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January 15, 2016

Ms. Carolyn Bury - LU-9J
U.S. EPA Region 5
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

Re: PCB Groundwater Quality Assessment Program
4th Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the PCB Groundwater Quality Assessment Program 4th Quarter 2015 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@eastman.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

PCB Groundwater Quality Assessment Program
4th Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

Solutia

Donn Haines 500 Monsanto Avenue, Sauget, IL 62206-1198

GROUNDWATER MONITORING REPORT

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
SOLUTIA INC., W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared For: Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141 USA

Submitted By: Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA

January 2016 **140-3345**

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 4th Quarter 2015 (4Q15) PCB groundwater sampling activities at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility (Site) in Sauget, Illinois. The facility is located at 500 Monsanto Avenue, Sauget, Illinois as shown on Figure 1. The 4Q15 sampling event was performed in general accordance with the Revised PCB Groundwater Quality Assessment Program Work Plan (Work Plan) (Solutia 2009).

The scope of work detailed in the Work Plan is summarized below.

Ten (10) monitoring wells are sampled during the PCB event. The locations of the monitoring wells are shown on Figure 2 and the sample locations are included in the table below.

Area	Location Relative to Area	Sample Identification
Former PCB Manufacturing	Source Area Well	PMA-MW-4S
		PMA-MW-4D
	Downgradient	PMA-MW-1S
		PMA-MW-1M
		PMA-MW-2S
		PMA-MW-2M
		PMA-MW-3S
		PMA-MW-3M
		PMA-MW-5M
		PMA-MW-6D

Water levels in the monitoring wells are measured quarterly and total depths are measured in the 1st quarter of each year.

During the quarterly sampling events, monitoring wells are sampled for the following polychlorinated biphenyl (PCB) isomer groups or homologs: monochlorobiphenyl; dichlorobiphenyl; trichlorobiphenyl; tetrachlorobiphenyl; pentachlorobiphenyl; hexachlorobiphenyl; heptachlorobiphenyl; octachlorobiphenyl; nonachlorobiphenyl; and decachlorobiphenyl.

2.0 FIELD ACTIVITIES

Golder conducted 4Q15 sampling events on November 12 and November 13, 2015. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 4Q15 event, Golder performed a synoptic round of water level measurements at 77 monitoring wells and piezometers on October 29 and October 30, 2015. The following monitoring well and piezometer series are included in the PCB program:

- BSA-series
- CPA-series
- GM-series
- K-series
- PS-MW-series
- PMA-series
- Piezometer clusters installed for Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects

An oil/water interface probe was used to measure the water level (to 0.01 feet) and, if present, detect and measure the thickness of non-aqueous phase liquid (NAPL). During the 4Q15 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 4Q15 well gauging information is shown on Table 1. The information collected from the Middle Hydrogeologic Unit (MHU) and the Deep Hydrogeologic Unit (DHU) was used to create a groundwater potentiometric surface map, as shown on Figure 3. The MHU and DHU are the primary migration pathways for constituents present in the groundwater at the Site.

2.2 Groundwater Sample Collection

Monitoring wells sampled during the 4Q15 PCB event were purged and sampled using low-flow sampling techniques, low-density polyethylene tubing (LDPE) and a submersible pump. The pump intake was placed at approximately the middle of the screened interval for each well. Purging was conducted at a rate of approximately 300 mL/min to reduce drawdown. Drawdown was measured throughout purging activities to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Measurement of field parameters began once the flow rate and drawdown were stable. Parameters were measured for each system volume purged using a SmartTROLL™ multi-parameter meter. The system volume includes the volume of the tubing, the volume of the pump and the volume of flow-through cell containing the multi-parameter device. Samples were collected after field parameters were stabilized within the ranges below for three (3) consecutive measurements:

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

The flow rate was adjusted as needed to maintain approximately 300 mL/min during sampling activities. To reduce possible sample cross contamination, the flow-through cell was bypassed and gloves were replaced prior to sampling.

Sample bottles were provided by TestAmerica Laboratories, Inc. (TestAmerica) for analysis of PCBs by United States Environmental Protection Agency (USEPA) Method 680. Groundwater purging and sampling forms are included in Appendix A.

2.3 Quality Assurance and Sample Handling

One (1) analytical duplicate (AD), one (1) equipment blank (EB) and one (1) matrix spike/matrix spike duplicate (MS/MSD) pair were collected during the 4Q15 PCB sampling event. Sample bottles were labeled with the date and time of sample collection, sampler initials, analysis requested, preservative used, and sample identification based on the following nomenclature “PMA-MW#-MMYY-QA/QC” where:

- **“PMA”** denotes “PCB Manufacturing Area” and **“MW#”** denotes monitoring well number
- **“MMYY”** denotes month and year of sampling quarter, e.g.: November (4th quarter), 2015 (1115)
- **“QA/QC”** denotes QA/QC sample
  - **AD** – Analytical Duplicate
  - **EB** – Equipment Blank
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

Sample information was recorded on a chain-of-custody (COC) that included project identification, sample identification, date and time of sample collection, analysis requested, preservative used, sample matrix and type, number of sample containers, sampler signature, and date COC was completed. Copies of the COCs are included in Appendix B.

Directly after sampling, sample bottles were placed in an iced cooler to maintain a sample temperature of approximately 4°C. Prior to sample shipment, samples and ice were placed inside two (2) contractor trash bags. The bags were tied and the cooler was sealed between the lid and sides with a signed and dated custody seal. Samples were shipped overnight via FedEx to the TestAmerica facility in Savannah, Georgia.

2.4 Decontamination and Investigation Derived Waste

Sampling equipment was decontaminated prior to mobilizing to the Site, between sample locations and prior to demobilizing from the Site. Non-dedicated sampling equipment was decontaminated between samples with a non-phosphatic detergent solution and a deionized water rinse.

Investigation derived waste (IDW) was placed in 55-gallon drums, labeled with the generation date and staged for disposal by Solutia. IDW such as gloves and other disposable sampling equipment was bagged for disposal by Solutia.

3.0 QUALITY ASSURANCE

Sample results were provided by the TestAmerica laboratory in electronic format and reviewed for quality and completeness by Golder in accordance with the Work Plan. Sample results are included in Appendix D. Results were submitted in two (2) sample delivery groups (SDGs) as follows:

Sample Delivery Group (SDG)	Sample Identification
KPM067	PMA-MW-1M-0515
	PMA-MW-1S-0515
	PMA-MW-2M-0515
	PMA-MW-2M-0515-AD
	PMA-MW-2S-0515
	PMA-MW-2S-0515-EB
	PMA-MW-5M-0515
	PMA-MW-6D-0515
KPM068	PMA-MW-3M-0515
	PMA-MW-3S-0515
	PMA-MW-4D-0515
	PMA-MW-4S-0515

Golder completed validation of the analytical data following the general guidelines in Section 3.4 Data Review and Validation of the Work Plan. The Work Plan specifies that the most recent version of the national data validation guidelines be used for data review. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01, June 2008

Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. The completeness for the data set was 100%.

4.0 OBSERVATIONS

Groundwater analytical data for the 4Q15 PCB event is discussed below and presented in Table 2. Sample results are also shown for the SHU and the MHU/DHU in Figures 4 and 5, respectively.

4.1 Shallow Hydrogeologic Unit

Historically, dense non-aqueous phase liquid (DNAPL) has been periodically detected in PMA-MW-4S, located in the former PCB Manufacturing Area. DNAPL was not detected in PMA-MW-4S during the 4Q15 event. A groundwater sample was collected at PMA-MW-4S and PCBs were detected at a concentration of 96 µg/L. PCBs were detected in one (1) of three (3) monitoring wells in the SHU downgradient of the former PCB Manufacturing Area (PMA-MW-3S) at a concentration of 0.69 µg/L. PCBs were not detected in monitoring wells PMA-MW-1S and PMA-MW-2S.

4.2 Middle/Deep Hydrogeologic Unit

PCBs were detected in five (5) of the six (6) monitoring wells located in the MHU and DHU. Results are summarized below.

- Former PCB Manufacturing Area: PCBs were detected at a concentration of 1.86 µg/L in PMA-MW-4D.
- Downgradient of Former PCB Manufacturing Area: PCBs were detected in four (4) of five (5) monitoring wells downgradient of the former PCB Manufacturing Area at concentrations of 0.61 µg/L (PMA-MW-1M), 9.5 µg/L / 10 µg/L (PMA-MW-2M and AD), 0.80 µg/L (PMA-MW-3M), and 0.19 µg/L (PMA-MW-6D). PCBs were not detected in PMA-MW-5M.

4.3 Mann-Kendall Trend Analysis

Mann-Kendall trend analyses of total PCBs in groundwater samples from select monitoring wells within (PMA-MW-4D) or downgradient (PMA-MW-1M, -2M, -3S, -3M, and -6D) of the former PCB Manufacturing Area were performed. Results are shown on Table 3. The trends using analytical data from the 4Q15 PCB event appeared similar to historical trends. There was an increasing trend in PCB concentrations at monitoring wells PMA-MW-1M, PMA-MW-2M, and PMA-MW-4D. Concentrations of PCBs show either no trend or stable at monitoring wells PMA-MW-3S, PMA-MW-3M, and PMA-MW-6D.

5.0 CLOSING

Golder appreciates the opportunity to assist Solutia Inc. with the PCB Groundwater Quality Assessment Program sampling events. Please contact the undersigned if you need additional information.

Sincerely,

GOLDER ASSOCIATES INC.

Amanda W. Derhake, Ph.D., P.E.
Senior Project Engineer

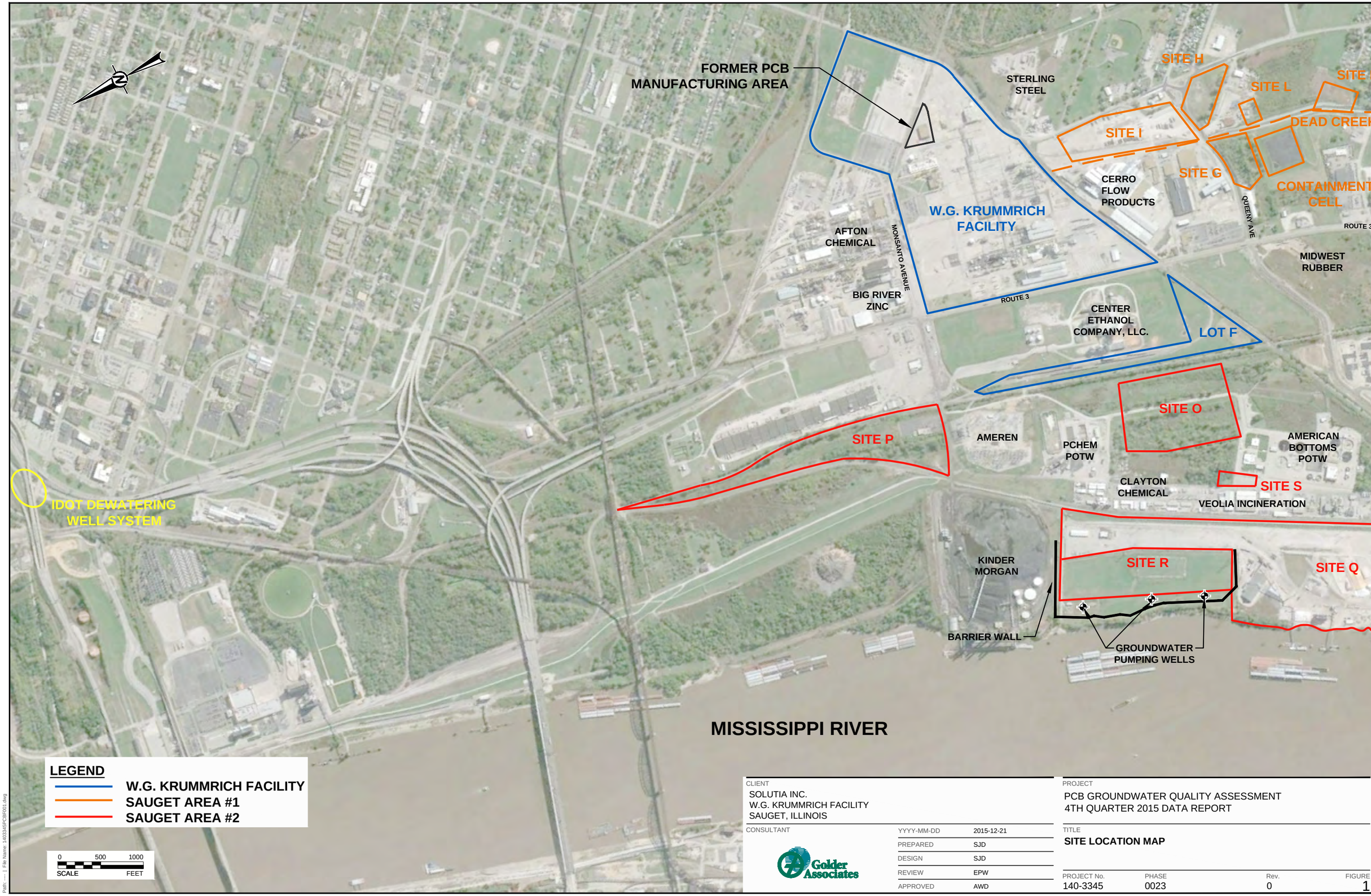
Mark N. Haddock, R.G., P.E.
Associate, Senior Consultant

6.0 REFERENCES

Solutia Inc, 2009. Revised PCB Groundwater Quality Assessment Program Work Plan, W.G. Krummrich Facility, Sauget, IL, Prepared by URS Corporation, May 2009.

USEPA, 2008. Contract Laboratory Program national Functional Guidelines for Superfund Organic Methods Data Review.

FIGURES



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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

PROJECT
PCB GROUNDWATER QUALITY ASSESSMENT
4TH QUARTER 2015 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0023	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
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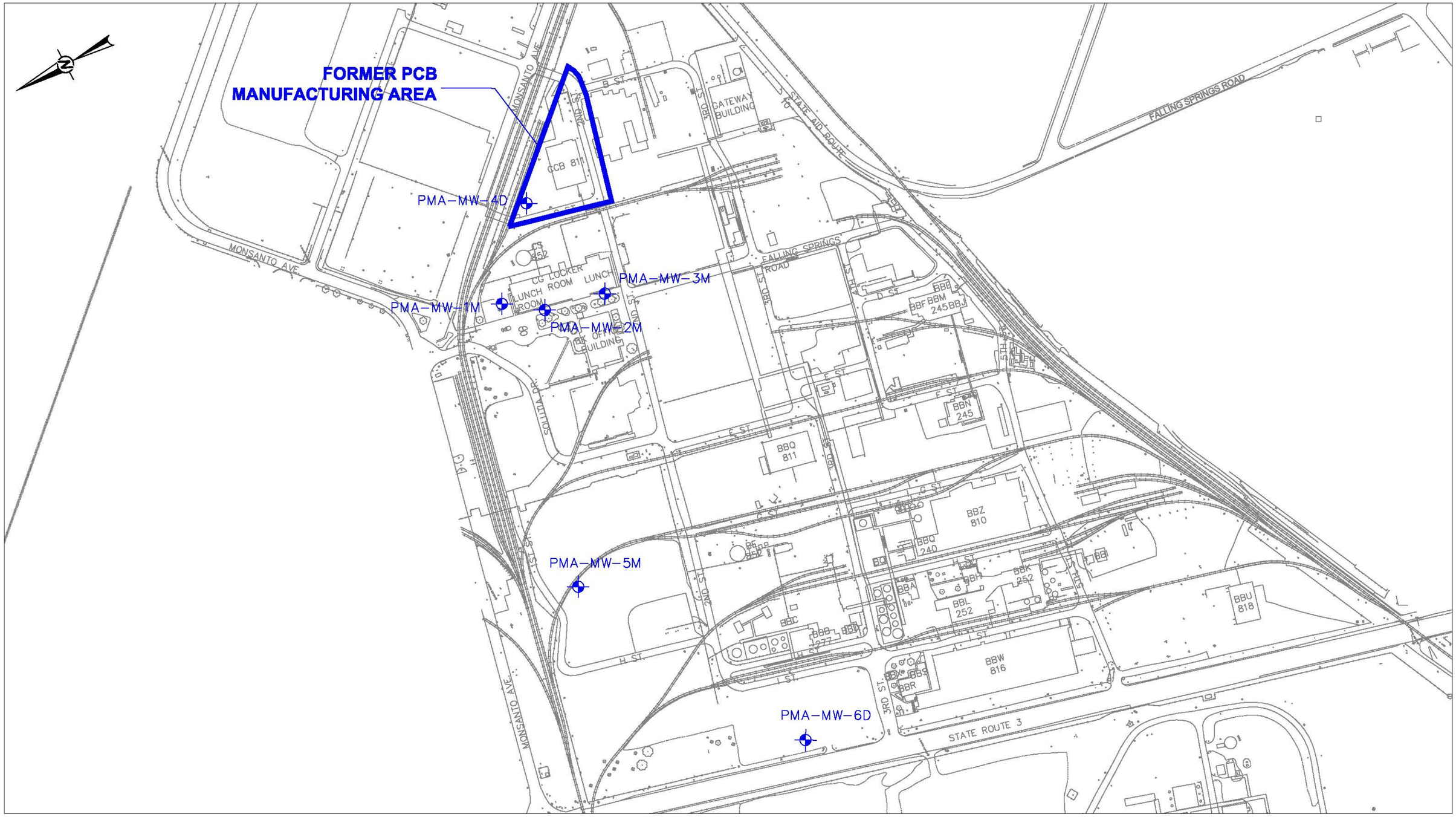


LEGEND

PCB MONITORING WELL LOCATION

NOTES

1. REFER TO TABLE 1 FOR MONITORING WELL CONSTRUCTION INFORMATION.

0 250 500
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

PROJECT
PCB GROUNDWATER QUALITY ASSESSMENT
4TH QUARTER 2015 DATA REPORT

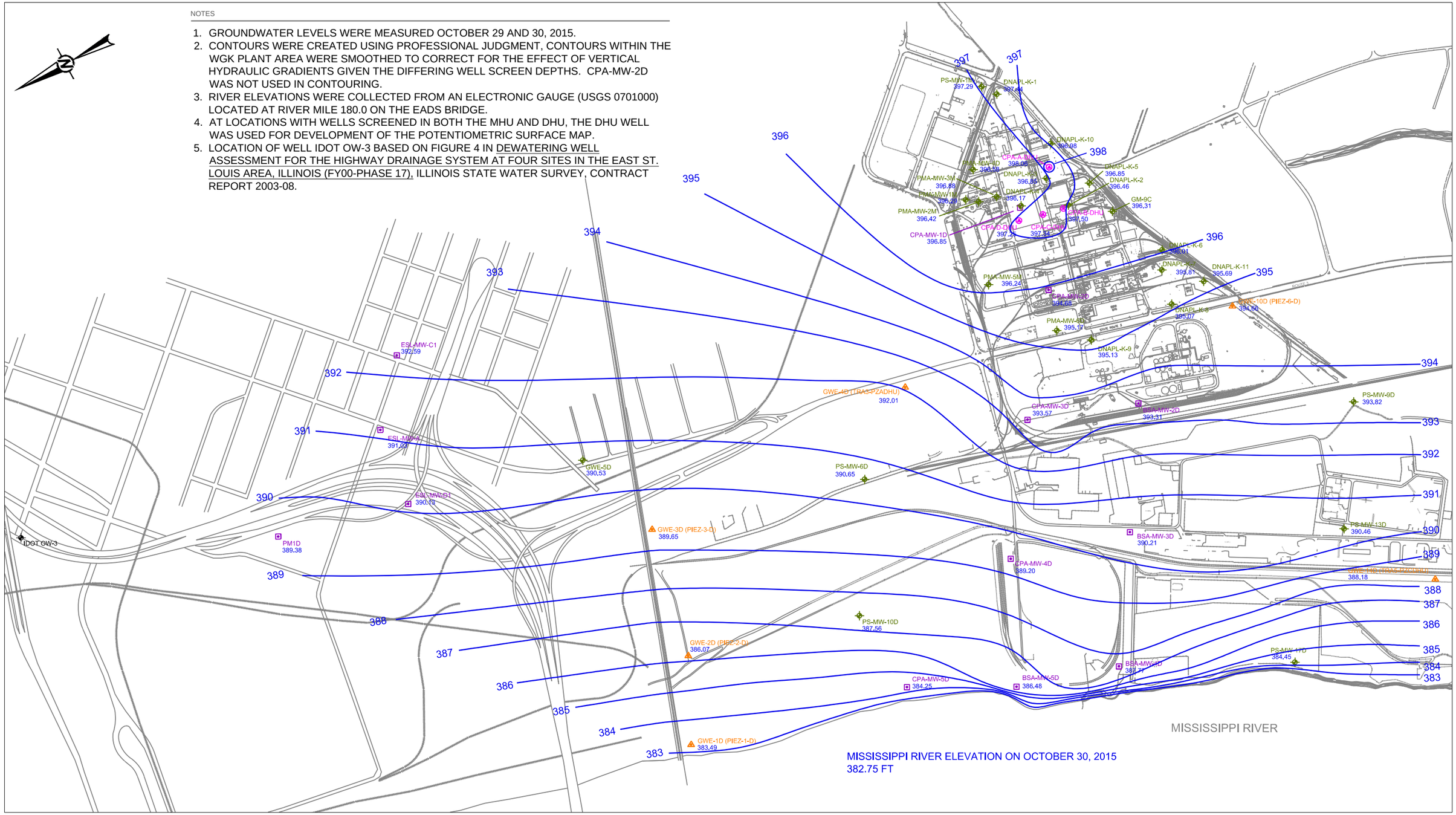
TITLE
FORMER PCB MANUFACTURING AREA MONITORING WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0023	0	2

Path: \\golbus\common\Projects\140 Projects\140345 - Solutia GW Sampling WGK Plant - IL\Figures\4Q15 Figures\ | File Name: 1403345_PCB_SJD.dwg

NOTES

1. GROUNDWATER LEVELS WERE MEASURED OCTOBER 29 AND 30, 2015.
2. CONTOURS WERE CREATED USING PROFESSIONAL JUDGMENT, CONTOURS WITHIN THE WGK PLANT AREA WERE SMOOTHED TO CORRECT FOR THE EFFECT OF VERTICAL HYDRAULIC GRADIENTS GIVEN THE DIFFERING WELL SCREEN DEPTHS. CPA-MW-2D WAS NOT USED IN CONTOURING.
3. RIVER ELEVATIONS WERE COLLECTED FROM AN ELECTRONIC GAUGE (USGS 0701000) LOCATED AT RIVER MILE 180.0 ON THE EADS BRIDGE.
4. AT LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU, THE DHU WELL WAS USED FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.
5. LOCATION OF WELL IDOT OW-3 BASED ON FIGURE 4 IN DEWATERING WELL ASSESSMENT FOR THE HIGHWAY DRAINAGE SYSTEM AT FOUR SITES IN THE EAST ST. LOUIS AREA, ILLINOIS (FY00-PHASE 17), ILLINOIS STATE WATER SURVEY, CONTRACT REPORT 2003-08.



LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- CPA MONITORING WELL USED FOR GROUNDWATER CONTOURING
- IDOT GROUNDWATER WELL
- 390 APPROXIMATE GROUNDWATER ELEVATION CONTOUR (FT NAVD)

0 500 1000
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	EPW
REVIEW	EPW
APPROVED	AWD

PROJECT
PCB GROUNDWATER QUALITY ASSESSMENT
4TH QUARTER 2015 DATA REPORT

TITLE
POTENTIOMETRIC SURFACE MAP
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
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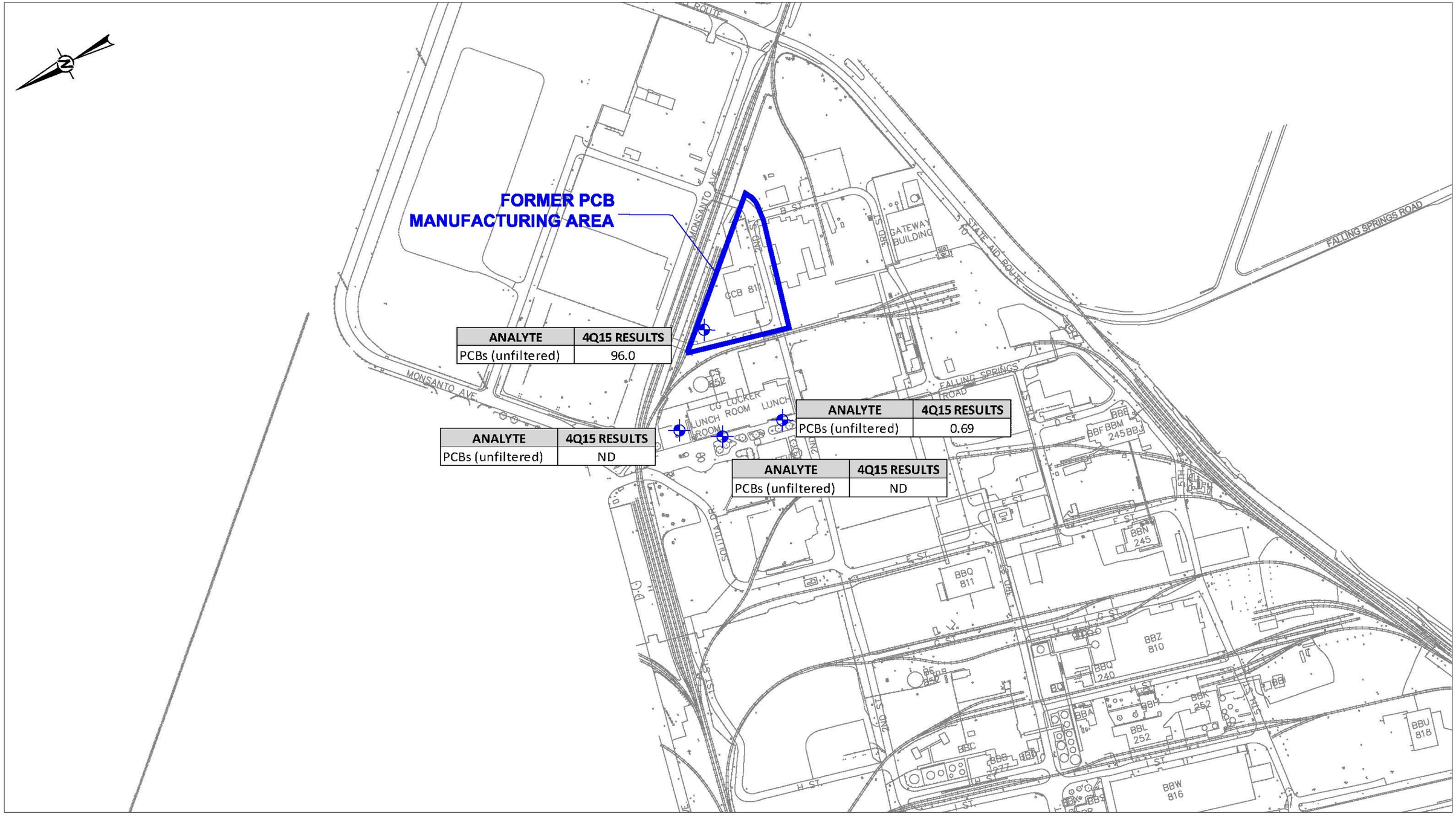

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	96.0

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	ND

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	0.69

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	ND

LEGEND

PCB MONITORING WELL LOCATION

NOTES

1. TOTAL PCB RESULTS INCLUDE THE SUM OF ALL METHOD 680 HOMOLOGS.
2. RESULTS SHOWN ARE IN µg/L.
3. ND - NOT DETECTED.

0 150 300
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

PROJECT
PCB GROUNDWATER QUALITY ASSESSMENT
4TH QUARTER 2015 DATA REPORT

TITLE
PCB RESULTS
SHALLOW HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0023	0	4

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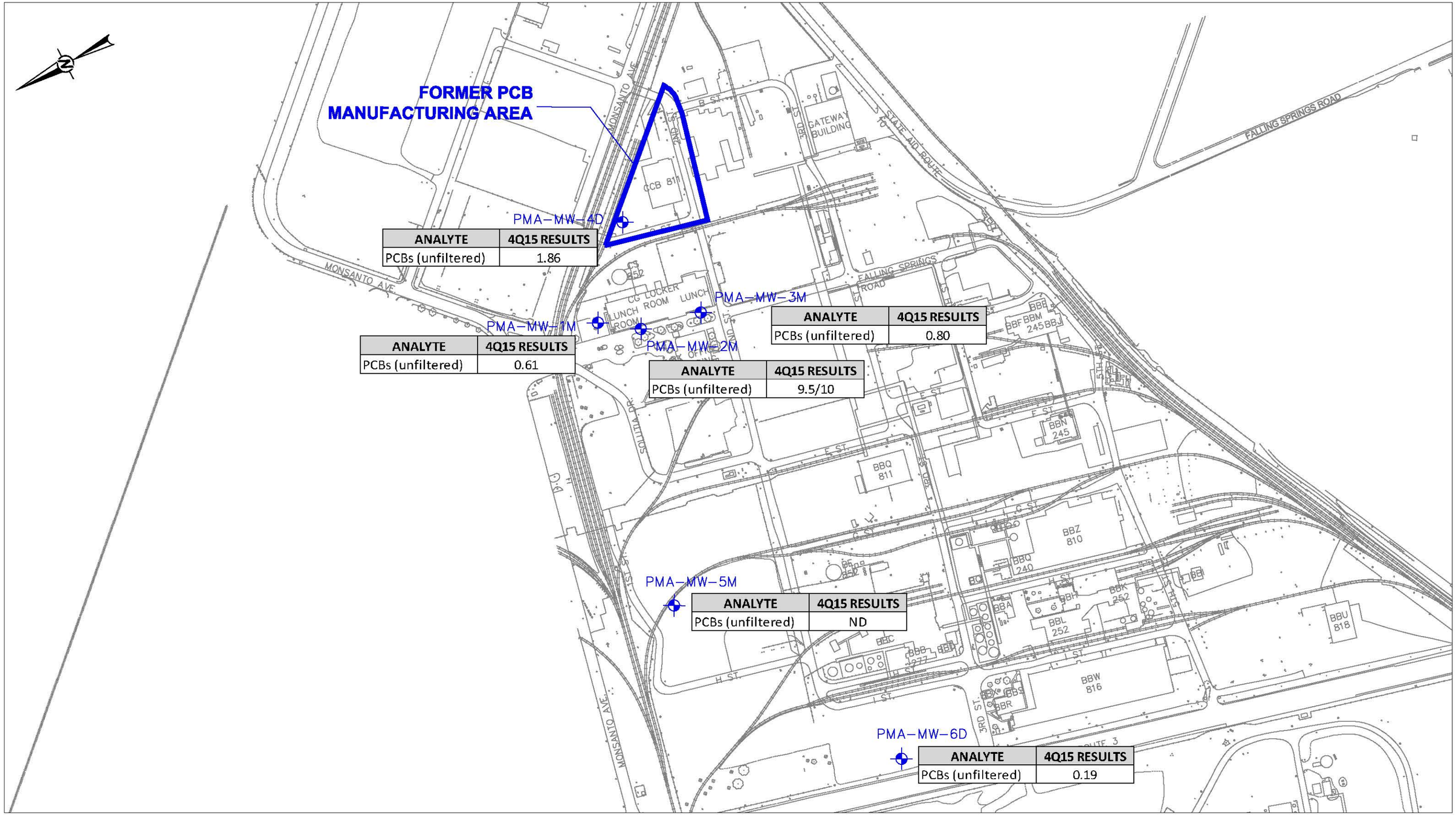


ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	1.86

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	0.61

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	9.5/10

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	0.80

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	ND

ANALYTE	4Q15 RESULTS
PCBs (unfiltered)	0.19

LEGEND

PCB MONITORING WELL LOCATION

NOTES

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

0 150 300
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2015-12-21
PREPARED	SJD
DESIGN	SJD
REVIEW	EPW
APPROVED	AWD

PROJECT
PCB GROUNDWATER QUALITY ASSESSMENT
4TH QUARTER 2015 DATA REPORT

TITLE
PCB RESULTS
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0023	0	5

Path: --- | File Name: 1403345_PCB_SJD.dwg

TABLES

Table 1
Monitoring Well Gauging Information
4Q15 PCB Groundwater Quality Assurance Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						4Q15 - October 29 and 30, 2015			
	Ground Surface Elevation[1] (ft)	Top of Casing Elevation[1] (ft)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Top of Screen Elevation[1] (ft)	Bottom of Screen Elevation[1] (ft)	Water Level (ft btoc)	Depth to NAPL (ft btoc)	Total Depth[2] (ft btoc)	Water Level Elevation[1] (ft)
SHU 395-380 ft NAVD 88										
PMA-MW-1S	410.30	410.06	20.18	25.18	390.12	385.12	12.73	NP	24.93	397.33
PMA-MW-2S	412.27	411.66	22.94	27.94	389.33	384.33	15.45	NP	27.34	396.21
PMA-MW-3S	412.37	412.06	22.71	27.71	389.66	384.66	15.40	NP	27.40	396.66
PMA-MW-4S	411.09	410.43	20.99	25.99	390.10	385.10	13.52	NP	25.38	396.91
MHU 380-350 ft NAVD 88										
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	13.79	NP	59.60	396.29
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	15.51	NP	61.27	396.42
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	15.22	NP	61.81	396.88
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	14.73	NP	56.98	396.24
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	15.30	NP	46.05	397.29
DHU 350 ft NAVD 88 - Bedrock										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	21.82	NP	77.00	393.31
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	25.53	NP	114.75	390.21
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	36.92	NP	123.12	387.77
BSA-MW-5D	420.80	420.49	115.85	120.85	304.95	299.95	34.01	NP	120.89	386.48
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	15.38	NP	74.69	396.85
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	13.52	NP	104.56	394.68
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	17.10	NP	112.76	393.57
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	32.00	NP	120.98	389.20
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	28.90	NP	114.64	384.25
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	18.12	NP	123.10	397.44
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	11.26	NP	112.40	396.46
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	19.06	NP	123.28	396.85
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	16.36	NP	118.21	396.17
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	15.06	NP	116.54	396.85
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	14.08	NP	116.87	396.01
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	11.91	NP	115.31	395.81
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	16.31	NP	117.56	395.07
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	10.84	NP	111.05	395.13
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	16.27	NP	120.26	396.98
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	16.09	NP	120.18	395.69
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	14.90	NP	108.23	396.31
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	32.11	NP	128.22	383.49
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	31.07	NP	136.59	386.07
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	28.01	NP	114.88	389.65
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	13.73	NP	78.75	392.01
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	17.85	NP	105.14	390.53
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	18.21	NP	114.81	394.66
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	34.72	NP	97.00	388.18
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	14.30	NP	73.38	396.58
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	12.15	NP	101.22	395.17
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	15.98	NP	109.81	390.65
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	9.70	NP	105.00	393.82
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	24.62	NP	111.25	387.56
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	15.07	NP	110.55	390.46
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	38.81	NP	133.90	384.45

Notes
ft - feet
bgs - below ground surface
btoc - below top of casing
NP - no product observed
NR - not reported
SHU - shallow hydrogeologic unit
MHU - middle hydrogeologic unit
DHU - deep hydrogeologic unit
[1] - Elevations based on North American Vertical Datum (NAVD) 88 datum.
[2] - Total depths are measured annually during the first quarter of each year.

Prepared By: SJD 12/11/2015
Checked By: EPW 12/21/2015
Reviewed By: AWD 1/8/2016

Table 2
Groundwater Analytical Results
4Q15 PCB Groundwater Quality Assurance Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Sample Identification	Sample Date	PCBs (µg/L)									
		Monochlorobiphenyl	Dichlorobiphenyl	Trichlorobiphenyl	Tetrachlorobiphenyl	Pentachlorobiphenyl	Hexachlorobiphenyl	Heptachlorobiphenyl	Octachlorobiphenyl	Nonachlorobiphenyl	Decachlorobiphenyl
SHU											
PMA-MW-1S-1115	11/12/2015	<0.099	<0.099	<0.099	<0.20	<0.20	<0.20	<0.30	<0.30	<0.50	<0.50
PMA-MW-2S-1115	11/12/2015	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.30	<0.30	<0.50	<0.50
PMA-MW-3S-1115	11/13/2015	**0.50**	**0.19**	<0.098	<0.20	<0.20	<0.20	<0.29	<0.29	<0.49	<0.49
PMA-MW-4S-1115	11/13/2015	**2.8 D**	**12 D**	**19 D**	**18 D**	**11 D**	**16 D**	**15 D**	**2.2 D**	<2.5	<2.5
MHU/DHU											
PMA-MW-1M-1115	11/12/2015	**0.61**	<0.10	<0.10	<0.20	<0.20	<0.20	<0.31	<0.31	<0.51	<0.51
PMA-MW-2M-1115	11/12/2015	**9.5 D**	<0.49	<0.49	<0.98	<0.98	<0.98	<1.5	<1.5	<2.4	<2.4
PMA-MW-2M-1115-AD	11/12/2015	**10 D**	<0.52	<0.52	<1.0	<1.0	<1.0	<1.5	<1.5	<2.6	<2.6
PMA-MW-3M-1115	11/13/2015	**0.80**	<0.10	<0.10	<0.20	<0.20	<0.20	<0.30	<0.30	<0.50	<0.50
PMA-MW-4D-1115	11/13/2015	**0.92**	**0.94**	<0.099	<0.20	<0.20	<0.20	<0.30	<0.30	<0.49	<0.49
PMA-MW-5M-1115	11/12/2015	<0.099	<0.099	<0.099	<0.20	<0.20	<0.20	<0.30	<0.30	<0.49	<0.49
PMA-MW-6D-1115	11/12/2015	**0.19**	<0.10	<0.10	<0.20	<0.20	<0.20	<0.30	<0.30	<0.51	<0.51

Notes
PCBs - polychlorinated biphenyls
µg/L - micrograms per liter
< - result is non-detect, less than the reporting limit
D - compound is analyzed at a dilution; result is an estimated value
AD - analytical duplicate
Bold - indicates concentration greater than reporting limit
SHU - shallow hydrogeologic unit
MHU - middle hydrogeologic unit
DHU - deep hydrogeologic unit

Prepared By: SJD 12/22/2015
Checked By: JSI 1/7/2016
Reviewed By: AWD 1/8/2016

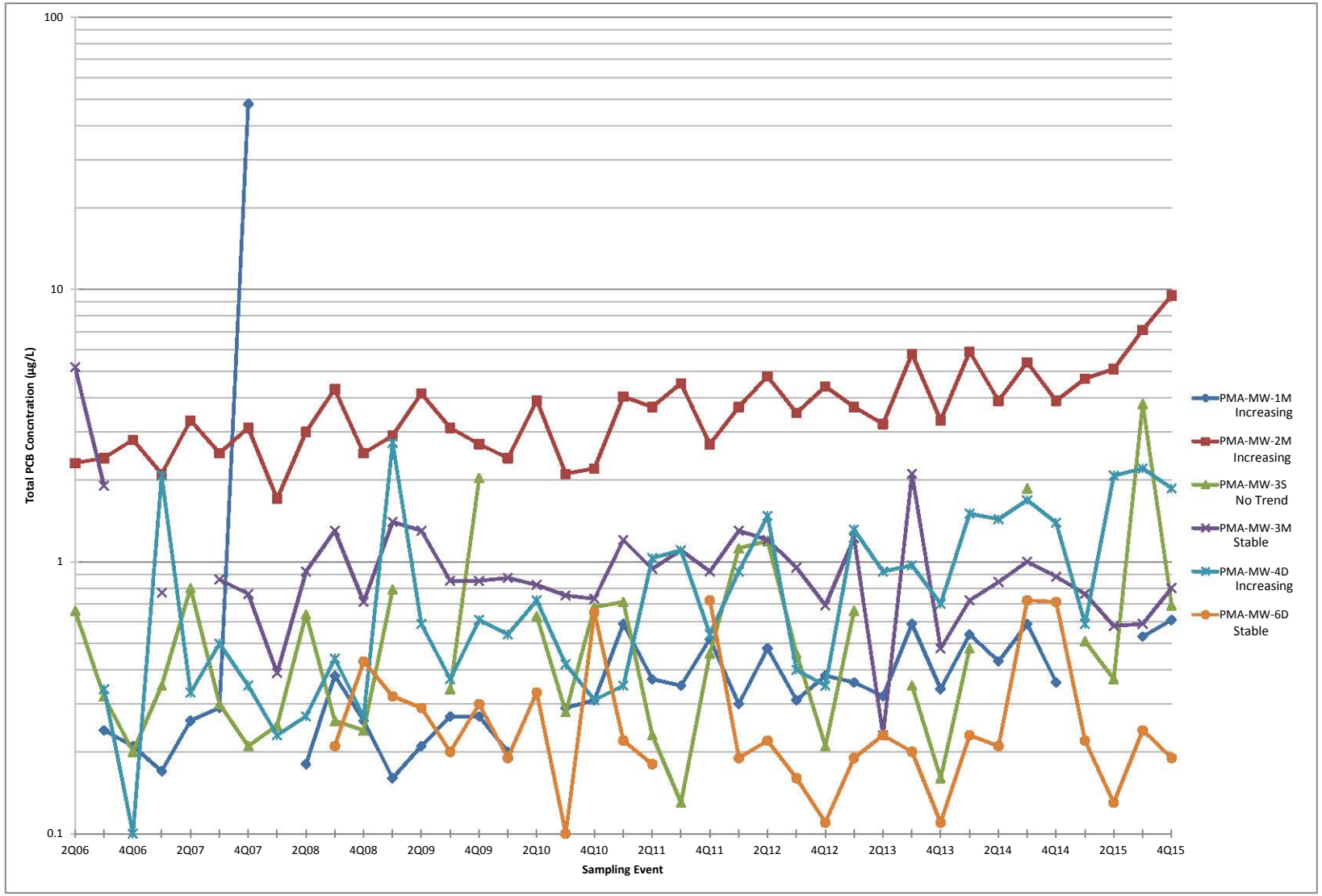
Table 3
Mann-Kendall Trend Analysis
4Q15 PCB Groundwater Quality Assessment Program
W.G. Krummrich Facility
Sauget, IL

Event Number	Quarter	Total PCB Concentration (µg/L)					
		PMA-MW-1M	PMA-MW-2M	PMA-MW-3S	PMA-MW-3M	PMA-MW-4D	PMA-MW-6D
1	2Q06	ND	2.3	0.66	5.18	NA	NA
2	3Q06	0.24	2.4	0.32	1.90	0.34	NA
3	4Q06	0.21	2.8	0.20	ND	0.10	NA
4	1Q07	0.17	2.1	0.35	0.77	2.07	NA
5	2Q07	0.26	3.3	0.80	ND	0.33	NA
6	3Q07	0.29	2.5	0.30	0.86	0.50	NA
7	4Q07	48	3.1	0.21	0.76	0.35	NA
8	1Q08	ND	1.7	0.25	0.39	0.23	NA
9	2Q08	0.18	3.0	0.64	0.92	0.27	NA
10	3Q08	0.38	4.3	0.26	1.30	0.44	0.21
11	4Q08	0.26	2.5	0.24	0.71	0.27	0.43
12	1Q09	0.16	2.9	0.79	1.40	2.73	0.32
13	2Q09	0.21	4.14	ND	1.30	0.59	0.29
14	3Q09	0.27	3.1	0.34	0.85	0.37	0.20
15	4Q09	0.27	2.7	2.03	0.85	0.61	0.30
16	1Q10	0.20	2.4	ND	0.87	0.54	0.19
17	2Q10	ND	3.9	0.63	0.82	0.72	0.33
18	3Q10	0.29	2.1	0.28	0.75	0.42	0.10
19	4Q10	0.31	2.199	0.68	0.73	0.31	0.65
20	1Q11	0.59	4.04	0.71	1.20	0.35	0.22
21	2Q11	0.37	3.7	0.23	0.94	1.03	0.18
22	3Q11	0.35	4.52	0.13	1.10	1.10	ND
23	4Q11	0.52	2.7	0.46	0.92	0.54	0.72
24	1Q12	0.30	3.7	1.12	1.30	0.92	0.19
25	2Q12	0.48	4.79	1.19	1.20	1.47	0.22
26	3Q12	0.31	3.52	0.46	0.95	0.40	0.16
27	4Q12	0.38	4.4	0.21	0.69	0.35	0.11
28	1Q13	0.36	3.7	0.66	1.22	1.31	0.19
29	2Q13	0.32	3.2	ND	0.23	0.92	0.23
30	3Q13	0.59	5.8	0.35	2.10	0.97	0.20
31	4Q13	0.34	3.3	0.16	0.48	0.70	0.11
32	1Q14	0.54	5.9	0.48	0.72	1.50	0.23
33	2Q14	0.43	3.9	ND	0.84	1.43	0.21
34	3Q14	0.59	5.4	1.86	1.00	1.68	0.72
35	4Q14	0.36	3.9	ND	0.88	1.39	0.71
36	1Q15	ND	4.7	0.51	0.76	0.59	0.22
37	2Q15	ND	5.1	0.37	0.58	2.07	0.13
38	3Q15	0.53	7.1	3.8	0.59	2.2	0.24
39	4Q15	0.61	9.5	0.69	0.80	1.86	0.19
Coefficient of Variation		4.66	0.40	1.07	0.84	0.74	0.65
Mann-Kendall Statistic (S)		234	316	46	-86	276	-34
Confidence in Trend[1]		>99.9%	>99.9%	76.6%	88.6%	>99.9%	75.3%
Concentration Trend		Increasing	Increasing	No Trend	Stable	Increasing	Stable

Notes
NA - not analyzed
ND - non-detect (values detected below the detection limit)
[1] - confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0)
> 90% - probably increasing or decreasing
> 95% - Increasing or Decreasing
Data from 2Q06 to 1Q14 was compiled by former consultant

Prepared By: SJD 12/22/2015
Checked By: EPW 12/23/2015
Reviewed By: AWD 1/8/2016

Table 3
Mann-Kendall Trend Analysis
4Q15 PCB Groundwater Quality Assessment Program
W.G. Krummrich Facility
Sauget, IL



APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

SmartTroll
11/12/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	28.44 ft
		Pump Placement from TOC	22.43 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-1S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	349 mL
Well Total Depth	24.93 ft	Calculated Sample Rate	69 sec
Depth to Top of Screen	19.93 ft	Sample Rate	69 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	12.73 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	15:19:22	18.61	7.57	1184.38	1.83	0.41	25.62
	15:20:11	18.81	7.54	1172.71	2.00	0.34	28.60
	15:21:00	19.04	7.51	1170.88	1.69	0.33	30.72
	15:21:49	19.21	7.49	1176.73	1.69	0.30	32.37
	15:22:38	19.30	7.47	1184.88	1.74	0.29	33.74
Variance in Last 3 Readings		0.23	-0.03	-1.83	-0.31	-0.01	2.12
		0.17	-0.02	5.85	0.00	-0.03	1.65
		0.09	-0.02	8.15	0.05	-0.01	1.37

Notes:

In-Situ Inc.

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11/12/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	62.80 ft
		Pump Placement from TOC	57.10 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-1M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	540 mL
Well Total Depth	59.60 ft	Calculated Sample Rate	108 sec
Depth to Top of Screen	54.60 ft	Sample Rate	108 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	13.78 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	14:48:54	18.19	7.40	2170.08	3.68	0.12	-7.62
	14:50:22	18.18	7.36	2169.04	3.83	0.11	-21.05
	14:51:50	18.15	7.33	2164.47	2.61	0.09	-31.88
	14:53:18	18.13	7.31	2165.61	2.34	0.09	-42.42
	14:54:48	18.11	7.29	2167.88	2.04	0.08	-51.54
Variance in Last 3 Readings		-0.03	-0.03	-4.57	-1.22	-0.02	-10.83
		-0.02	-0.02	1.14	-0.27	0.00	-10.54
		-0.02	-0.02	2.27	-0.30	-0.01	-9.12

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	30.83 ft
		Pump Placement from TOC	24.84 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-2S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	362 mL
Well Total Depth	27.34 ft	Calculated Sample Rate	72 sec
Depth to Top of Screen	22.34 ft	Sample Rate	72 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	12.73 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:37:24	18.39	7.58	1575.29	15.90	0.22	21.78
	16:38:16	18.51	7.56	1561.57	13.90	0.23	24.49
	16:39:08	18.68	7.54	1532.56	11.70	0.27	26.55
	16:40:01	18.77	7.51	1505.76	10.40	0.30	28.49
	16:41:02	18.81	7.49	1493.47	8.23	0.33	30.77
Variance in Last 3 Readings		0.17	-0.02	-29.01	-2.20	0.04	2.06
		0.09	-0.03	-26.80	-1.30	0.03	1.94
		0.04	-0.02	-12.29	-2.17	0.03	2.28

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	65.04 ft
		Pump Placement from TOC	58.77 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-2M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	553 mL
Well Total Depth	61.27 ft	Calculated Sample Rate	110 sec
Depth to Top of Screen	56.27 ft	Sample Rate	110 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	15.51 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	15:57:23	17.60	7.25	2167.45	4.86	0.30	19.42
	15:58:53	17.70	7.24	2198.32	5.85	0.18	5.18
	16:00:23	17.79	7.23	2194.65	6.22	0.14	-6.25
	16:01:53	17.79	7.23	2195.07	5.90	0.12	-16.32
	16:03:24	17.80	7.23	2192.10	4.30	0.10	-25.57
Variance in Last 3 Readings		0.09	-0.01	-3.67	0.37	-0.04	-11.43
		0.00	0.00	0.42	-0.32	-0.02	-10.07
		0.01	0.00	-2.97	-1.60	-0.02	-9.25

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	30.90 ft
		Pump Placement from TOC	24.90 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-3S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	362 mL
Well Total Depth	27.40 ft	Calculated Sample Rate	72 sec
Depth to Top of Screen	22.40 ft	Sample Rate	72 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	15.40 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:45:37	20.32	7.73	2281.48	21.90	0.16	125.67
	10:46:29	20.24	7.69	2277.68	16.20	0.09	137.92
	10:47:25	20.14	7.64	2280.57	11.00	0.07	147.84
	10:48:18	20.14	7.61	2279.90	10.30	0.07	157.42
	10:49:12	20.11	7.59	2285.74	7.97	0.07	164.39
Variance in Last 3 Readings		-0.10	-0.05	2.89	-5.20	-0.02	9.92
		0.00	-0.03	-0.67	-0.70	0.00	9.58
		-0.03	-0.02	5.84	-2.33	0.00	6.97

Notes:

In-Situ Inc.

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	75.31 ft
		Pump Placement from TOC	59.31 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-3M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	610 mL
Well Total Depth	61.81 ft	Calculated Sample Rate	121 sec
Depth to Top of Screen	56.81 ft	Sample Rate	121 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	15.22 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:13:44	18.79	8.01	2172.70	4.28	0.07	-52.45
	10:15:25	18.86	8.08	2168.79	3.61	0.05	-50.97
	10:17:06	18.95	8.12	2169.99	3.17	0.04	-48.16
	10:18:47	19.08	8.15	2161.22	1.27	0.03	-43.88
	10:20:28	19.16	8.16	2164.29	3.51	0.02	-38.54
Variance in Last 3 Readings		0.09	0.04	1.20	-0.44	-0.01	2.81
		0.13	0.03	-8.77	-1.90	-0.01	4.28
		0.08	0.01	3.07	2.24	-0.01	5.34

Notes:

In-Situ Inc.

SmartTroll
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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	25.88 ft
		Pump Placement from TOC	22.88 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-4S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	334 mL
Well Total Depth	25.38 ft	Calculated Sample Rate	66 sec
Depth to Top of Screen	20.38 ft	Sample Rate	66 sec
Screen Length	5 ft	Stabilized Drawdown	0.06 ft
Depth to Water	13.52 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	12:00:56	19.39	7.29	2423.13	9.45	0.08	46.19
	12:01:43	19.39	7.28	2549.67	8.81	0.07	44.80
	12:02:31	19.35	7.28	2633.66	9.72	0.06	43.57
	12:03:20	19.30	7.29	2655.08	8.23	0.06	41.50
	12:04:15	19.30	7.29	2703.16	8.71	0.05	38.75
Variance in Last 3 Readings		-0.04	0.00	83.99	0.91	-0.01	-1.23
		-0.05	0.01	21.42	-1.49	0.00	-2.07
		0.00	0.00	48.08	0.48	-0.01	-2.75

Notes:

In-Situ Inc.

SmartTroll
11/13/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	74.80 ft
		Pump Placement from TOC	70.88 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	607 mL
Well Total Depth	73.38 ft	Calculated Sample Rate	121 sec
Depth to Top of Screen	68.38 ft	Sample Rate	121 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	14.30 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	11:25:41	18.93	7.41	1812.52	2.01	0.06	17.40
	11:27:27	18.85	7.40	1828.38	2.02	0.06	2.62
	11:29:09	18.77	7.39	1823.28	1.92	0.06	-8.32
	11:30:51	18.61	7.39	1834.69	2.02	0.05	-17.61
	11:32:33	18.59	7.38	1839.95	1.88	0.05	-25.46
Variance in Last 3 Readings		-0.08	-0.01	-5.10	-0.10	0.00	-10.94
		-0.16	0.00	11.41	0.10	-0.01	-9.29
		-0.02	-0.01	5.26	-0.14	0.00	-7.85

Notes:

In-Situ Inc.

SmartTroll
11/12/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	60.37 ft
		Pump Placement from TOC	54.48 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-5M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	527 mL
Well Total Depth	56.98 ft	Calculated Sample Rate	105 sec
Depth to Top of Screen	51.98 ft	Sample Rate	105 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	14.73 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	14:00:04	18.37	7.31	2244.11	1.62	0.16	-31.41
	14:01:29	18.32	7.31	2257.78	1.25	0.13	-34.85
	14:04:21	18.27	7.29	2263.22	1.18	0.09	-37.81
	14:05:46	18.32	7.29	2261.73	1.44	0.07	-37.91
	14:07:13	18.32	7.28	2264.16	1.34	0.07	-38.43
Variance in Last 3 Readings		-0.05	-0.02	5.44	-0.07	-0.04	-2.96
		0.05	0.00	-1.49	0.26	-0.02	-0.10
		0.00	-0.01	2.43	-0.10	0.00	-0.52

Notes:

In-Situ Inc.

SmartTroll
11/12/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	EPW	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	PCB	Tubing Length	104.68 ft
		Pump Placement from TOC	98.72 ft

Well Information:		**Pumping Information:**	
Well Id	PMA-MW-6D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	774 mL
Well Total Depth	101.22 ft	Calculated Sample Rate	154 sec
Depth to Top of Screen	96.22 ft	Sample Rate	154 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	12.15 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:12:43	18.46	7.30	1046.34	2.46	0.22	-8.58
	13:14:57	18.46	7.27	1050.40	0.94	0.18	-18.79
	13:17:11	18.48	7.25	1052.36	0.98	0.15	-29.18
	13:19:35	18.47	7.24	1056.14	0.22	0.14	-39.17
	13:21:54	18.46	7.24	1057.57	1.24	0.12	-48.31
Variance in Last 3 Readings		0.02	-0.02	1.96	0.04	-0.03	-10.39
		-0.01	-0.01	3.78	-0.76	-0.01	-9.99
		-0.01	0.00	1.43	1.02	-0.02	-9.14

Notes:

APPENDIX B
CHAINS-OF-CUSTODY

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Emily White

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Fingner~~	Date: 11/12/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E White
St Charles, MO 63301	☑ CALENDAR ☐ WORKING			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2			Lab Sampling:
Project Name: 2Q15 PCB GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total PCBs by 680	Sample Specific Notes:
PMA-MW-6D-1115	11/12/15	1322	G	W	2	N		2	3 coolers
PMA-MW-5M-1115		1408			2	N		2	
PMA-MW-1M-1115		1455			2	N		2	
PMA-MW-1S-1115		1522			2	N		2	
PMA-MW-1S-1115-MS		1522			2	N		2	
PMA-MW-1S-1115-MSD		1522			2	N		2	
PMA-MW-2M-1115		1604			2	N		2	
PMA-MW-2M-1115-AD		1604			2	N		2	
PMA-MW-2S-1115		1624			2	N		2	
PMA-MW-2S-1115-EB		1710			2	N		2	

680-118985 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammab ☐ Skin ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

0.0/0.4 3.6/4.0 0.4/0.8

Custody Seals Intact: ☐ ☐ No | Custody Seal No.: 8000961800897138000 98 | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/12/15 1815	[signature]	TA	11-13-15 9:34
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Emily White

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Bindner~~	Date: 11/13/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: Emily White
St. Charles, MO 63301	☑ CALENDAR ☐ WORKING			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2			Lab Sampling:
Project Name: 3Q15 PCB GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Total PCBs by 680	Sample Specific Notes:
PMA-MW-3M-1115	11/13/15	1020	G	W	2	N		2	
PMA-MW-3S-1115		1050			2	N		2	
PMA-MW-4D-1115		1135			2	N		2	
PMA-MW-4S-1115		1205			2	N		2	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammab ☐ Skin ☐ Poison B ☐ Unknown

Sam... e retained longer than 1 month)

☐ Return to Client ☑ ... rchive for ____ Months

680-119038 Chain of Custody

680-119038

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ ☐ No | Custody Seal No.: 436273 | Cooler Temp. (°C): Obs'd: 1.4 Corr'd: 1.4 | Therm ID No.: ____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Emily White	Golder	11/13/15 1345			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time
			m. Wilkes	TA	11/14/15 10:20

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

PCB GROUNDWATER QUALITY ASSESSMENT PROGRAM
SOLUTIA INC., W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared For: Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141 USA

Submitted By: Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA

January 2016 **140-3345**

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Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on November 12 and November 13, 2015 at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility (Site) in Sauget, Illinois. Golder collected a total of fourteen (14) samples from groundwater monitoring wells as part of the 4th Quarter 2015 (4Q15) PCB Groundwater Quality Assessment Program (PCB). Ten (10) groundwater samples, one (1) equipment blank (EB), one (1) analytical duplicate (AD) and one (1) matrix spike/matrix spike duplicate (MS/MSD) pair were prepared. Groundwater monitoring locations were located at the WGK facility. The samples were submitted to the TestAmerica Laboratories, Inc. (TestAmerica) facility located in Savannah, Georgia for analysis using United States Environmental Protection Agency (USEPA) Method 680. Samples submitted to TestAmerica were analyzed for polychlorinated biphenyls (PCBs). The analytical results were placed into two (2) sample delivery groups (SDGs) as described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KPM067	PMA-MW-1M-1115
	PMA-MW-1S-1115
	PMA-MW-2M-1115
	PMA-MW-2M-1115-AD
	PMA-MW-2S-1115
	PMA-MW-2S-1115-EB
	PMA-MW-5M-1115
	PMA-MW-6D-1115
KPM068	PMA-MW-3M-1115
	PMA-MW-3S-1115
	PMA-MW-4D-1115
	PMA-MW-4S-1115

The samples were collected and analyzed in general accordance with the Revised PCB Groundwater Quality Assessment Program Work Plan (Work Plan) (Solutia 2009). Groundwater samples were analyzed for polychlorinated biphenyls (PCBs) using USEPA Method 680. In addition, the EB, AD and MS/MSD pair were submitted and analyzed for PCBs.

Golder completed validation of the analytical data following the general guidelines in Section 3.4 Data Review and Validation of the Work Plan. The Work Plan specifies that the most recent version of the national data validation guidelines be used for data review. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01, June 2008

These documents are hereafter referred to as the "functional guidelines". If there was a conflict between the functional guidelines and the quality control criteria specified in the analytical method, the method-specific criteria were used. The SDGs were prepared as a Level IV data report package containing quality control information and raw data. Golder completed Level III review of 100% of the analytical data and Level IV review of 10% of the analytical data.

Data that has been qualified by the data validator has been added to the laboratory report. The qualifiers indicate data that did not meet acceptance criteria and corrective actions were not successful or not performed. Laboratory data qualifiers are defined below:

- U – The analyte was analyzed for but not was not detected

Golder data qualifiers are defined below:

- D – The analyte was analyzed at a dilution

Section 2 summarizes the specific instances where quality control criteria in the functional guidelines were not met. As specified in the functional guidelines, if the non-adherence to quality control criteria is slight, professional judgment was used in qualification of the data. However, if the non-adherence is significant, qualification and rejection of the data may be necessary. A summary of qualified data is provided in Section 3.0.

Following data validation, the qualified data were summarized in tables, which are included in the main body of the report.

2.0 POLYCHLORINATED BIPHENYLS

Samples were collected from ten (10) groundwater monitoring locations and analyzed for PCBs. One (1) AD sample was collected from sampling location, PMA-MW-2M. One (1) EB, associated with PMA-MW-2S was also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into two (2) data packages or SDGs (KPM067 and KPM068), and were prepared and analyzed using USEPA Method 680. Samples were validated in general accordance with the functional guidelines. Results of the validation are summarized below.

2.1 Receipt Condition and Sample Holding Times

The SDG Case Narrative, chain-of-custody, login sample receipt checklist, and analysis dates were reviewed to verify analytical method holding times and proper preservation upon sampling. Samples were received by TestAmerica in good condition.

2.2 Blanks

Laboratory and field blanks, including method blanks and equipment blanks are prepared and analyzed to determine if contamination occurred as a result of laboratory or field activities.

Laboratory method blanks were performed for each laboratory system as outlined for each analytical method to evaluate whether cross contamination occurred during laboratory analysis activities. Results for the method blanks were non-detect.

One (1) EB, associated with sample PMA-MW-2S, was collected during the 4Q15 event to assess the effectiveness of the decontamination procedure. There were no detections in the EB.

2.3 Surrogate Spike Recoveries

Samples to be analyzed for PCBs were spiked with surrogate compound decachlorobiphenyl-13C12 prior to analysis, to evaluate overall laboratory performance. No deficiencies were noted, therefore no qualification was required.

2.4 Laboratory Control Sample Recoveries

A laboratory control sample (LCS) is analyzed on each laboratory system to evaluate the analytical method accuracy and laboratory performance. LCS recoveries were within acceptance criteria.

2.5 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

MS/MSD samples are analyzed to determine long term precision and accuracy of the analytical method on various matrices. One (1) MS/MSD pair is sampled for every twenty (20) field samples. One (1) MS/MSD pair was collected during the 4Q15 event associated with sample PMA-MW-1S. MS/MSD accuracy and precision data met criteria; therefore qualification was not required.

2.6 Analytical Duplicates

One (1) AD is collected for every ten (10) field samples to determine the overall precision of field and laboratory methods. One (1) AD was collected during the 4Q15 event associated with sample PMA-MW-2M. The relative percent difference (RPD) between the sample, PMA-MW-2M, and the AD, PMA-MW-2M-AD, did not exceeded 25%; therefore, data qualification was not required.

2.7 Results Reported From Dilutions

PCB samples, PMA-MW-2M, PMA-MW-2M-AD, and PMA-MW-4S required dilutions due to high levels of target analytes or initial appearance. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 3.0.

3.0 SUMMARY

Golder validated the data collected during the 4Q15 sampling event from the Solutia Inc. WGK facility in general accordance with the Work Plan and USEPA functional guidelines. Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. Where a positive result was qualified as estimated, the analyte should be considered present. Similarly, a result

that was qualified as an estimated reporting limit should be considered not present for the purposes of this program, although the limit itself may not be precise. The completeness for the entire data set was 100%.

Qualification Summary Table

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Heptachlorobiphenyl, Hexachlorobiphenyl, Octachlorobiphenyl, Monochlorobiphenyl, Dichlorobiphenyl, Pentachlorobiphenyl, Tetrachlorobiphenyl, and Trichlorobiphenyl	D	PMA-MW-2M, PMA-MW-2M-AD and PMA-MW-4S

4.0 REFERENCES

Solutia Inc, 2009. Revised PCB Groundwater Quality Assessment Program Work Plan, W.G. Krummrich Facility, Sauget, IL, Prepared by URS Corporation, May 2009.

USEPA, 2008. Contract Laboratory Program national Functional Guidelines for Superfund Organic Methods Data Review.

APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
(INCLUDING DATA VALIDATION REPORTS)

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 PCB Groundwater Quality Assessment

Company Name: Golder Associates
Project Name: WGK-4Q15 PCB
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPM067
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 2015

Analytical Method: PCB (680)

Sample Names: PMA-MW-6D-1115, PMA-MW-5M-1115, PMA-MW-1M-1115, PMA-MW-1S-1115, PMA-MW-2M-1115, PMA-MW-2M-1115-AD, PMA-MW-2S-1115, and PMA-MW-2S-1115-EB

Field Information	**YES**	**NO**	**NA**
a) Sampling dates noted?	☒	☐	☐
b) Does the laboratory narrative indicate deficiencies?	☒	☐	☐

Comments:

PCBs: Samples PMA-MW-2M-1115 and PMA-MW-2M-1115-AD required a dilution prior to analysis, reporting limits were adjusted accordingly.

Chain-of-Custody (COC)	**YES**	**NO**	**NA**
a) Was the COC signed by both field and laboratory personnel?	☒	☐	☐
b) Were samples received in good condition?	☒	☐	☐

Comments: Samples were received at 0.4°C, 0.8°C and 4.0°C, some outside the 4°C +/- 2°C criteria.

General	**YES**	**NO**	**NA**
a) Were hold times met for sample analysis?	☒	☐	☐
b) Were the correct preservatives used?	☒	☐	☐
c) Was the correct method used?	☒	☐	☐
d) Any sample dilutions noted?	☒	☐	☐

Comments: Detections in diluted analysis were qualified.

Calibrations	**YES**	**NO**	**NA**
a) Initial calibration analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Continuing calibrations analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: None

Blanks	**YES**	**NO**	**NA**
a) Were blanks (trip, equipment, method) performed at required frequency?	☒	☐	☐
b) Were analytes detected in any blanks?	☐	☒	☐

Comments: Equipment blank PMA-MW-2S-1115-EB was submitted with SDG KPM067.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

	YES	NO	NA
a) Was MS/MSD accuracy criteria met?	☒	☐	☐
b) Was MS/MSD precision criteria met?	☒	☐	☐

Comments: None

Laboratory Control Sample (LCS)

	YES	NO	NA
a) LCS analyzed at the appropriate frequency and met appropriate standards?	☒	☐	☐

Comments: None

Surrogate (System Monitoring) Compounds

	YES	NO	NA
a) Surrogate compounds analyzed at the appropriate frequency and met appropriate standards?	☒	☐	☐

Comments: None

Duplicates

	YES	NO	NA
a) Were field duplicates collected?	☒	☐	☐
b) Was field duplicate precision criteria met?	☒	☐	☐

Comments: Duplicate sample PMA-MW-2M-1115-AD was submitted with SDG KPM067.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Monochlorobiphenyl	D	PMA-MW-2M and PMA-MW-2M-AD

SDG KPM067

Sample Results from:

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-118989-1
TestAmerica Sample Delivery Group: KPM067
Client Project/Site: 4Q15 PCB GW Sampling - 1403345

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/4/2015 12:09:23 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

Links

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

Results relate only to the items tested and the sample(s) as received by the laboratory.

AMD 12/30/15

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RWD 12/30/15

Job ID: 680-118989-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 PCB GW Sampling - 1403345

Report Number: 680-118989-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 11/13/2015 9:34 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.4° C, 0.8° C and 4.0° C.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples PMA-MW-6D-1115 (680-118989-1), PMA-MW-5M-1115 (680-118989-2), PMA-MW-1M-1115 (680-118989-3), PMA-MW-1S-1115 (680-118989-4), PMA-MW-2M-1115 (680-118989-5), PMA-MW-2M-1115-AD (680-118989-6), PMA-MW-2S-1115 (680-118989-7) and PMA-MW-2S-1115-EB (680-118989-8) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 11/19/2015 and analyzed on 12/02/2015.

Samples PMA-MW-2M-1115 (680-118989-5)[5X] and PMA-MW-2M-1115-AD (680-118989-6)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PWD 12/30/15

Sample Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-118989-1	PMA-MW-6D-1115	Water	11/12/15 13:22	11/13/15 09:34
680-118989-2	PMA-MW-5M-1115	Water	11/12/15 14:08	11/13/15 09:34
680-118989-3	PMA-MW-1M-1115	Water	11/12/15 14:55	11/13/15 09:34
680-118989-4	PMA-MW-1S-1115	Water	11/12/15 15:22	11/13/15 09:34
680-118989-5	PMA-MW-2M-1115	Water	11/12/15 16:04	11/13/15 09:34
680-118989-6	PMA-MW-2M-1115-AD	Water	11/12/15 16:04	11/13/15 09:34
680-118989-7	PMA-MW-2S-1115	Water	11/12/15 16:24	11/13/15 09:34
680-118989-8	PMA-MW-2S-1115-EB	Water	11/12/15 17:10	11/13/15 09:34

RWD 12/30/15
TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

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AWD 12/30/15
TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

MWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-6D-1115

Lab Sample ID: 680-118989-1

Date Collected: 11/12/15 13:22
Date Received: 11/13/15 09:34

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 15:32	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 15:32	1
Nonachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 15:32	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 15:32	1
Monochlorobiphenyl	0.19		0.10		ug/L		11/19/15 15:51	12/02/15 15:32	1
DCB Decachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 15:32	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 15:32	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 15:32	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 15:32	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*69*		*25 - 113*	*11/19/15 15:51*	*12/02/15 15:32*	*1*

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AWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-5M-1115

Lab Sample ID: 680-118989-2

Date Collected: 11/12/15 14:08
Date Received: 11/13/15 09:34

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 16:01	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:01	1
Nonachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 16:01	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 16:01	1
Monochlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:01	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 16:01	1
Dichlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:01	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:01	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:01	1
Trichlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*60*		*25 - 113*	*11/19/15 15:51*	*12/02/15 16:01*	*1*

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AWD 12/30/15

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-1M-1115

Lab Sample ID: 680-118989-3

Date Collected: 11/12/15 14:55
Date Received: 11/13/15 09:34

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.31	U	0.31		ug/L		11/19/15 15:51	12/02/15 16:29	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:29	1
Nonachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 16:29	1
Octachlorobiphenyl	0.31	U	0.31		ug/L		11/19/15 15:51	12/02/15 16:29	1
Monochlorobiphenyl	0.61		0.10		ug/L		11/19/15 15:51	12/02/15 16:29	1
DCB Decachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 16:29	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 16:29	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:29	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:29	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*60*		*25 - 113*	*11/19/15 15:51*	*12/02/15 16:29*	*1*

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RWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-1S-1115

Lab Sample ID: 680-118989-4

Date Collected: 11/12/15 15:22
Matrix: Water
Date Received: 11/13/15 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 16:58	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:58	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 16:58	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 16:58	1
Monochlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:58	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 16:58	1
Dichlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:58	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:58	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 16:58	1
Trichlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/02/15 16:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*64*		*25 - 113*	*11/19/15 15:51*	*12/02/15 16:58*	*1*

PWD 12/20/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-2M-1115

Date Collected: 11/12/15 16:04
Date Received: 11/13/15 09:34

Lab Sample ID: 680-118989-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	1.5	U	1.5		ug/L		11/19/15 15:51	12/02/15 17:26	5
Hexachlorobiphenyl	0.98	U	0.98		ug/L		11/19/15 15:51	12/02/15 17:26	5
Nonachlorobiphenyl	2.4	U	2.4		ug/L		11/19/15 15:51	12/02/15 17:26	5
Octachlorobiphenyl	1.5	U	1.5		ug/L		11/19/15 15:51	12/02/15 17:26	5
Monochlorobiphenyl	**9.5**	D	0.49		ug/L		11/19/15 15:51	12/02/15 17:26	5
DCB Decachlorobiphenyl	2.4	U	2.4		ug/L		11/19/15 15:51	12/02/15 17:26	5
Dichlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 17:26	5
Pentachlorobiphenyl	0.98	U	0.98		ug/L		11/19/15 15:51	12/02/15 17:26	5
Tetrachlorobiphenyl	0.98	U	0.98		ug/L		11/19/15 15:51	12/02/15 17:26	5
Trichlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 17:26	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*112*		*25 - 113*	*11/19/15 15:51*	*12/02/15 17:26*	*5*

MWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-2M-1115-AD

Lab Sample ID: 680-118989-6

Date Collected: 11/12/15 16:04
Matrix: Water
Date Received: 11/13/15 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	1.5	U	1.5		ug/L		11/19/15 15:51	12/02/15 17:54	5
Hexachlorobiphenyl	1.0	U	1.0		ug/L		11/19/15 15:51	12/02/15 17:54	5
Nonachlorobiphenyl	2.6	U	2.6		ug/L		11/19/15 15:51	12/02/15 17:54	5
Octachlorobiphenyl	1.5	U	1.5		ug/L		11/19/15 15:51	12/02/15 17:54	5
Monochlorobiphenyl	**10**	D	0.52		ug/L		11/19/15 15:51	12/02/15 17:54	5
DCB Decachlorobiphenyl	2.6	U	2.6		ug/L		11/19/15 15:51	12/02/15 17:54	5
Dichlorobiphenyl	0.52	U	0.52		ug/L		11/19/15 15:51	12/02/15 17:54	5
Pentachlorobiphenyl	1.0	U	1.0		ug/L		11/19/15 15:51	12/02/15 17:54	5
Tetrachlorobiphenyl	1.0	U	1.0		ug/L		11/19/15 15:51	12/02/15 17:54	5
Trichlorobiphenyl	0.52	U	0.52		ug/L		11/19/15 15:51	12/02/15 17:54	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*109*		*25 - 113*	*11/19/15 15:51*	*12/02/15 17:54*	*5*

MWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-2S-1115

Lab Sample ID: 680-118989-7

Date Collected: 11/12/15 16:24
Matrix: Water
Date Received: 11/13/15 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 18:23	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:23	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 18:23	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 18:23	1
Monochlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:23	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 18:23	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:23	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:23	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:23	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*82*		*25 - 113*	*11/19/15 15:51*	*12/02/15 18:23*	*1*

AWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-2S-1115-EB

Lab Sample ID: 680-118989-8

Date Collected: 11/12/15 17:10
Date Received: 11/13/15 09:34

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.31	U	0.31		ug/L		11/19/15 15:51	12/02/15 18:51	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:51	1
Nonachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 18:51	1
Octachlorobiphenyl	0.31	U	0.31		ug/L		11/19/15 15:51	12/02/15 18:51	1
Monochlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:51	1
DCB Decachlorobiphenyl	0.51	U	0.51		ug/L		11/19/15 15:51	12/02/15 18:51	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:51	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:51	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 18:51	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*73*		*25 - 113*	*11/19/15 15:51*	*12/02/15 18:51*	*1*

AWD 12/30/15
TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

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

Lab Sample ID: MB 680-411127/13-A
Matrix: Water
Analysis Batch: 412678

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 13:38	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 13:38	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 13:38	1
Monochlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 13:38	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*76*		*25 - 113*	*11/19/15 15:51*	*12/02/15 13:38*	*1*

Lab Sample ID: LCS 680-411127/14-A
Matrix: Water
Analysis Batch: 412678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 411127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Heptachlorobiphenyl	6.00	4.76		ug/L		79	62 - 130
Hexachlorobiphenyl	4.00	3.15		ug/L		79	62 - 130
Nonachlorobiphenyl	10.0	10.9		ug/L		109	70 - 195
Octachlorobiphenyl	6.00	4.72		ug/L		79	64 - 130
Monochlorobiphenyl	2.00	1.19		ug/L		60	42 - 130
DCB Decachlorobiphenyl	10.0	7.43		ug/L		74	59 - 130
Dichlorobiphenyl	2.00	1.34		ug/L		67	49 - 130
Pentachlorobiphenyl	4.00	3.09		ug/L		77	63 - 130
Tetrachlorobiphenyl	4.00	2.97		ug/L		74	54 - 130
Trichlorobiphenyl	2.00	1.47		ug/L		74	51 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Decachlorobiphenyl-13C12	*77*		*25 - 113*

Lab Sample ID: 680-118989-4 MS
Matrix: Water
Analysis Batch: 412678

Client Sample ID: PMA-MW-1S-1115
Prep Type: Total/NA
Prep Batch: 411127

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Heptachlorobiphenyl	0.30	U	5.96	5.12		ug/L		86	62 - 130
Hexachlorobiphenyl	0.20	U	3.98	3.38		ug/L		85	62 - 130
Nonachlorobiphenyl	0.50	U	9.94	11.5		ug/L		115	70 - 195
Octachlorobiphenyl	0.30	U	5.96	4.92		ug/L		82	64 - 130
Monochlorobiphenyl	0.099	U	1.99	1.34		ug/L		68	42 - 130
DCB Decachlorobiphenyl	0.50	U	9.94	8.04		ug/L		81	59 - 130
Dichlorobiphenyl	0.099	U	1.99	1.47		ug/L		74	49 - 130
Pentachlorobiphenyl	0.20	U	3.98	4.84		ug/L		122	63 - 130
Tetrachlorobiphenyl	0.20	U	3.98	2.99		ug/L		75	54 - 130

AWD 12/30/15
TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

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

Lab Sample ID: 680-118989-4 MS — **Client Sample ID: PMA-MW-1S-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 412678 — **Prep Batch: 411127**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorobiphenyl	0.099	U	1.99	1.44		ug/L		73	51 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Decachlorobiphenyl-13C12	*82*		*25 - 113*

Lab Sample ID: 680-118989-4 MSD — **Client Sample ID: PMA-MW-1S-1115**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 412678 — **Prep Batch: 411127**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Heptachlorobiphenyl	0.30	U	6.15	5.29		ug/L		86	62 - 130	3	40
Hexachlorobiphenyl	0.20	U	4.10	3.55		ug/L		87	62 - 130	5	40
Nonachlorobiphenyl	0.50	U	10.3	11.9		ug/L		116	70 - 195	4	40
Octachlorobiphenyl	0.30	U	6.15	5.02		ug/L		82	64 - 130	2	40
Monochlorobiphenyl	0.099	U	2.05	1.12		ug/L		55	42 - 130	18	40
DCB Decachlorobiphenyl	0.50	U	10.3	7.89		ug/L		77	59 - 130	2	40
Dichlorobiphenyl	0.099	U	2.05	1.39		ug/L		68	49 - 130	6	40
Pentachlorobiphenyl	0.20	U	4.10	5.01		ug/L		122	63 - 130	4	40
Tetrachlorobiphenyl	0.20	U	4.10	2.85		ug/L		70	54 - 130	5	40
Trichlorobiphenyl	0.099	U	2.05	1.36		ug/L		66	51 - 130	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Decachlorobiphenyl-13C12	*77*		*25 - 113*

AWD 12/30/15
TestAmerica Savannah

QC Association Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

GC/MS Semi VOA

Prep Batch: 411127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118989-1	PMA-MW-6D-1115	Total/NA	Water	680	
680-118989-2	PMA-MW-5M-1115	Total/NA	Water	680	
680-118989-3	PMA-MW-1M-1115	Total/NA	Water	680	
680-118989-4	PMA-MW-1S-1115	Total/NA	Water	680	
680-118989-4 MS	PMA-MW-1S-1115	Total/NA	Water	680	
680-118989-4 MSD	PMA-MW-1S-1115	Total/NA	Water	680	
680-118989-5	PMA-MW-2M-1115	Total/NA	Water	680	
680-118989-6	PMA-MW-2M-1115-AD	Total/NA	Water	680	
680-118989-7	PMA-MW-2S-1115	Total/NA	Water	680	
680-118989-8	PMA-MW-2S-1115-EB	Total/NA	Water	680	
LCS 680-411127/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-411127/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 412678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-118989-1	PMA-MW-6D-1115	Total/NA	Water	680	411127
680-118989-2	PMA-MW-5M-1115	Total/NA	Water	680	411127
680-118989-3	PMA-MW-1M-1115	Total/NA	Water	680	411127
680-118989-4	PMA-MW-1S-1115	Total/NA	Water	680	411127
680-118989-4 MS	PMA-MW-1S-1115	Total/NA	Water	680	411127
680-118989-4 MSD	PMA-MW-1S-1115	Total/NA	Water	680	411127
680-118989-5	PMA-MW-2M-1115	Total/NA	Water	680	411127
680-118989-6	PMA-MW-2M-1115-AD	Total/NA	Water	680	411127
680-118989-7	PMA-MW-2S-1115	Total/NA	Water	680	411127
680-118989-8	PMA-MW-2S-1115-EB	Total/NA	Water	680	411127
LCS 680-411127/14-A	Lab Control Sample	Total/NA	Water	680	411127
MB 680-411127/13-A	Method Blank	Total/NA	Water	680	411127

AMD 12/30/15
TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-6D-1115 — Lab Sample ID: 680-118989-1

Date Collected: 11/12/15 13:22 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			986.5 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	986.5 mL	1.0 mL	412678	12/02/15 15:32	NED	TAL SAV

Client Sample ID: PMA-MW-5M-1115 — Lab Sample ID: 680-118989-2

Date Collected: 11/12/15 14:08 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1014.6 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	1014.6 mL	1.0 mL	412678	12/02/15 16:01	NED	TAL SAV

Client Sample ID: PMA-MW-1M-1115 — Lab Sample ID: 680-118989-3

Date Collected: 11/12/15 14:55 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			982.2 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	982.2 mL	1.0 mL	412678	12/02/15 16:29	NED	TAL SAV

Client Sample ID: PMA-MW-1S-1115 — Lab Sample ID: 680-118989-4

Date Collected: 11/12/15 15:22 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1006.6 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	1006.6 mL	1.0 mL	412678	12/02/15 16:58	NED	TAL SAV

Client Sample ID: PMA-MW-2M-1115 — Lab Sample ID: 680-118989-5

Date Collected: 11/12/15 16:04 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1022.3 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		5	1022.3 mL	1.0 mL	412678	12/02/15 17:26	NED	TAL SAV

Client Sample ID: PMA-MW-2M-1115-AD — Lab Sample ID: 680-118989-6

Date Collected: 11/12/15 16:04 — **Matrix: Water**
Date Received: 11/13/15 09:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			968.2 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		5	968.2 mL	1.0 mL	412678	12/02/15 17:54	NED	TAL SAV

AWD 12/30/15
TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Client Sample ID: PMA-MW-2S-1115

Lab Sample ID: 680-118989-7

Date Collected: 11/12/15 16:24
Date Received: 11/13/15 09:34

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			999.7 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	999.7 mL	1.0 mL	412678	12/02/15 18:23	NED	TAL SAV

Client Sample ID: PMA-MW-2S-1115-EB

Lab Sample ID: 680-118989-8

Date Collected: 11/12/15 17:10
Date Received: 11/13/15 09:34

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			982.8 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	982.8 mL	1.0 mL	412678	12/02/15 18:51	NED	TAL SAV

Laboratory References:

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

AWD 12/30/15
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Emily White

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lab Manager~~	Date: 11/12/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: E. White
St Charles, MO 63301	☑ CALENDAR ☐ WORKING			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2			Lab Sampling:
Project Name: 2Q15 PCB GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total PCBs by 680	Sample Specific Notes:
PMA-MW-6D-1115	11/12/15	1322	G	W	2	N		2	3 coolers
PMA-MW-5M-1115		1408			2	N		2	
PMA-MW-1M-1115		1455			2	N		2	
PMA-MW-1S-1115		1522			2	N		2	
PMA-MW-1S-1115-MS		1522			2	N		2	
PMA-MW-1S-1115-MSD		1522			2	N		2	
PMA-MW-2M-1115		1604			2	N		2	
PMA-MW-2M-1115-AD		1604			2	N		2	
PMA-MW-2S-1115		1624			2	N		2	
PMA-MW-2S-1115-EB		1710			2	N		2	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammab ☐ Skin ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

0.0/0.4 3.6/4.0 0.4/0.8

Custody Seals Intact: ☐ ☐ No | Custody Seal No.: 8000961 8000971 8000981 | Cooler Temp. (°C): obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Emily White	Golder	11/12/15 1815	[illegible]	TA	11-13-15 9:34
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

AMD 12/30/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-118989-1
SDG Number: KPM067

Login Number: 118989
List Number: 1
Creator: White, Menica R

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

PWD 12/30/15

Certification Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-118989-1
SDG: KPM067

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	200022	11-30-15 *

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* Certification renewal pending - certification considered valid.

MWD 12/30/15
TestAmerica Savannah

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
4Q15 PCB Groundwater Quality Assessment

Company Name: Golder Associates
Project Name: WGK-4Q15 PCB
Reviewer: A. Derhake
Laboratory: TestAmerica
SDG#: KPM068
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: November 2015

Analytical Method: PCB (680)

Sample Names: PMA-MW-3M-1115, PMA-MW-3S-1115, PMA-MW-4D-1115, and PMA-MW-4S-1115

Field Information	**YES**	**NO**	**NA**
a) Sampling dates noted?	☒	☐	☐
b) Does the laboratory narrative indicate deficiencies?	☒	☐	☐

Comments:

PCBs: Sample PMA-MW-4S-1115 required a dilution prior to analysis, reporting limits were adjusted accordingly.

Chain-of-Custody (COC)	**YES**	**NO**	**NA**
a) Was the COC signed by both field and laboratory personnel?	☒	☐	☐
b) Were samples received in good condition?	☒	☐	☐

Comments: Samples were received at 1.8°C, outside the 4°C +/- 2°C criteria.

General	**YES**	**NO**	**NA**
a) Were hold times met for sample analysis?	☒	☐	☐
b) Were the correct preservatives used?	☒	☐	☐
c) Was the correct method used?	☒	☐	☐
d) Any sample dilutions noted?	☒	☐	☐

Comments: Detections in diluted analysis were qualified.

Calibrations	**YES**	**NO**	**NA**
a) Initial calibration analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Continuing calibrations analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: None

Blanks	**YES**	**NO**	**NA**
a) Were blanks (trip, equipment, method) performed at required frequency?	☒	☐	☐
b) Were analytes detected in any blanks?	☐	☒	☐

Comments: None

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

	YES	NO	NA
a) Was MS/MSD accuracy criteria met?	☐	☐	☒
b) Was MS/MSD precision criteria met?	☐	☐	☒

Comments: None

Laboratory Control Sample (LCS)

	YES	NO	NA
a) LCS analyzed at the appropriate frequency and met appropriate standards?	☒	☐	☐

Comments: None

Surrogate (System Monitoring) Compounds

	YES	NO	NA
a) Surrogate compounds analyzed at the appropriate frequency and met appropriate standards?	☒	☐	☐

Comments: None

Duplicates

	YES	NO	NA
a) Were field duplicates collected?	☐	☐	☒
b) Was field duplicate precision criteria met?	☐	☐	☒

Comments: None

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Heptachlorobiphenyl, Hexachlorobiphenyl, Octachlorobiphenyl, Monochlorobiphenyl, Dichlorobiphenyl, Pentachlorobiphenyl, Tetrachlorobiphenyl, and Trichlorobiphenyl	D	PMA-MW-4S

SDG KPM068

Sample Results from:

PMA-MW-3S
PMA-MW-3M
PMA-MW-4S
PMW-MW-4D

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ANALYTICAL REPORT

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

TestAmerica Job ID: 680-119038-1
TestAmerica Sample Delivery Group: KPM068
Client Project/Site: 4Q15 PCB GW Sampling - 1403345

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/4/2015 12:07:31 PM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

Results relate only to the items tested and the sample(s) as received by the laboratory.

AWD 12/30/15

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AWD
12/30/15

Job ID: 680-119038-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 4Q15 PCB GW Sampling - 1403345

Report Number: 680-119038-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT
The samples were received on 11/14/2015 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

POLYCHLORINATED BIPHENYLS (PCBS)
Samples PMA-MW-3M-1115 (680-119038-1), PMA-MW-3S-1115 (680-119038-2), PMA-MW-4D-1115 (680-119038-3) and PMA-MW-4S-1115 (680-119038-4) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 11/19/2015 and analyzed on 12/02/2015 and 12/03/2015.

Sample PMA-MW-4S-1115 (680-119038-4)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

AWB 12/30/15
TestAmerica Savannah

Sample Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-119038-1	PMA-MW-3M-1115	Water	11/13/15 10:20	11/14/15 10:20
680-119038-2	PMA-MW-3S-1115	Water	11/13/15 10:50	11/14/15 10:20
680-119038-3	PMA-MW-4D-1115	Water	11/13/15 11:35	11/14/15 10:20
680-119038-4	PMA-MW-4S-1115	Water	11/13/15 12:05	11/14/15 10:20

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AWD 12/30/15
TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

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AWD 12/30/15
TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

AWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Client Sample ID: PMA-MW-3M-1115

Lab Sample ID: 680-119038-1

Date Collected: 11/13/15 10:20
Date Received: 11/14/15 10:20

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 19:19	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:19	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 19:19	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 19:19	1
Monochlorobiphenyl	**0.80**		0.10		ug/L		11/19/15 15:51	12/02/15 19:19	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 19:19	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 19:19	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:19	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:19	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*67*		*25 - 113*	*11/19/15 15:51*	*12/02/15 19:19*	*1*

AWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Client Sample ID: PMA-MW-3S-1115

Lab Sample ID: 680-119038-2

Date Collected: 11/13/15 10:50
Date Received: 11/14/15 10:20

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.29	U	0.29		ug/L		11/19/15 15:51	12/02/15 19:48	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:48	1
Nonachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 19:48	1
Octachlorobiphenyl	0.29	U	0.29		ug/L		11/19/15 15:51	12/02/15 19:48	1
Monochlorobiphenyl	**0.50**		0.098		ug/L		11/19/15 15:51	12/02/15 19:48	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/02/15 19:48	1
Dichlorobiphenyl	**0.19**		0.098		ug/L		11/19/15 15:51	12/02/15 19:48	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:48	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 19:48	1
Trichlorobiphenyl	0.098	U	0.098		ug/L		11/19/15 15:51	12/02/15 19:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*79*		*25 - 113*	*11/19/15 15:51*	*12/02/15 19:48*	*1*

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PWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Client Sample ID: PMA-MW-4D-1115

Lab Sample ID: 680-119038-3

Date Collected: 11/13/15 11:35
Date Received: 11/14/15 10:20

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/03/15 02:31	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/03/15 02:31	1
Nonachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/03/15 02:31	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/03/15 02:31	1
Monochlorobiphenyl	0.92		0.099		ug/L		11/19/15 15:51	12/03/15 02:31	1
DCB Decachlorobiphenyl	0.49	U	0.49		ug/L		11/19/15 15:51	12/03/15 02:31	1
Dichlorobiphenyl	0.94		0.099		ug/L		11/19/15 15:51	12/03/15 02:31	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/03/15 02:31	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/03/15 02:31	1
Trichlorobiphenyl	0.099	U	0.099		ug/L		11/19/15 15:51	12/03/15 02:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*76*		*25 - 113*	*11/19/15 15:51*	*12/03/15 02:31*	*1*

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AWD 12/30/15
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Client Sample ID: PMA-MW-4S-1115

Lab Sample ID: 680-119038-4

Date Collected: 11/13/15 12:05
Date Received: 11/14/15 10:20

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	15	D	1.5		ug/L		11/19/15 15:51	12/03/15 03:00	5
Hexachlorobiphenyl	16	D	0.99		ug/L		11/19/15 15:51	12/03/15 03:00	5
Nonachlorobiphenyl	2.5	U	2.5		ug/L		11/19/15 15:51	12/03/15 03:00	5
Octachlorobiphenyl	2.2	D	1.5		ug/L		11/19/15 15:51	12/03/15 03:00	5
Monochlorobiphenyl	2.8	D	0.50		ug/L		11/19/15 15:51	12/03/15 03:00	5
DCB Decachlorobiphenyl	2.5	U	2.5		ug/L		11/19/15 15:51	12/03/15 03:00	5
Dichlorobiphenyl	12	D	0.50		ug/L		11/19/15 15:51	12/03/15 03:00	5
Pentachlorobiphenyl	11	D	0.99		ug/L		11/19/15 15:51	12/03/15 03:00	5
Tetrachlorobiphenyl	18	D	0.99		ug/L		11/19/15 15:51	12/03/15 03:00	5
Trichlorobiphenyl	19	D	0.50		ug/L		11/19/15 15:51	12/03/15 03:00	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*78*		*25 - 113*	*11/19/15 15:51*	*12/03/15 03:00*	*5*

AMD 12/30/15
TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

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

Lab Sample ID: MB 680-411127/13-A
Matrix: Water
Analysis Batch: 412678

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 411127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 13:38	1
Hexachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Nonachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 13:38	1
Octachlorobiphenyl	0.30	U	0.30		ug/L		11/19/15 15:51	12/02/15 13:38	1
Monochlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1
DCB Decachlorobiphenyl	0.50	U	0.50		ug/L		11/19/15 15:51	12/02/15 13:38	1
Dichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1
Pentachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Tetrachlorobiphenyl	0.20	U	0.20		ug/L		11/19/15 15:51	12/02/15 13:38	1
Trichlorobiphenyl	0.10	U	0.10		ug/L		11/19/15 15:51	12/02/15 13:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Decachlorobiphenyl-13C12	*76*		*25 - 113*	*11/19/15 15:51*	*12/02/15 13:38*	*1*

Lab Sample ID: LCS 680-411127/14-A
Matrix: Water
Analysis Batch: 412678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 411127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Heptachlorobiphenyl	6.00	4.76		ug/L		79	62 - 130
Hexachlorobiphenyl	4.00	3.15		ug/L		79	62 - 130
Nonachlorobiphenyl	10.0	10.9		ug/L		109	70 - 195
Octachlorobiphenyl	6.00	4.72		ug/L		79	64 - 130
Monochlorobiphenyl	2.00	1.19		ug/L		60	42 - 130
DCB Decachlorobiphenyl	10.0	7.43		ug/L		74	59 - 130
Dichlorobiphenyl	2.00	1.34		ug/L		67	49 - 130
Pentachlorobiphenyl	4.00	3.09		ug/L		77	63 - 130
Tetrachlorobiphenyl	4.00	2.97		ug/L		74	54 - 130
Trichlorobiphenyl	2.00	1.47		ug/L		74	51 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Decachlorobiphenyl-13C12	*77*		*25 - 113*

AWD 12/30/15
TestAmerica Savannah

QC Association Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

GC/MS Semi VOA

Prep Batch: 411127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-119038-1	PMA-MW-3M-1115	Total/NA	Water	680	
680-119038-2	PMA-MW-3S-1115	Total/NA	Water	680	
680-119038-3	PMA-MW-4D-1115	Total/NA	Water	680	
680-119038-4	PMA-MW-4S-1115	Total/NA	Water	680	
LCS 680-411127/14-A	Lab Control Sample	Total/NA	Water	680	
MB 680-411127/13-A	Method Blank	Total/NA	Water	680	

Analysis Batch: 412678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-119038-1	PMA-MW-3M-1115	Total/NA	Water	680	411127
680-119038-2	PMA-MW-3S-1115	Total/NA	Water	680	411127
LCS 680-411127/14-A	Lab Control Sample	Total/NA	Water	680	411127
MB 680-411127/13-A	Method Blank	Total/NA	Water	680	411127

Analysis Batch: 412775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-119038-3	PMA-MW-4D-1115	Total/NA	Water	680	411127
680-119038-4	PMA-MW-4S-1115	Total/NA	Water	680	411127

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AWD
12/30/15
TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Client Sample ID: PMA-MW-3M-1115 — Lab Sample ID: 680-119038-1

Date Collected: 11/13/15 10:20 — **Matrix: Water**
Date Received: 11/14/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			992.1 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	992.1 mL	1.0 mL	412678	12/02/15 19:19	NED	TAL SAV

Client Sample ID: PMA-MW-3S-1115 — Lab Sample ID: 680-119038-2

Date Collected: 11/13/15 10:50 — **Matrix: Water**
Date Received: 11/14/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1019.9 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	1019.9 mL	1.0 mL	412678	12/02/15 19:48	NED	TAL SAV

Client Sample ID: PMA-MW-4D-1115 — Lab Sample ID: 680-119038-3

Date Collected: 11/13/15 11:35 — **Matrix: Water**
Date Received: 11/14/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1014.4 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		1	1014.4 mL	1.0 mL	412775	12/03/15 02:31	NED	TAL SAV

Client Sample ID: PMA-MW-4S-1115 — Lab Sample ID: 680-119038-4

Date Collected: 11/13/15 12:05 — **Matrix: Water**
Date Received: 11/14/15 10:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	680			1007 mL	1.0 mL	411127	11/19/15 15:51	RBS	TAL SAV
Total/NA	Analysis	680		5	1007 mL	1.0 mL	412775	12/03/15 03:00	NED	TAL SAV

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

AWD 12/3/15
TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Emily White

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Lori Gardner~~	Date: 11/13/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler: Emily White
St. Charles, MO 63301	☑ CALENDAR ☐ WORKING			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☐ 2			Lab Sampling:
Project Name: 2Q15 PCB GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total PCBs by 680	Sample Specific Notes:
PMA-MW-3M-1115	11/13/15	1020	G	W	2	N		2	
PMA-MW-3S-1115	↓	1050	↓	↓	2	N		2	
PMA-MW-4D-1115	↓	1135	↓	↓	2	N		2	
PMA-MW-4S-1115	↓	1205	↓	↓	2	N		2	

Preservation Used: 1=Ice, 2=~~HCl~~, 3=~~H2SO4~~, 4=~~HNO3~~, 5=NaOH, 6=~~Other~~

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammab ☐ Skin ☐ Poison B ☐ Unknown

Sam... e retained longer than 1 month)

☐ Return to Client ☐ ... rchive for: ____ Months

680-119038 Chain of Custody

680-119038

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ ☐ No | Custody Seal No.: 436273 | Cooler Temp. (°C): Obs'd: 1.4 Corr'd: 1.8 | Therm ID No.:

Relinquished by	Company:	Date/Time	Received by:	Company:	Date/Time:
Emily White	Golder	11/13/15 1345			
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time:
			[signature]	TA	11/14/15 10:20

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

PMD 12/2015

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-119038-1
SDG Number: KPM068

Login Number: 119038
List Number: 1
Creator: Kicklighter, Marilyn D

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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AWD 12/30/15

Certification Summary

Client: Solutia Inc.
Project/Site: 4Q15 PCB GW Sampling - 1403345

TestAmerica Job ID: 680-119038-1
SDG: KPM068

Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	200022	11-30-15 *

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* Certification renewal pending - certification considered valid.

12/20/15
TestAmerica Savannah

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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