/2008 1009
680-42497-1MSD	PMAMW01S-1108-MSD	Water	11/18/2008 1000	11/20/2008 1009
680-42497-2	PMAMW01M-1108	Water	11/18/2008 1100	11/20/2008 1009
680-42497-3	PMAMW02S-1108	Water	11/18/2008 1215	11/20/2008 1009
680-42497-4EB	PMAMW02M-1108-EB	Water	11/18/2008 1230	11/20/2008 1009
680-42497-5	PMAMW02M-1108	Water	11/18/2008 1310	11/20/2008 1009
680-42497-6FD	PMAMW02M-1108-AD	Water	11/18/2008 1310	11/20/2008 1009
680-42497-7	PMAMW05-1108	Water	11/18/2008 1445	11/20/2008 1009
680-42497-8	PMAMW06-1108	Water	11/18/2008 1550	11/20/2008 1009
680-42497-9	PMAMW03S-1108	Water	11/19/2008 1000	11/20/2008 1009
680-42497-10	PMAMW03M-1108	Water	11/19/2008 1115	11/20/2008 1009
680-42497-11	~~PSMW02-1108~~ PMAMW04D-1108	Water	11/19/2008 1300	11/20/2008 1009

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW01S-1108**

Lab Sample ID: 680-42497-1
Client Matrix: Water

Date Sampled: 11/18/2008 1000
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/09/2008 2206
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

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

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW01M-1108**

Lab Sample ID: 680-42497-2
Client Matrix: Water

Date Sampled: 11/18/2008 1100
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/09/2008 2237
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.26		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW02S-1108**

Lab Sample ID: 680-42497-3
Client Matrix: Water

Date Sampled: 11/18/2008 1215
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/09/2008 2307
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

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

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW02M-1108-EB**

Lab Sample ID: 680-42497-4EB
Client Matrix: Water

Date Sampled: 11/18/2008 1230
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/09/2008 2338
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

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

Surrogate	%Rec	Acceptance Limits
Decachlorobiphenyl-13C12	76	25 - 113

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW02M-1108**

Lab Sample ID: 680-42497-5
Client Matrix: Water

Date Sampled: 11/18/2008 1310
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 0009
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	2.5		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW02M-1108-AD**

Lab Sample ID: 680-42497-6FD
Client Matrix: Water

Date Sampled: 11/18/2008 1310
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 1220
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-125023
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	2.7		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

Surrogate	%Rec	Acceptance Limits
Decachlorobiphenyl-13C12	66	25 - 113

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW05-1108**

Lab Sample ID: 680-42497-7
Client Matrix: Water

Date Sampled: 11/18/2008 1445
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 0111
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

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

Surrogate	%Rec	Acceptance Limits
Decachlorobiphenyl-13C12	64	25 - 113

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW06-1108**

Lab Sample ID: 680-42497-8
Client Matrix: Water

Date Sampled: 11/18/2008 1550
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 0142
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.43		0.097
Dichlorobiphenyl	0.097	U	0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW03S-1108**

Lab Sample ID: 680-42497-9
Client Matrix: Water

Date Sampled: 11/19/2008 1000
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 0214
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 500 mL
Final Weight/Volume: 0.5 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.24		0.10
Dichlorobiphenyl	0.10	U	0.10
Trichlorobiphenyl	0.10	U	0.10
Tetrachlorobiphenyl	0.20	U	0.20
Pentachlorobiphenyl	0.20	U	0.20
Hexachlorobiphenyl	0.20	U	0.20
Heptachlorobiphenyl	0.30	U	0.30
Octachlorobiphenyl	0.30	U	0.30
Nonachlorobiphenyl	0.50	U	0.50
DCB Decachlorobiphenyl	0.50	U	0.50

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

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: **PMAMW03M-1108**

Lab Sample ID: 680-42497-10
Client Matrix: Water

Date Sampled: 11/19/2008 1115
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 0244
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-124892
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 960 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.71		0.10
Dichlorobiphenyl	0.10	U	0.10
Trichlorobiphenyl	0.10	U	0.10
Tetrachlorobiphenyl	0.21	U	0.21
Pentachlorobiphenyl	0.21	U	0.21
Hexachlorobiphenyl	0.21	U	0.21
Heptachlorobiphenyl	0.31	U	0.31
Octachlorobiphenyl	0.31	U	0.31
Nonachlorobiphenyl	0.52	U	0.52
DCB Decachlorobiphenyl	0.52	U	0.52

Surrogate	%Rec	Acceptance Limits
Decachlorobiphenyl-13C12	46	25 - 113

Analytical Data

Client: Solutia Inc.

PMAMW040-1108

Job Number: 680-42497-1
Sdg Number: KPM026

Client Sample ID: ~~PSMW02-1108~~

Lab Sample ID: 680-42497-11
Client Matrix: Water

Date Sampled: 11/19/2008 1300
Date Received: 11/20/2008 1009

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 1.0
Date Analyzed: 12/10/2008 1601
Date Prepared: 11/25/2008 1653

Analysis Batch: 680-125023
Prep Batch: 680-123737

Instrument ID: GC/MS SemiVolatiles - F
Lab File ID: N/A
Initial Weight/Volume: 1030 mL
Final Weight/Volume: 1 mL
Injection Volume:

Analyte	Result (ug/L)	Qualifier	RL
Monochlorobiphenyl	0.15		0.097
Dichlorobiphenyl	0.12		0.097
Trichlorobiphenyl	0.097	U	0.097
Tetrachlorobiphenyl	0.19	U	0.19
Pentachlorobiphenyl	0.19	U	0.19
Hexachlorobiphenyl	0.19	U	0.19
Heptachlorobiphenyl	0.29	U	0.29
Octachlorobiphenyl	0.29	U	0.29
Nonachlorobiphenyl	0.49	U	0.49
DCB Decachlorobiphenyl	0.49	U	0.49

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

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-42497-1
Sdg Number: KPM026

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

SDG KPM027

Results of Sample from Well:

PMAMW04S

Solutia Krummrich Data Review

Laboratory SDG: KPM027

Reviewer: Elizabeth Kunkel

Date Reviewed: 01/08/2009

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

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

Sample Identification #
PMAMW-4S-1108-DNAPL

1.0 Data Package Completeness

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

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

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

Yes, the laboratory case narrative indicated that the sample was diluted due to high levels of target analytes. Also, one internal standard recovery was outside evaluation criteria. In addition, the PCB surrogate was diluted out and not recovered. These issues are addressed further in the appropriate sections below.

The cooler receipt form did not indicate any problems.

3.0 Holding Times

Were samples extracted/analyzed within QAPP limits?

Yes

Field ID	Parameter	Analyte	Qualification
N/A			

4.0 Blank Contamination

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

No

Blank ID	Parameter	Analyte	Concentration	Units
N/A				

Qualifications due to blank contamination are included in the table below.

Field ID	Parameter	Analyte	New RL	Qualification
N/A				

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

LCS ID	Parameter	Analyte	LCS/LCSD Recovery	RPD	LCS/LCSD/RPD Criteria
N/A					

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

Field ID	Parameter	Analyte	Qualification
N/A			

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

PCB surrogate Decachlorobiphenyl-13C12 was diluted out and not recovered in sample PMAMW-4S-1108-DNAPL. No qualification of data was required.

Field ID	Parameter	Surrogate	Recovery	Criteria
N/A				

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

Field ID	Parameter	Analyte	Qualification
N/A			

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

No

Were MS/MSD recoveries within evaluation criteria?

N/A

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery	RPD	MS/MSD/RPD Criteria
N/A					

Analytical data that required qualification based on MS/MSD data are included in the table below.

Field ID	Parameter	Analyte	Qualification
N/A			

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

No

Field ID	Parameter	Analyte	IS Area Recovery	IS Criteria
PMAM-4S-1108-DNAPL	PCBs	Phenanthrene-d_{10}	**257271**	133894 - 248660

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

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

Field ID	Parameter	Analyte	Qualification
N/A			

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

Were laboratory duplicate sample RPDs within criteria?

N/A

Field ID	Parameter	Analyte	RPD	Criteria
N/A				

Data qualified due to outlying laboratory duplicate recoveries are identified below:

Field ID	Parameter	Analyte	Qualification
N/A			

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

Field ID	Field Duplicate ID
N/A	

Were field duplicates within evaluation criteria?

N/A

Field ID	Field Duplicate ID	Parameter	Analyte	RPD	Qualification
N/A					

11.0 Sample Dilutions

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

Analytes were detected in the sample that was diluted.

The following table identifies the analyses which were reported as nondetect, diluted, and an undiluted run ***was not*** reported:

Field ID	Parameter	Dilution Factor
N/A		

12.0 Additional Qualifications

Were additional qualifications applied?

No

SAMPLE SUMMARY

Client: Solutia Inc.

Job Number: 680-42580-1
Sdg Number: KPM027

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-42580-1	PMAMW-4S-1108-DNAPL	Waste	11/19/2008 1315	11/22/2008 0950

SAMPLE RESULTS

Client: Solutia Inc.

Job Number: 680-42580-1
Sdg Number: KPM027

Client Sample ID: **PMAMW-4S-1108-DNAPL**

Lab Sample ID: 680-42580-1
Client Matrix: Waste

Date Sampled: 11/19/2008 1315
Date Received: 11/22/2008 0950

680 Polychlorinated Biphenyls (PCBs) (GC/MS)

Method: 680
Preparation: 680
Dilution: 500
Date Analyzed: 12/10/2008 1454
Date Prepared: 12/03/2008 2030

Analysis Batch: 680-125046
Prep Batch: 680-124352

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

Analyte	DryWt Corrected: N Result (ug/Kg)	Qualifier	RL
Monochlorobiphenyl	500000	U	500000
Dichlorobiphenyl	4300000		500000
Trichlorobiphenyl	25000000		500000
Tetrachlorobiphenyl	59000000		1000000
Pentachlorobiphenyl	46000000		1000000
Hexachlorobiphenyl	79000000		1000000
Heptachlorobiphenyl	73000000		1500000
Octachlorobiphenyl	11000000		1500000
Nonachlorobiphenyl	2600000	U	2600000
DCB Decachlorobiphenyl	2600000	U	2600000

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

DATA REPORTING QUALIFIERS

Client: Solutia Inc.

Job Number: 680-42580-1
Sdg Number: KPM027

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