SOLUTIA

*Solutions for a better life.*

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

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

May 26, 2009

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

VIA FEDEX

Re: PCB Groundwater Quality Assessment Program
1st Quarter 2009 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

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

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

Sincerely,

Gerald M. Rinaldi

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

**DISTRIBUTION LIST**

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

USEPA

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USEPA Region 5 - SR6J, 77 West Jackson Boulevard, Chicago, IL 60604

IEPA

Sandra Bron
IEPA Bureau of Land/FSRS, 1021 North Grand Avenue East, Springfield, IL 62706

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

Booz Allen Hamilton

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

Solutia

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

**1ST QUARTER 2009**
**DATA REPORT**

# PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM

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

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

May 2009

URS Corporation
1001 Highland Plaza Drive West, Suite 300
St. Louis, MO 63110
(314) 429-0100
**Project # 21562047.00003**

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## 1.0 INTRODUCTION

This report presents the results of the 1st Quarter 2009 (1Q09) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with the PCB Groundwater Quality Assessment Program Work Plan (Solutia 2008). The Site location map is presented in **Figure 1**.

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

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

Groundwater samples were collected from nine of the ten monitoring wells during the 1Q09 sampling event. A dense non-aqueous phase liquid (DNAPL) sample was collected from monitoring well PMAMW-4S based on the presence of DNAPL in the monitoring well during sampling.

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

## 2.0 FIELD PROCEDURES

URS Corporation (URS) conducted the 1Q09 PCB Groundwater Quality Assessment Program field activities February 23 through March 3, 2009.

**Groundwater Level Measurements** – On February 23 through 25, 2009, an oil/water interface probe was used to measure depth to static groundwater levels and determine the presence of non-aqueous phase liquids (NAPL) in the PCB Groundwater Quality Assessment Program well network. NAPL was only detected in monitoring well PMAMW04S. Depth to groundwater measurements were collected from accessible existing wells (i.e., GM-, K- , PSMW- and PMA-series) and piezometers clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750

Environmental Indicator projects) specified in the PCB Groundwater Quality Assessment Program Work Plan.

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

**Groundwater Sampling** - Low-flow sampling techniques were used for groundwater sample collection on February 27 and March 3, 2009. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate of 200 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

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

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

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

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

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

- **PMAMW# – Monitoring Well Location (PCB Manufacturing Area (PMA)) and Number**

- **MMYY – Month and year of sampling quarter**, **e.g.: February (First quarter), 2009 (0209)**
- **QAC – will denote QA/QC samples (when applicable):**
  - **EB- equipment blank**
  - **AD- analytical duplicate**
  - **MS or MSD – Matrix Spike or Matrix Spike Duplicate**

**DNAPL Sampling** – An interface probe detected 0.4 feet of DNAPL in monitoring well PMAMW-4S during monitoring well gauging prior to sampling. Consequently, a DNAPL sample was collected. Using the same process as groundwater sampling, DNAPL was pumped through polyethylene tubing into a 4 ounce glass sample container. Sample PMAMW04S-0209-DNAPL was submitted to TestAmerica for Total PCB analysis by EPA Method 680.

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

## 3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for PCBs using Method 680.

## 4.0 QUALITY ASSURANCE

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

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

Evaluation of the analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, (USEPA, 1999) and the PCB Water Quality Assessment Work Plan (Solutia 2008). Based on the above mentioned criteria, results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, LCS, surrogate and field duplicate data were achieved for these SDGs to meet the project objectives. Completeness, which is defined to be the percentage of analytical results which are judged to be valid, including estimated (**J/UJ**) data was 100 percent.

## 5.0 OBSERVATIONS

This section presents a brief summary of the groundwater analytical results from the 1Q09 PCB Groundwater Quality Assessment sampling event. A summary of the laboratory results is provided in **Table 2** and the entire laboratory data package is provided in **Appendix D.**

### Shallow Hydrogeologic Unit

A DNAPL sample was collected from source area SHU monitoring well PMAMW04S, and total PCBs were detected at a concentration of 224,400,000 µg/kg. Historically, measurable DNAPL has been observed in PMAMW04S during previous sampling events.

Of the three down-gradient PCB Groundwater Quality Assessment Program SHU monitoring wells (PMAMW-1S through PMAMW-3S), PCBs were only detected in monitoring well PMAMW-3S, at a concentration of 0.79 µg/L. These data indicate that PCBs in the SHU attenuated over the 300 to 400 ft distance between PMAMW04S and the three downgradient monitoring wells. PCB sampling results for the SHU are presented on **Figure 4**.

### Middle/Deep Hydrogeologic Unit

Laboratory analytical results for monitoring well PMAMW04D located in the Former PCB Manufacturing Area indicated a total PCB concentration of 2.73 µg/L for the 1Q09 sampling event. PCBs were also detected in four of the five downgradient monitoring wells at concentrations of 0.16 µg/L (PMAMW-1M), 2.9 µg/L (PMAMW-2M)/( 2.0 µg/L duplicate), 1.4 µg/L (PMAMW-3M), and 0.32 µg/L (PMAMW-6D). PCBs were not detected in the groundwater sample collected from monitoring well PMAMW-5M. **Figure 5** displays the 1Q09 PCB sampling results for the MHU/DHU.

The 1Q09 sampling event is the third event conducted under the PCB Groundwater Quality Assessment Program. Mann-Kendall trend analyses of total PCBs in unfiltered samples of groundwater from monitoring wells within (PMAMW-4D) or downgradient of (PMAMW-1M, -2M, -3S, and -3M) the former PCB Manufacturing Area are presented in **Tables 3** through **7**. No statistically significant trends in PCB concentrations were observed.

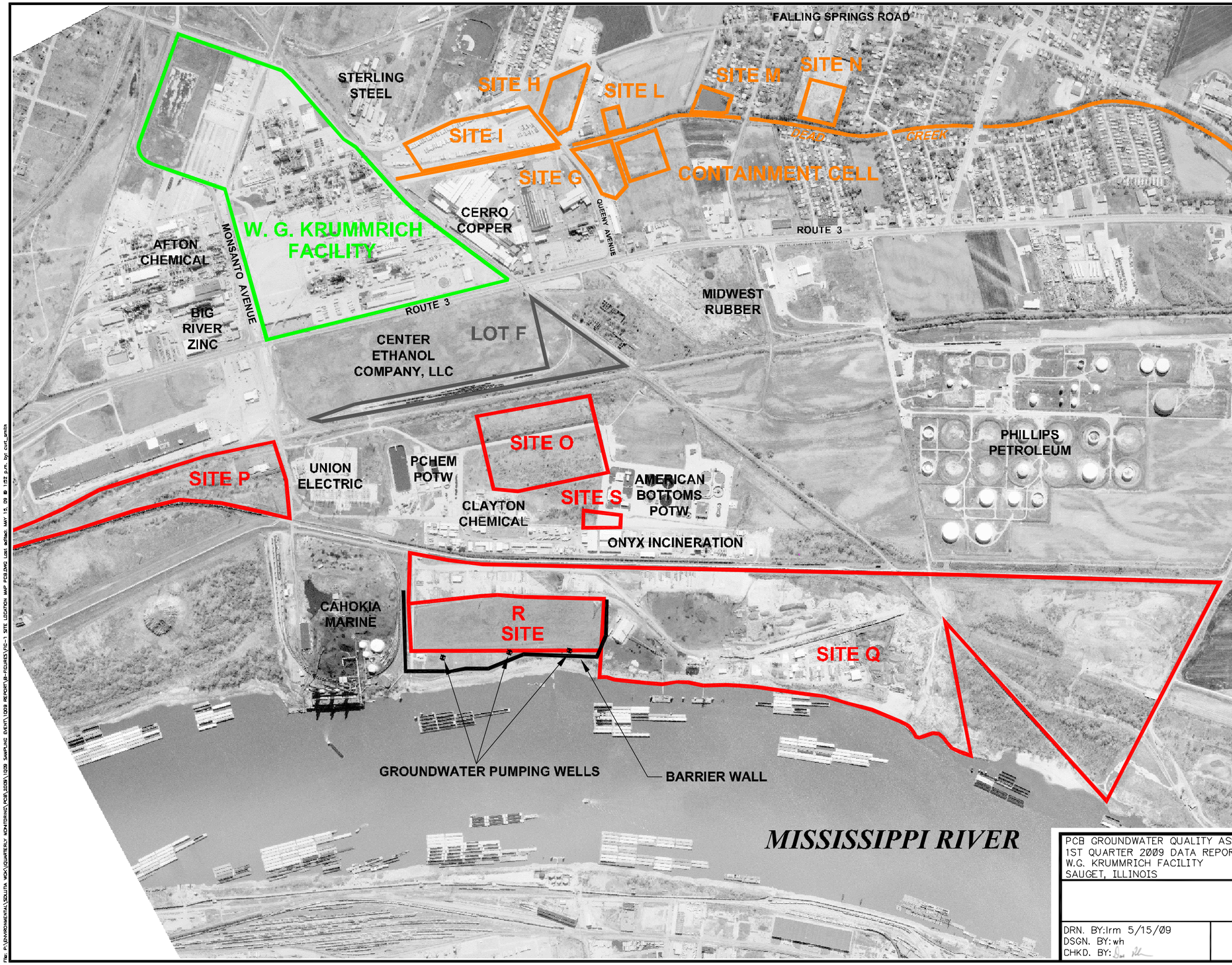
After eight quarters of sampling under the PCB Groundwater Quality Assessment Program, the Mann-Whitney U Test will be performed to determine whether or not concentrations in the second four quarters were higher or lower than the first four quarters. Linear regression analysis will be done for the eight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

## 6.0 REFERENCES

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

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

# Figures




LEGEND

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

0 1000

SCALE FEET

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

PROJECT NO. 21562156

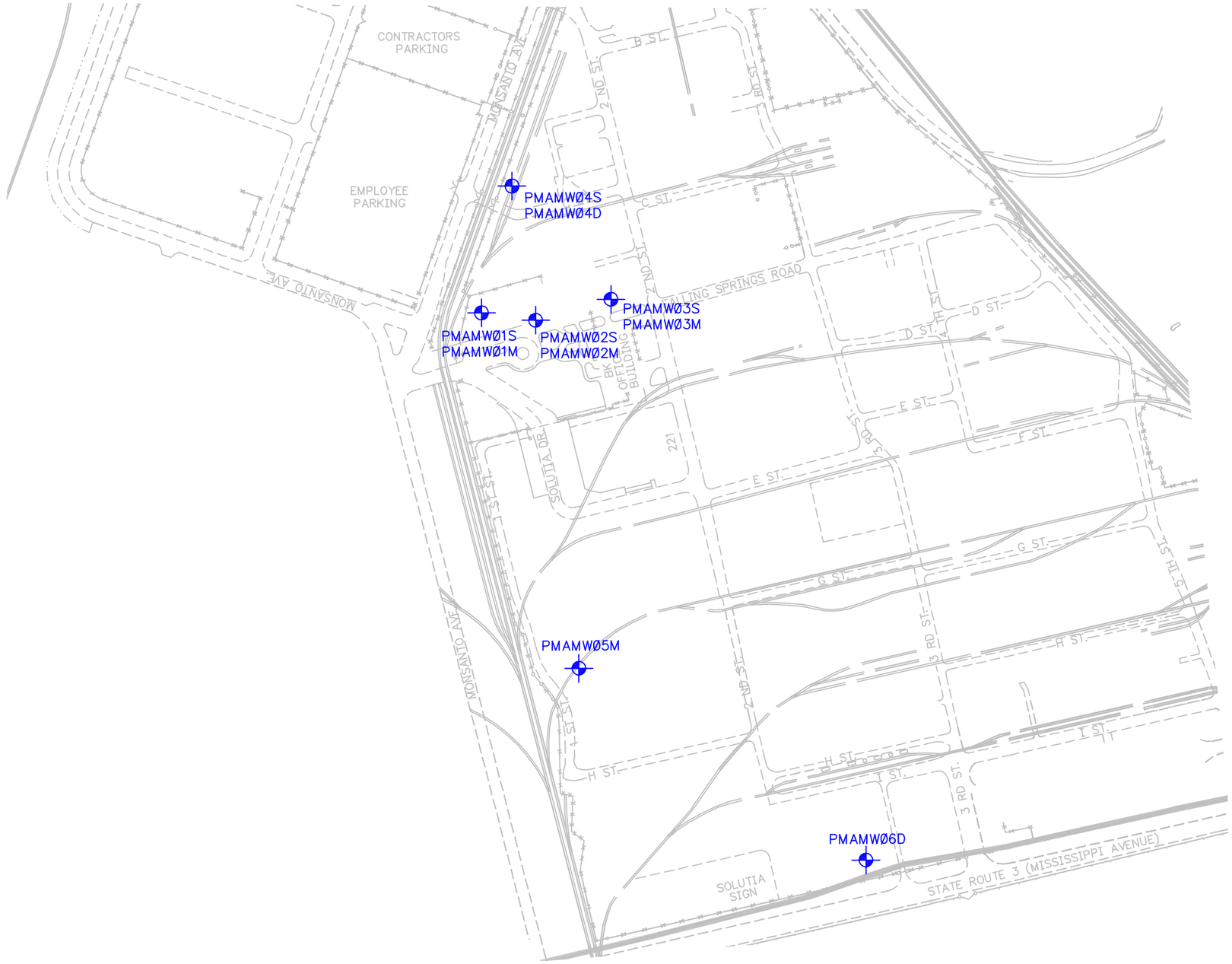
URS

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

Site Location Map

FIG. NO. 1

File: P:\ENVIRONMENTAL\SOLUTN MGMT\QUARTERLY MONITORING\PCB\2009\1Q09 SAMPLING EVENT\1Q09 REPORT\B-FIGURES\FIG-1 SITE LOCATION MAP PCB.DWG Last edited: MAY 15, 09 @ 1:52 p.m. by: curt_smith

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MONITORING WELL LOCATION

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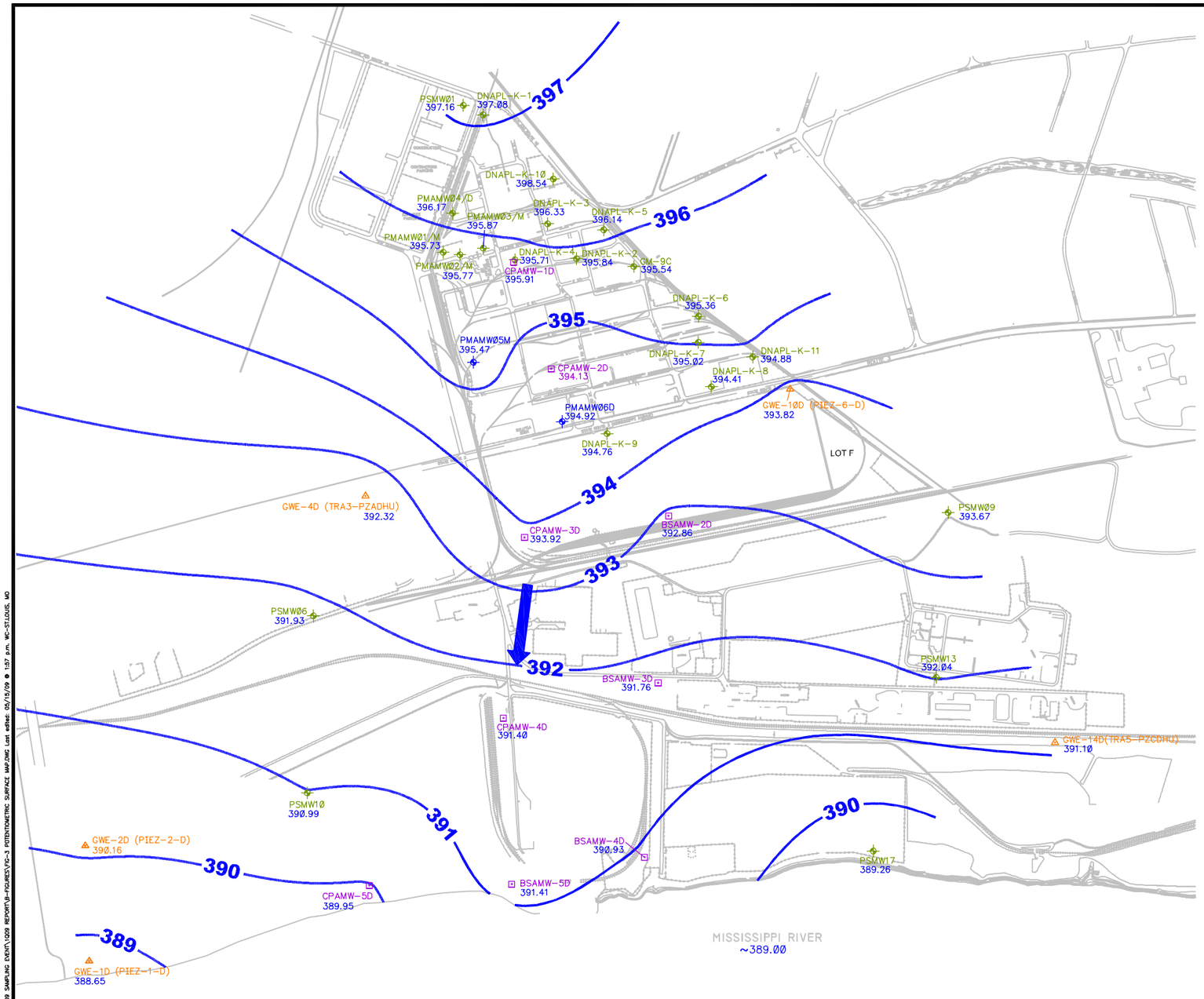
| | | |
|---|---|---|
| PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM<br>1ST QUARTER 2009 DATA REPORT<br>W.G. KRUMMRICH FACILITY<br>SAUGET, ILLINOIS | | PROJECT NO.<br>21562156 |
| URS | | |
| DRN. BY: lrm 5/15/09<br>DSGN. BY: ekf<br>CHKD. BY: | Former PCB Manufacturing Area<br>Monitoring Well Locations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

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

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

NOTES:

1. GROUNDWATER LEVELS WERE MEASURED FEBRUARY 23-25, 2009.
2. CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND.
3. WELLS/PIEZOMETERS SHOWN IN GRAYSCALE WERE NOT USED FOR CONTOURING.
4. THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE TIME OF THE GAUGING EVENT. THE INFORMATION WAS OBTAINED FROM THE SITE R BUBBLER.
5. THE POTENTIOMETRIC SURFACE OBSERVED AROUND SITE R MAY BE ASSOCIATED WITH THE OPERATION OF THE SA2 GMCS.
6. NEITHER THE PHYSICAL NOR THE HYDROLOGIC BARRIERS CREATED BY THE SA2 GMCS WERE INCORPORATED INTO THE DEVELOPMENT OF THESE CONTOURS.
7. LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.

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

PROJECT NO. 21562156

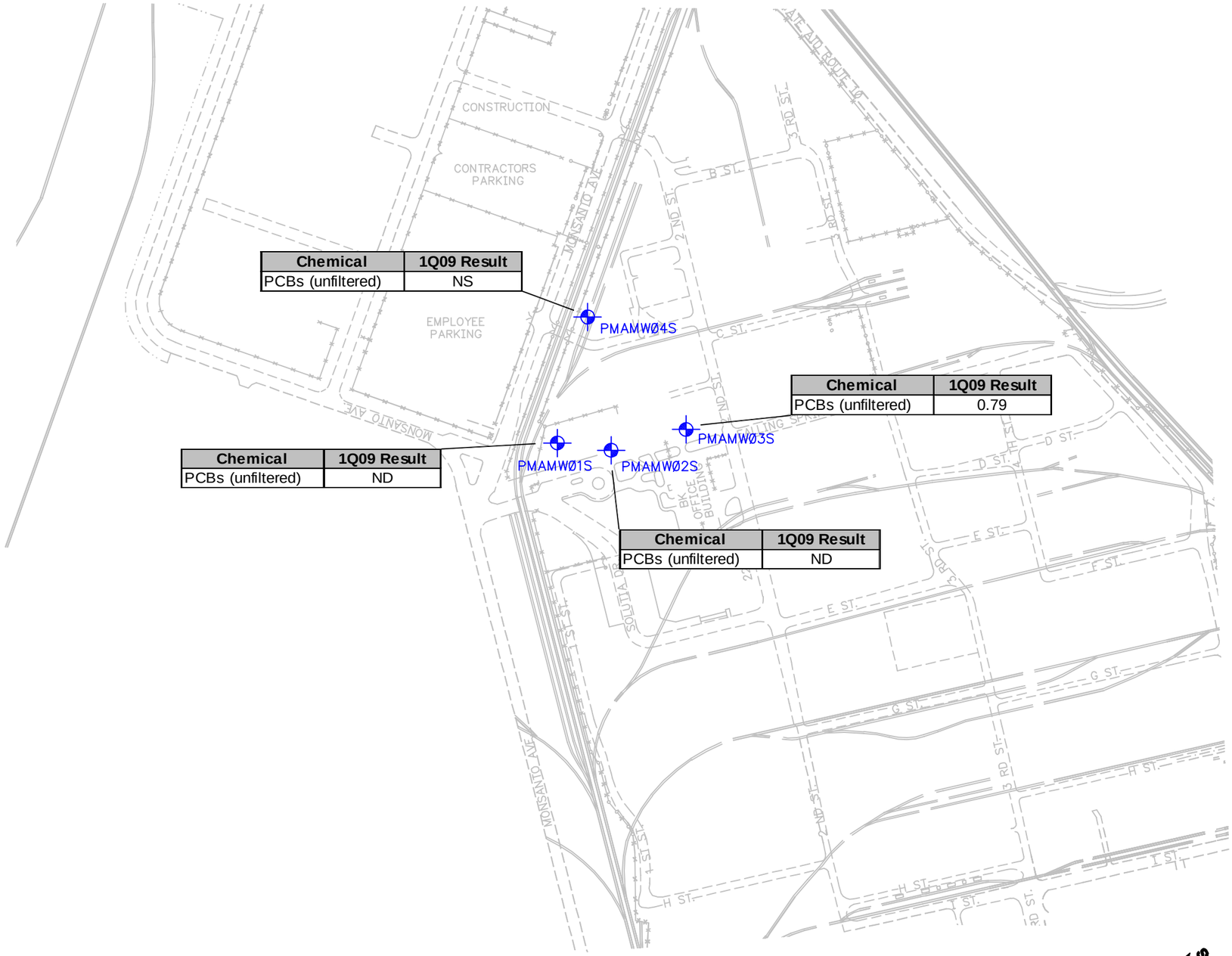
URS

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

Potentiometric Surface Map
Middle/Deep Hydrogeologic Unit

FIG. NO. 3

File: P:\ENVIRONMENTAL\SOLUTN MGR\QUARTERLY MONITORING\PCB\2009\2009 SAMPLING EVENT\2009 REPORT\B-FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 05/15/09 @ 1:57 p.m. WC-STLOUIS, MO




| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | NS |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 0.79 |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | ND |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | ND |

LEGEND

MONITORING WELL LOCATION

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 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 1Q09 SAMPLING EVENT.

N E S W

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

PROJECT NO. 21562156

URS

DRN. BY: lrm 5/21/09
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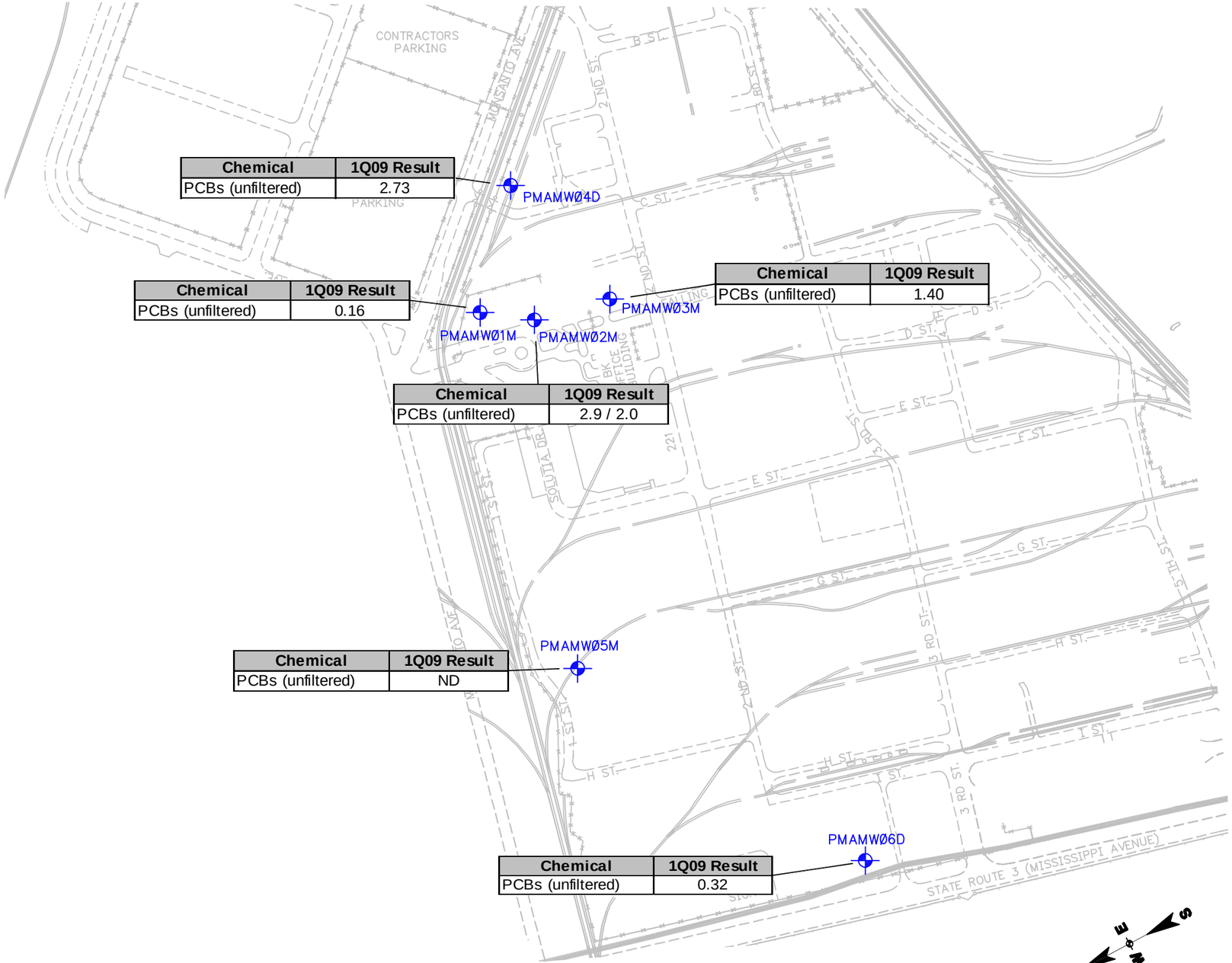
PCB Results – SHU Wells

FIG. NO. 4

File: P:\ENVIRONMENTAL\SOUTH WGK\QUARTERLY MONITORING\PCB\2009\1Q09 SAMPLING EVENT\1Q09 REPORT\B-FIGURES\FIG-4 TOTAL PCBS SHU WELLS.DWG Last edited: MAY 21, 09 @ 4:59 p.m. by: curt_smith




| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 2.73 |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 1.40 |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 0.16 |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 2.9 / 2.0 |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | ND |

| Chemical | 1Q09 Result |
|---|---|
| PCBs (unfiltered) | 0.32 |

LEGEND

MONITORING WELL LOCATION

NOTES:

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 68Ø HOMOLOGS.
2. RESULTS ARE SHOWN IN ug/L.
3. ND DENOTES NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE

Ø 3ØØ
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PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
1ST QUARTER 2ØØ9 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

PROJECT NO. 21562156

URS

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

PCB Results – MHU/DHU Wells

FIG. NO. 5

File: P:\ENVIRONMENTAL\SOLUTIA WGK\QUARTERLY MONITORING\PCB\2009\1Q09 SAMPLING EVENT\1Q09 REPORT\B-FIGURES\FIG-5 TOTAL PCBS MHU-DHU WELLS.DWG Last edited: MAY 15, 09 @ 1:59 p.m. by: curt_smith

# Tables

See last page of table for notes.

# Table 1
## Monitoring Well Gauging Information

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

See last page of table for notes.

# Table 1
## Monitoring Well Gauging Information

| Well ID | Construction Details | | | | | | February 23-25, 2009 | | | | Area |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ground Elevation (feet)* | Casing Elevation* (feet) | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Top of Screen Elevation* (feet) | Bottom of Screen Elevation* (feet) | Depth to Water (feet btoc) | Depth to Product (feet btoc) | Depth to Bottom (feet btoc) | Water Elevation* (feet) | |
| **Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock) (continued)** | | | | | | | | | | | |
| GWE-1D (PIEZ-1D) | 412.80 | 415.60 | 117 | 127 | 295.80 | 285.80 | 26.95 | -- | 128.72 | 388.65 | Sauget Area 2 |
| GWE-2D (PIEZ-2D) | 417.45 | 417.14 | 127 | 137 | 290.45 | 280.45 | 26.98 | -- | 136.95 | 390.16 | Sauget Area 2 |
| GWE-4D (TRA3-PZADHU) | 406.05 | 405.74 | 74 | 80 | 332.05 | 326.05 | 13.42 | -- | 78.91 | 392.32 | WGK |
| GWE-10D (PIEZ-6D) | 410.15 | 412.87 | 102.5 | 112.5 | 307.65 | 297.65 | 19.05 | -- | 115.00 | 393.82 | Lot F |
| GWE-14D (TRA5-PZCDHU) | 420.47 | 422.90 | 90 | 96 | 330.47 | 324.47 | 31.80 | -- | 97.18 | 391.10 | WGK |
| PMAMW04D | 411.22 | 410.88 | 68.84 | 73.84 | 342.38 | 337.38 | 14.71 | -- | 73.45 | 396.17 | WGK |
| PMAMW06D | 407.63 | 407.32 | 96.49 | 101.49 | 311.14 | 306.14 | 12.40 | -- | 101.41 | 394.92 | WGK |
| PSMW06 | 404.11 | 406.63 | 99.80 | 104.80 | 304.31 | 299.31 | 14.70 | -- | 109.98 | 391.93 | WGK |
| PSMW09 | 403.92 | 403.52 | 100.40 | 105.40 | 303.52 | 298.52 | 9.85 | -- | 105.31 | 393.67 | WGK |
| PSMW10 | 409.63 | 412.18 | 101.23 | 106.23 | 308.40 | 303.40 | 21.19 | -- | 111.45 | 390.99 | WGK |
| PSMW13 | 405.80 | 405.53 | 106.08 | 111.08 | 299.72 | 294.72 | 13.49 | -- | 110.88 | 392.04 | WGK |
| PSMW17 (BWMW-4D) | 420.22 | 423.26 | 121.25 | 126.25 | 298.97 | 293.97 | 34.00 | -- | 134.20 | 389.26 | WGK |

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

## Table 2
## Groundwater and DNAPL Analytical Detections

| Sample ID | Sample Date | Units | Monochlorobiphenyl (ug/L) | Dichlorobiphenyl (ug/L) | Trichlorobiphenyl (ug/L) | Tetrachlorobiphenyl (ug/L) | Pentachlorobiphenyl (ug/L) | Hexachlorobiphenyl (ug/L) | Heptachlorobiphenyl (ug/L) | Octachlorobiphenyl (ug/L) | Nonachlorobiphenyl (ug/L) | Decachlorobiphenyl (ug/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Shallow Hydrologic Unit** | | | | | | | | | | | | |
| PMAMW01S-0209 | 2/27/2009 | µg/L | <0.097 | <0.097 | <0.097 | <0.19 | <0.19 | <0.19 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW02S-0209 | 2/27/2009 | µg/L | <0.097 | <0.097 | <0.097 | <0.19 | <0.19 | <0.19 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW03S-0209 | 3/3/2009 | µg/L | **0.67** | **0.12** | <0.097 | <0.19 | <0.19 | <0.19 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW-4S-0209-DNAPL | 3/3/2009 | µg/kg | <200,000 | **3,400,000** | **20,000,000** | **51,000,000** | **36,000,000** | **62,000,000** | **42,000,000** | **10,000,000** | <1,000,000 | <1,000,000 |
| **Middle / Deep Hydrologic Unit** | | | | | | | | | | | | |
| PMAMW01M-0209 | 2/27/2009 | µg/L | **0.16** | <0.098 | <0.098 | <0.2 | <0.2 | <0.2 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW02M-0209 | 2/27/2009 | µg/L | **2.0 J** | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.3 | <0.3 | <0.5 | <0.5 |
| PMAMW02M-0209-AD | 2/27/2009 | µg/L | **2 J** | <0.1 | <0.1 | <0.2 | <0.2 | <0.2 | <0.3 | <0.3 | <0.5 | <0.5 |
| PMAMW03M-0209 | 3/3/2009 | µg/L | **1.4** | <0.097 | <0.097 | <0.19 | <0.19 | <0.19 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW04D-0209 | 3/3/2009 | µg/L | **0.20** | **0.21** | **0.11** | **0.54** | **0.38** | **0.79** | **0.5** | <0.29 | <0.49 | <0.49 |
| PMAMW05M-0209 | 2/27/2009 | µg/L | <0.098 | <0.098 | <0.098 | <0.2 | <0.2 | <0.2 | <0.29 | <0.29 | <0.49 | <0.49 |
| PMAMW06D-0209 | 2/27/2009 | µg/L | **0.32** | <0.098 | <0.098 | <0.2 | <0.2 | <0.2 | <0.29 | <0.29 | <0.49 | <0.49 |

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

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

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

| | |
|---|---|
| **Mann-Kendall Statistic (S)** | **11** |

| | |
|---|---|
| **90 % Confidence Mann-Kendall Statistic** | **20** |

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

| W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-2M Mann-Kendall Trend Analysis | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Event 1 2Q06 | Event 2 3Q06 | Event 3 4Q06 | Event 4 1Q07 | Event 5 2Q07 | Event 6 3Q07 | Event 7 4Q07 | Event 8 1Q08 | Event 9 2Q08 | Event 10 3Q08 | Event 11 4Q08 | Event 12 1Q09 | Row Total |
| **Total PCBs, µg/L** | 2.3 | 2.4 | 2.8 | 2.1 | 3.3 | 2.5 | 3.1 | 1.7 | 3.0 | 4.3 | 2.5 | 2.9 | |
| Compare to Event 1 | | 1 | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 7 |
| Compare to Event 2 | | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 6 |
| Compare to Event 3 | | | | -1 | 1 | -1 | 1 | -1 | 1 | 1 | -1 | 1 | 1 |
| Compare to Event 4 | | | | | 1 | 1 | 1 | -1 | 1 | 1 | 1 | 1 | 6 |
| Compare to Event 5 | | | | | | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -5 |
| Compare to Event 6 | | | | | | | 1 | -1 | 1 | 1 | 1 | 1 | 4 |
| Compare to Event 7 | | | | | | | | -1 | -1 | 1 | -1 | -1 | -3 |
| Compare to Event 8 | | | | | | | | | 1 | 1 | 1 | 1 | 4 |
| Compare to Event 9 | | | | | | | | | | 1 | -1 | -1 | -1 |
| Compare to Event 10 | | | | | | | | | | | -1 | -1 | -2 |
| Compare to Event 11 | | | | | | | | | | | | 1 | 1 |

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

| | |
|---|---|
| **90 % Confidence Mann-Kendall Statistic** | **20** |

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

| W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3S Mann-Kendall Trend Analysis | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Event 1 2Q06 | Event 2 3Q06 | Event 3 4Q06 | Event 4 1Q07 | Event 5 2Q07 | Event 6 3Q07 | Event 7 4Q07 | Event 8 1Q08 | Event 9 2Q08 | Event 10 3Q08 | Event 11 4Q08 | Event 12 1Q09 | Row Total |
| **Total PCBs, µg/L** | 0.66 | 0.32 | 0.20 | 0.35 | 0.80 | 0.30 | 0.21 | 0.25 | 0.64 | 0.26 | 0.24 | 0.79 | |
| Compare to Event 1 | | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -7 |
| Compare to Event 2 | | | -1 | 1 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | 1 | -2 |
| Compare to Event 3 | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Compare to Event 4 | | | | | 1 | -1 | -1 | -1 | 1 | -1 | -1 | 1 | -2 |
| Compare to Event 5 | | | | | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -7 |
| Compare to Event 6 | | | | | | | -1 | -1 | 1 | -1 | -1 | 1 | -2 |
| Compare to Event 7 | | | | | | | | 1 | 1 | 1 | 1 | 1 | 5 |
| Compare to Event 8 | | | | | | | | | 1 | 1 | -1 | 1 | 2 |
| Compare to Event 9 | | | | | | | | | | -1 | -1 | 1 | -1 |
| Compare to Event 10 | | | | | | | | | | | -1 | 1 | 0 |
| Compare to Event 11 | | | | | | | | | | | | 1 | 1 |

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

| | |
|---|---|
| **90 % Confidence Mann-Kendall Statistic** | **-20** |

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

| W.G.Krummrich Facility PCB Mfg. Area Monitoring Well MW-3M Mann-Kendall Trend Analysis | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Event 1 2Q06 | Event 2 3Q06 | Event 3 4Q06 | Event 4 1Q07 | Event 5 2Q07 | Event 6 3Q07 | Event 7 4Q07 | Event 8 1Q08 | Event 9 2Q08 | Event 10 3Q08 | Event 11 4Q08 | Event 12 1Q09 | Row Total |
| **Total PCBs, µg/L** | 5.18 | 1.90 | ND | 0.77 | ND | 0.86 | 0.76 | 0.39 | 0.92 | 1.3 | 0.71 | 1.4 | |
| Compare to Event 1 | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -11 |
| Compare to Event 2 | | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -10 |
| Compare to Event 3 | | | | 1 | NA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 |
| Compare to Event 4 | | | | | -1 | 1 | -1 | -1 | 1 | 1 | -1 | 1 | 0 |
| Compare to Event 5 | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 7 |
| Compare to Event 6 | | | | | | | -1 | -1 | 1 | 1 | -1 | 1 | 0 |
| Compare to Event 7 | | | | | | | | -1 | 1 | 1 | -1 | 1 | 1 |
| Compare to Event 8 | | | | | | | | | 1 | 1 | 1 | 1 | 4 |
| Compare to Event 9 | | | | | | | | | | 1 | -1 | 1 | 1 |
| Compare to Event 10 | | | | | | | | | | | -1 | 1 | 0 |
| Compare to Event 11 | | | | | | | | | | | | 1 | 1 |

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

| | |
|---|---|
| **90 % Confidence Mann-Kendall Statistic** | **20** |

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

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

| | |
|---|---|
| **Mann-Kendall Statistic (S)** | **7** |

| | |
|---|---|
| **90 % Confidence Mann-Kendall Statistic** | **18** |

# Appendix A

# Groundwater Purging and Sampling Forms

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

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

## INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 59.30 ft
Constructed Well Depth (btoc): 59.30 ft
Depth to Water (btoc): 14.58 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 54.30 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 44.72 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 56.80 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.3 ppm

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.1 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1055 | 14.58 | colorless | hydrocarbon | 6.90 | 14.23 | 2.153 | 2.2 | 7.76 | -122.8 |
| 1200 | 1101 | ↓ | ↓ | ↓ | 6.87 | 14.47 | 2.266 | 0.7 | 9.14 | -148.2 |
| 2400 | 1107 | | | | 6.87 | 14.75 | 2.285 | 1.8 | 9.83 | -156.6 |
| 3600 | 1113 | | | | 6.90 | 14.74 | 2.286 | 1.3 | 12.34 | -160.6 |
| 4800 | 1119 | | | | 6.90 | 14.74 | 2.290 | 0.1 | 12.57 | -164.3 |
| 6000 | 1125 | | | | 6.90 | 14.74 | 2.297 | -1.2 | 12.96 | -165.1 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09
WEATHER: overcast, 37°
MONITORING WELL ID: PMAMW01S
SAMPLE ID: PMAMW01S-0209, PMAMW01S-0209-MS, PMAMW01S-0209-MSD

## INITIAL DATA

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

Water Column Height (do not include LNAPL or DNAPL): 10.88 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 22.44 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

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

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.1 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0955 | 14.32 | colorless | none | 6.47 | 15.08 | 1.457 | 0.5 | 9.90 | 152.7 |
| 1200 | 1001 | 14.28 | ↓ | ↓ | 6.54 | 15.18 | 1.461 | -0.4 | 10.58 | 133.8 |
| 2400 | 1007 | 14.25 | ↓ | ↓ | 6.53 | 15.17 | 1.493 | -1.6 | 10.69 | 117.3 |
| 3600 | 1013 | 14.25 | ↓ | ↓ | 6.53 | 15.26 | 1.500 | -1.8 | 10.48 | 112.6 |
| 4800 | 1019 | 14.25 | ↓ | ↓ | 6.52 | 15.11 | 1.508 | -1.8 | 10.33 | 109.0 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09
WEATHER: Overcast, 38°
MONITORING WELL ID: PMAMW02M
SAMPLE ID: PMAMW02M-0209, PMAMW02M-0209-AD

## INITIAL DATA

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

Water Column Height (do not include LNAPL or DNAPL): 45.18 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 59.04 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

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

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.1 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1250 | 16.48 | colorless | hydrocarbon | 7.17 | 15.15 | 1.870 | 8.8 | 6.28 | -68.4 |
| 1200 | 1256 | ↓ | ↓ | ↓ | 7.13 | 14.49 | 2.036 | 9.3 | 6.08 | -114.5 |
| 2400 | 1302 | | | | 7.11 | 14.56 | 2.051 | 8.6 | 8.20 | -145.4 |
| 3600 | 1308 | | | | 7.13 | 14.60 | 2.059 | 5.4 | 8.49 | -151.8 |
| 4800 | 1314 | | | | 7.14 | 14.70 | 2.067 | 1.1 | 10.88 | -158.6 |
| 6000 | 1320 | | | | 7.14 | 14.70 | 2.068 | 0.5 | 11.25 | -161.9 |
| 7200 | 1326 | | | | 7.13 | 14.68 | 2.069 | 0.1 | 11.11 | -166.3 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

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

## INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.35 ft
Constructed Well Depth (btoc): 27.33 ft
Depth to Water (btoc): 16.10 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 22.33 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 11.18 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is (4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.83 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are ( 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

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

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.1 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1200 | 16.10 | colorless | none | 6.97 | 15.53 | 1.310 | 6.3 | 7.78 | -29.6 |
| 1200 | 1206 | ↓ | ↓ | ↓ | 6.83 | 15.58 | 1.321 | 2.8 | 8.55 | -21.1 |
| 2400 | 1212 | | | | 6.81 | 15.74 | 1.321 | 1.1 | 8.81 | -15.1 |
| 3600 | 1218 | | | | 6.79 | 15.97 | 1.321 | 0.0 | 9.00 | -8.5 |
| 4800 | 1224 | | | | 6.78 | 15.99 | 1.324 | -0.8 | 8.68 | -3.0 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562256.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09
WEATHER: partly cloudy, 39°
MONITORING WELL ID: PMAMW03M
SAMPLE ID: PMAMW03M-0209

## INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 61.81 ft
Constructed Well Depth (btoc): 61.81 ft
Depth to Water (btoc): 16.40 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 56.81 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 45.41 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 59.31 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

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

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.2 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1410 | 16.40 | brown | hydrocarbon | 9.07 | 15.30 | 2.319 | 114.7 | 3.88 | -91.2 |
| 1200 | 1416 | ↓ | ↓ | ↓ | 9.12 | 15.43 | 2.310 | 100.6 | 2.32 | -109.3 |
| 2400 | 1422 | | | | 9.12 | 15.51 | 2.313 | 75.7 | 8.66 | -130.2 |
| 3600 | 1428 | | | | 9.24 | 15.30 | 2.315 | 48.3 | 8.07 | -146.9 |
| 4800 | 1434 | | | | 9.26 | 15.80 | 2.316 | 30.7 | 7.89 | -154.0 |
| 6000 | 1440 | | | | 9.24 | 15.87 | 2.317 | 23.0 | 7.79 | -158.0 |

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

## SAMPLING DATA

Sample Date: 3/3/09
Sample Time: 1445
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 Assessment
PROJECT NUMBER: 21562156.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09
WEATHER: overcast, 39°
MONITORING WELL ID: PMAMW03S
SAMPLE ID: PMAMW03S-0209

## INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 27.35 ft
Constructed Well Depth (btoc): 27.40 ft
Depth to Water (btoc): 16.38 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): 22.40 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 11.02 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 24.90 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 0.1 ppm

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| 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 | 1320 | 16.44 | colorless | hydrocarbon | 6.90 | 15.65 | 1.888 | -3.0 | 4.24 | 51.7 |
| 1200 | 1326 | ↓ | ↓ | ↓ | 6.91 | 15.67 | 1.899 | -4.2 | 4.30 | 45.8 |
| 2400 | 1332 | | | | 6.83 | 15.83 | 1.912 | -5.9 | 7.54 | 41.2 |
| 3600 | 1338 | | | | 6.84 | 15.74 | 1.913 | -6.2 | 8.10 | 38.1 |
| 4800 | 1344 | | | | 6.82 | 15.66 | 1.917 | -6.7 | 8.52 | 36.7 |
| 6000 | 1350 | ✓ | ✓ | ✓ | 6.81 | 15.53 | 1.916 | -6.9 | 8.22 | 36.2 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: WGK PCB GW Assessment PROJECT NUMBER: 21562156.00001 FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 3/3/09 WEATHER: cloudy, 35°
MONITORING WELL ID: PMAMW04D SAMPLE ID: PMAMW04D-0209

## INITIAL DATA

Well Diameter: 2 in
Total Well Depth (btoc): 73.45 ft
Depth to Water (btoc): 14.90 ft
Depth to LNAPL/DNAPL (btoc): — ft
Depth to Top of Screen (btoc): ft
Screen Length: 5 ft

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

Volume of Flow Through Cell ~~): 500~~ 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 | Temp (°C) | Cond. (ms/cm) | Turbidity (NTUs) | DO (mg/l) | ORP (mv) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1530 | 14.90 | light gray | hydrocarbon | 6.66 | 15.30 | 1.750 | 83.8 | 11.77 | -116.2 |
| 1200 | 1536 | ↓ | ↓ | ↓ | 6.59 | 15.28 | 1.747 | 42.6 | 12.86 | -121.4 |
| 2400 | 1542 | | colorless | | 6.65 | 15.07 | 1.739 | 19.6 | 13.38 | -122.2 |
| 3600 | 1548 | | ↓ | | 6.61 | 15.18 | 1.738 | 18.0 | 12.44 | -122.5 |
| 4800 | 1554 | ↓ | ↓ | ↓ | 6.63 | 15.08 | 1.735 | 12.7 | 12.61 | -126.4 |

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

## SAMPLING DATA

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

## COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

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

## INITIAL DATA

Well Diameter: 2 in
Measured Well Depth (btoc): 25.38 ft
Constructed Well Depth (btoc): 25.33 ft
Depth to Water (btoc): 15.33 ft
Depth to LNAPL/DNAPL (btoc): 24.98 ft
Depth to Top of Screen (btoc): 20.38 ft
Screen Length: 5 ft

Water Column Height (do not include LNAPL or DNAPL): 10.05 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = — ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ): — mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) — mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 4.1 ppm

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.2 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
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Start Time: —
Stop Time: —
Elapsed Time: —
Average Purge Rate (mL/min): —
Water Quality Meter ID: YSI 6920
Date Calibrated: —

## SAMPLING DATA

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

COMMENTS:
DNAPL sampled for Total PCBs (680)

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

PROJECT NAME: PCB GW Quality Assessment
PROJECT NUMBER: 21562156.00001
FIELD PERSONNEL: M. Corbett, S. Moore
DATE: 2/27/09
WEATHER: overcast, 39°
MONITORING WELL ID: PMAMW05M
SAMPLE ID: ~~PMAMW05-0209~~ PMAMW05M-0209

## INITIAL DATA

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

Water Column Height (do not include LNAPL or DNAPL): 41.59 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 54.67 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 1.3 ppm

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| Purge Volume (mL) | Time | Depth to Water (ft) | Color | Odor | pH (±0.2 units) | Temp (°C) | Cond. (ms/cm) (±3 %) | Turbidity (NTUs) | DO (mg/l) (±10 % or ±2 mg/L) | ORP (mv) (±20 mV) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1525 | 15.58 | gray | hydrocarbon | 7.20 | 16.77 | 1.937 | 43.4 | 4.98 | -91.7 |
| 1200 | 1531 | ↓ | colorless | ↓ | 7.15 | 16.91 | 8.232 | 30.2 | 5.04 | -100.0 |
| 2400 | 1537 | ↓ | ↓ | ↓ | 7.13 | 15.25 | 2.263 | 12.2 | 5.46 | -103.0 |
| 3600 | 1543 | ↓ | ↓ | ↓ | 7.14 | 15.16 | 2.258 | 6.6 | 6.73 | -108.9 |
| 4800 | 1549 | ↓ | ↓ | ↓ | 7.14 | 14.86 | 2.258 | 2.1 | 6.71 | -114.1 |
| 6000 | 1555 | ↓ | ↓ | ↓ | 7.13 | 14.78 | 2.257 | 3.4 | 7.09 | -118.0 |
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Start Time: 1525
Stop Time: 1555
Elapsed Time: 30 min.
Average Purge Rate (mL/min): 200
Water Quality Meter ID: YSI 6920
Date Calibrated: 2/27/09

## SAMPLING DATA

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

COMMENTS:

# LOW FLOW GROUNDWATER SAMPLING DATA SHEET

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

## INITIAL DATA

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

Water Column Height (do not include LNAPL or DNAPL): 88.79 ft btoc
If Depth to Top of Screen is > Depth to Water AND Screen Lenth is <4 feet,
Place Pump at: Total Well Depth – 0.5 (Screen Length + DNAPL Column Height) = 98.79 ft btoc
If Depth to Top of Screen is < Depth to Water AND Water Column Height and Screen Length are < 4ft,
Place Pump at: Total Well Depth – (0.5 X Water Column Height + DNAPL Column Height) = — ft btoc
If Screen Length and/or water column height is < 4 ft, Place Pump at: Total Well Depth - 2 ft = — ft btoc

Volume of Flow Through Cell ): 1,150 mL
Minimum Purge Volume =
(3 x Flow Through Cell Volume) 3,450 mL
Ambient PID/FID Reading: 0.0 ppm
Wellbore PID/FID Reading: 1.1 ppm

## PURGE DATA

Pump Type: Stainless Steel Monsoon

| 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 | 1430 | 12.51 | colorless | hydrocarbon | 6.90 | 16.23 | 1.080 | 11.1 | 7.97 | -110.1 |
| 1200 | 1436 | ↓ | ↓ | ↓ | 6.94 | 16.00 | 1.083 | 2.3 | 8.65 | -130.7 |
| 2400 | 1442 | | | | 6.90 | 15.99 | 1.093 | 0.1 | 8.80 | -138.9 |
| 3600 | 1448 | | | | 6.90 | 16.04 | 1.105 | -0.8 | 9.06 | -145.5 |
| 4200 | 1454 | | | | 6.90 | 15.99 | 1.110 | -1.3 | 9.26 | -148.7 |

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

## SAMPLING DATA

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

## COMMENTS:

# Appendix B

# Chains-of-Custody

Serial Number 014687

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING


X 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: GK PCB GW Quality | PROJECT NO.: 21562156 | PROJECT LOCATION (STATE): IL |
| L (LAB) PROJECT MANAGER: idya Gulizia | P.O. NUMBER: | CONTRACT NO.: |
| IENT (SITE) PM: Adams | CLIENT PHONE: 314-429-0100 | CLIENT FAX: 314-429-0462 |
| IENT NAME: RS Corporation | CLIENT E-MAIL: thomas.adams@urscorp.com | |
| IENT ADDRESS: 01 Highlands Plaza Dr. West Ste. 300 St. Louis MO 63110 | | |
| OMPANY CONTRACTING THIS WORK (if applicable): olutia | | |

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ◯
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

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

Page 27 of 29

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

LABORATORY USE ONLY

| RECEIVED FOR LABORATORY BY: (SIGNATURE) | DATE | TIME | CUSTODY INTACT | CUSTODY SEAL NO. | SAVANNAH LOG NO. | LABORATORY REMARKS |
|---|---|---|---|---|---|---|
| | 022809 | 1020 | YES ◯ NO ◯ | | 68045096 | 1.0/2.8/2.4 TEMP |

TAL8240-680 (1207)

Serial Number 014677

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

Alternate Laboratory Name/Location

Phone:
Fax:

| | | |
|---|---|---|
| PROJECT REFERENCE: WGK PCB | PROJECT NO.: 21562156.00001 | PROJECT LOCATION (STATE): IL |
| TAL (LAB) PROJECT MANAGER: Lidya Gulizia | P.O. NUMBER: | CONTRACT NO.: |
| CLIENT (SITE) PM: Thomas Adams | CLIENT PHONE: 314-429-0100 | CLIENT FAX: 314-429-0462 |
| CLIENT NAME: URS Corporation | 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): Solutia | | |

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: 1 Total PCB (680)

PRESERVATIVE

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 3/3/09 | 1355 | PMAMW03S-0209 | G | X | | | | 2 | |
| ↓ | 1445 | PMAMW03M-0209 | G | X | | | | 2 | |
| ↓ | 1600 | PMAMW04D-0209 | G | X | | | | 2 | |

SM 3/3/09

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

LABORATORY USE ONLY

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

TAL8240-680 (1207)

Serial Number 014235

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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

Alternate Laboratory Name/Location

Phone:
Fax:

| | | |
|---|---|---|
| PROJECT REFERENCE: UGK PCB | PROJECT NO.: 21562156.00001 | PROJECT LOCATION (STATE): IL |
| LAB PROJECT MANAGER: Sidya Gulizia | P.O. NUMBER | CONTRACT NO. |
| CLIENT (SITE) PM: Thomas Adams | CLIENT PHONE: 314-429-0100 | CLIENT FAX: 314-429-0462 |
| CLIENT NAME: URS Corporation | CLIENT E-MAIL: thomas_adams@urscorp.com | |
| CLIENT ADDRESS: 001 Highlands Plaza Dr. W Ste 300 St. Louis MO 63110 | | |
| COMPANY CONTRACTING THIS WORK (if applicable): Solutia | | |

PAGE 1 OF 1

STANDARD REPORT DELIVERY ◯

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ◯

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

| SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (OIL, SOLVENT, ...) | Total PCB (680) | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | none | PRESERVATIVE | | | | | | | | | |
| | | | | | | | | NUMBER OF CONTAINERS SUBMITTED | | | | | | | | | | |
| 3/03 | 1545 | PMAMW04S-0209-DNAPL | G | X | | | X | 1 | | | | | | | | | | |

Page 14 of 15

3/3/09

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

LABORATORY USE ONLY

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

TAL8240-680 (1207)

# Appendix C

# Quality Assurance Report

QUALITY ASSURANCE REPORT

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

# PCB Groundwater Quality Assessment
# 1st Quarter 2009 Data Report

*Prepared for*

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

May 2009

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

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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 February and March of 2009 at the Solutia W.G. Krummrich plant as part of the 1st Quarter 2009 PCB Groundwater Quality Assessment Program. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methodologies. Samples were analyzed for polychlorinated biphenyls (PCBs).

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

A total of 14 samples (nine investigative groundwater samples, one DNAPL, one field duplicate, one matrix spike and matrix spike duplicate (MS/MSD) pair, and one equipment blank) were analyzed by Test America. These samples were analyzed as part of Sample Delivery Groups (SDGs) KPM028 and KPM029, utilizing the following USEPA Methods:

- Method 680 for PCBs

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

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

**TABLE 1 Laboratory Data Qualifiers**

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

**TABLE 2 URS Data Qualifiers**

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

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

The data review included evaluation of the following criteria:

**Organics**

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

## 2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance. Upon review of the data, the cooler receipt form indicated that no problems were encountered by the laboratory.

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

## 3.0 LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

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

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

## 4.0 SURROGATE SPIKE RECOVERIES

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

## 5.0 LABORATORY CONTROL SAMPLE RECOVERIES

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

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

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

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

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

## 7.0 FIELD DUPLICATE RESULTS

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

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

| SDG | Field ID | Field Duplicate ID | Parameter | Analyte | RPD | Qualification |
|---|---|---|---|---|---|---|
| KPM028 | PMAMW02M -0209 | PMAMW02M-0209-AD | PCBs | Monochloro-biphenyl | **37** | **J** |

## 8.0 INTERNAL STANDARD RESPONSES

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

The internal standards area responses for PCBs were verified for the data reviews. IS responses met the criteria as described above, with the exception of the IS responses in the data reviews discussed further in **Appendix D**. No qualifications of data were required due to internal standard responses.

## 9.0 RESULTS REPORTED FROM DILUTIONS

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

# Appendix D

# Groundwater Analytical Results

# (with Data Review Sheets)

SDG KPM028

Results of Samples from Wells:

PMAMW01S
PMAMW01M
PMAMW02S
PMAMW02M
PMAMW03S
PMAMW03M
PMAMW04D
PMAMW05M
PMAMW06D

# Solutia Krummrich Data Review

**Laboratory SDG: KPM028**

**Reviewer: Elizabeth Kunkel**

**Date Reviewed: 4/6/2009**

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

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

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

## 1.0 Data Package Completeness

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

Yes

## 2.0 Laboratory Case Narrative \ Cooler Receipt Form

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

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

The cooler receipt form did not indicate any problems.

## 3.0 Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes

## 4.0 Blank Contamination

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

No

## 5.0 Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes

## 6.0 Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes

## 7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

Yes, sample PMAMW01S-0209 was spiked and analyzed for PCBs.

*Were MS/MSD recoveries within evaluation criteria?*

Yes

## 8.0 Internal Standard (IS) Recoveries

*Were internal standard area recoveries within evaluation criteria?*

No

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

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

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

## 9.0 Laboratory Duplicate Results

*Were laboratory duplicate samples collected as part of this SDG?*

No

*Were laboratory duplicate sample RPDs within criteria?*

N/A

## 10.0 Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

Yes

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

*Were field duplicates within evaluation criteria?*

No

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

## 11.0 Sample Dilutions

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

Samples were not analyzed at a dilution.

## 12.0 Additional Qualifications

*Were additional qualifications applied?*

No

## SAMPLE SUMMARY

Client: Solutia Inc.

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

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

# SAMPLE RESULTS

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW01S-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

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

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| Decachlorobiphenyl-13C12 | 90 | 25 - 113 |

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW01M-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 0.16 | | 0.098 |
| Dichlorobiphenyl | 0.098 | U | 0.098 |
| Trichlorobiphenyl | 0.098 | U | 0.098 |
| Tetrachlorobiphenyl | 0.20 | U | 0.20 |
| Pentachlorobiphenyl | 0.20 | U | 0.20 |
| Hexachlorobiphenyl | 0.20 | U | 0.20 |
| Heptachlorobiphenyl | 0.29 | U | 0.29 |
| Octachlorobiphenyl | 0.29 | U | 0.29 |
| Nonachlorobiphenyl | 0.49 | U | 0.49 |
| DCB Decachlorobiphenyl | 0.49 | U | 0.49 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| Decachlorobiphenyl-13C12 | 44 | 25 - 113 |

Client: Solutia Inc.

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

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

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

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

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| Decachlorobiphenyl-13C12 | 79 | 25 - 113 |

## Analytical Data

Client: Solutia Inc.

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

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

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

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

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

Client: Solutia Inc.

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

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

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 2.9 | J | 0.10 |
| Dichlorobiphenyl | 0.10 | U | 0.10 |
| Trichlorobiphenyl | 0.10 | U | 0.10 |
| Tetrachlorobiphenyl | 0.20 | U | 0.20 |
| Pentachlorobiphenyl | 0.20 | U | 0.20 |
| Hexachlorobiphenyl | 0.20 | U | 0.20 |
| Heptachlorobiphenyl | 0.30 | U | 0.30 |
| Octachlorobiphenyl | 0.30 | U | 0.30 |
| Nonachlorobiphenyl | 0.50 | U | 0.50 |
| DCB Decachlorobiphenyl | 0.50 | U | 0.50 |

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

Client: Solutia Inc.

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

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

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 2.0 | J | 0.10 |
| Dichlorobiphenyl | 0.10 | U | 0.10 |
| Trichlorobiphenyl | 0.10 | U | 0.10 |
| Tetrachlorobiphenyl | 0.20 | U | 0.20 |
| Pentachlorobiphenyl | 0.20 | U | 0.20 |
| Hexachlorobiphenyl | 0.20 | U | 0.20 |
| Heptachlorobiphenyl | 0.30 | U | 0.30 |
| Octachlorobiphenyl | 0.30 | U | 0.30 |
| Nonachlorobiphenyl | 0.50 | U | 0.50 |
| DCB Decachlorobiphenyl | 0.50 | U | 0.50 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| Decachlorobiphenyl-13C12 | 86 | 25 - 113 |

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW06D-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 0.32 | | 0.098 |
| Dichlorobiphenyl | 0.098 | U | 0.098 |
| Trichlorobiphenyl | 0.098 | U | 0.098 |
| Tetrachlorobiphenyl | 0.20 | U | 0.20 |
| Pentachlorobiphenyl | 0.20 | U | 0.20 |
| Hexachlorobiphenyl | 0.20 | U | 0.20 |
| Heptachlorobiphenyl | 0.29 | U | 0.29 |
| Octachlorobiphenyl | 0.29 | U | 0.29 |
| Nonachlorobiphenyl | 0.49 | U | 0.49 |
| DCB Decachlorobiphenyl | 0.49 | U | 0.49 |

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

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW05M-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 0.098 | U | 0.098 |
| Dichlorobiphenyl | 0.098 | U | 0.098 |
| Trichlorobiphenyl | 0.098 | U | 0.098 |
| Tetrachlorobiphenyl | 0.20 | U | 0.20 |
| Pentachlorobiphenyl | 0.20 | U | 0.20 |
| Hexachlorobiphenyl | 0.20 | U | 0.20 |
| Heptachlorobiphenyl | 0.29 | U | 0.29 |
| Octachlorobiphenyl | 0.29 | U | 0.29 |
| Nonachlorobiphenyl | 0.49 | U | 0.49 |
| DCB Decachlorobiphenyl | 0.49 | U | 0.49 |

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

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW03S-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 0.67 | | 0.097 |
| Dichlorobiphenyl | 0.12 | | 0.097 |
| Trichlorobiphenyl | 0.097 | U | 0.097 |
| Tetrachlorobiphenyl | 0.19 | U | 0.19 |
| Pentachlorobiphenyl | 0.19 | U | 0.19 |
| Hexachlorobiphenyl | 0.19 | U | 0.19 |
| Heptachlorobiphenyl | 0.29 | U | 0.29 |
| Octachlorobiphenyl | 0.29 | U | 0.29 |
| Nonachlorobiphenyl | 0.49 | U | 0.49 |
| DCB Decachlorobiphenyl | 0.49 | U | 0.49 |

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

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW03M-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Monochlorobiphenyl | 1.4 | | 0.097 |
| Dichlorobiphenyl | 0.097 | U | 0.097 |
| Trichlorobiphenyl | 0.097 | U | 0.097 |
| Tetrachlorobiphenyl | 0.19 | U | 0.19 |
| Pentachlorobiphenyl | 0.19 | U | 0.19 |
| Hexachlorobiphenyl | 0.19 | U | 0.19 |
| Heptachlorobiphenyl | 0.29 | U | 0.29 |
| Octachlorobiphenyl | 0.29 | U | 0.29 |
| Nonachlorobiphenyl | 0.49 | U | 0.49 |
| DCB Decachlorobiphenyl | 0.49 | U | 0.49 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| Decachlorobiphenyl-13C12 | 60 | 25 - 113 |

## Analytical Data

Client: Solutia Inc.

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

**Client Sample ID:** **PMAMW04D-0209**

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

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

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

# DATA REPORTING QUALIFIERS

Client: Solutia Inc.

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

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

SDG KPM029

Results of Sample from Well:

PMAMW04S

# Solutia Krummrich Data Review

**Laboratory SDG: KPM029**

**Reviewer: Elizabeth Kunkel**

**Date Reviewed: 4/6/2009**

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

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

| Sample Identification # |
|---|
| PMAMW04S-0209-DNAPL |

## 1.0 Data Package Completeness

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

Yes

## 2.0 Laboratory Case Narrative \ Cooler Receipt Form

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

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

The cooler receipt form did not indicate any problems.

## 3.0 Holding Times

*Were samples extracted/analyzed within QAPP limits?*

Yes

## 4.0 Blank Contamination

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

No

## 5.0 Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes

## 6.0 Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

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

## 7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

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

No

*Were MS/MSD recoveries within evaluation criteria?*

N/A

## 8.0 Internal Standard (IS) Recoveries

*Were internal standard area recoveries within evaluation criteria?*

No

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

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

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

## 9.0 Laboratory Duplicate Results

*Were laboratory duplicate samples collected as part of this SDG?*

No

*Were laboratory duplicate sample RPDs within criteria?*

N/A

## 10.0 Field Duplicate Results

*Were field duplicate samples collected as part of this SDG?*

No

## 11.0 Sample Dilutions

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

Analytes were detected in samples that were diluted.

## 12.0 Additional Qualifications

*Were additional qualifications applied?*

No

## SAMPLE SUMMARY

Client: Solutia Inc.

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

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

# SAMPLE RESULTS

Client: Solutia Inc.

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

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

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

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

**680 Polychlorinated Biphenyls (PCBs) (GC/MS)**

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

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

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

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

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

# DATA REPORTING QUALIFIERS

Client: Solutia Inc.

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

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