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

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gmrina@eastman.com

April 17, 2015

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

Re: Long-Term Monitoring Program
1st Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Long-Term Monitoring Program 1st Quarter 2015 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. Results from supplemental piezometers GWE-1D, 2D, 3D, 5S, and 5M and supplemental wells GWE-5D and ESL-MW-A, C1, and D1 are included in this report. Also included are a letter report (Appendix F) about the January 2015 installation of supplemental wells PM1M and PM1D in IDOT right-of-way, north of ESL-MW-D1, and the first of four planned quarterly samplings of those wells in February 2015.

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

Long-Term Monitoring Program
1st 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

GSI Environmental (CD only)

Chuck Newell 2211 Norfolk Street, Suite 1000, Houston, TX 77098-4044

GROUNDWATER MONITORING REPORT

LONG-TERM MONITORING 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

April 2015 **140-3345**

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Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 1st Quarter 2015 (1Q15) Long-Term Monitoring Program (LTMP) 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 1Q15 sampling event was performed in general accordance with the Revised LTMP Work Plan (Work Plan) (Solutia 2009). Work conducted during the LTMP is designed to evaluate the effectiveness of monitored natural attenuation (MNA). The effectiveness of MNA at the Site, is shown by the following:

- A clear and meaningful trend of decreasing contaminant mass
- Data that indirectly demonstrate the types and rates of natural attenuation process active at the Site
- Data that directly demonstrate the occurrence of biodegradation processes at the Site

The Work Plan addresses quarterly sampling requirements from the United States Environmental Protection Agency's (USEPA) February 26, 2008, Final Decision (USEPA, 2008). According to the Work Plan, ten (10) groundwater samples are to be collected from monitoring wells from two (2) source areas, former Benzene Storage Area and former Chlorobenzene Process Area; four (4) monitoring wells located downgradient of the former Benzene Storage Area; and four (4) monitoring wells located downgradient of the former Chlorobenzene Process Area. Monitoring wells are located in the Shallow Hydrogeologic Unit (SHU), Middle Hydrogeologic Unit (MHU) and Deep Hydrogeologic Unit (DHU). One (1) monitoring well is screened in the SHU at the former Benzene Storage Area. The remaining nine (9) wells are screened in the MHU and DHU. Analytical data from these wells are used to evaluate the attenuation processes in the America Bottoms aquifer, as impacted groundwater from these source areas migrates toward and discharges to the Mississippi River.

In addition to the monitoring wells specified in the Work Plan, the USEPA has also requested that groundwater samples be collected from eleven (11) additional monitoring wells and piezometers approximately 1.0 to 1.5 miles north of the Site. Two (2) of the eleven (11) wells, PM1M and PM1D, were installed in January 2015 for monitoring purposes and inclusion in the quarterly LTMP sampling event. The PM1M and PM1D Well Installation Letter Report is included in Appendix F.

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

Twenty-one (21) monitoring wells and piezometers are sampled during the LTMP event. The locations of the monitoring wells, piezometers and source areas are shown on Figure 2 and the sample locations are included on the table below.

Area	Location Relative to Area	Sample Identification
Former Benzene Storage	Source Area Well	BSA-MW-1S
	Downgradient	BSA-MW-2D
		BSA-MW-3D
		BSA-MW-4D
		BSA-MW-5D
Former Chlorobenzene Process	Source Area Well	CPA-MW-1D
	Downgradient	CPA-MW-2D
		CPA-MW-3D
		CPA-MW-4D
		CPA-MW-5D
Supplemental Wells North of the Site	---	ESL-MW-A
		ESL-MW-C1
		ESL-MW-D1
		GWE-1D
		GWE-2D
		GWE-3D
		GWE-5D
		GWE-5M
		GWE-5S
		PM1D
		PM1M

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

During the quarterly sampling events, monitoring wells and piezometers are sampled for the following volatile organic compound (VOC) analytes: benzene; chlorobenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; and 1,4-dichlorobenzene. During the 1st and 3rd quarters, monitoring wells and piezometers are sampled for the following semi-volatile organic compound (SVOC) analytes: 4-chloroaniline (CPA-MW-3D, CPA-MW-4D and CPA-MW-5D); 2-chlorophenol (BSA and CPA wells); 1,2,4-trichlorobenzene (BSA and CPA wells); and 1,4-dioxane (BSA-MW-2D, BSA-MW-3D, BSA-MW-4D, and BSA-MW-5D). The following MNA parameters are sampled quarterly to evaluate active natural attenuation occurring at the Site:

- Electron Donors – total and dissolved organic carbon
- Electron Acceptors – iron, manganese, nitrate, sulfate
- Biodegradation Byproducts – carbon dioxide, chloride, methane
- Biodegradation Indicators – alkalinity

Microbial Insights BioTrap® samplers for Phospholipid Fatty Acid (PLFA) analysis and Stable Isotope Probes (SIPs) baited with benzene or chlorobenzene are deployed quarterly to demonstrate the occurrence of biodegradation occurring at the Site.

Mississippi River surface water and sediment samples are scheduled to be collected on a semi-annual basis (1st and 3rd quarter) to assess the impact of contaminated groundwater discharging into the River north of the Groundwater Migration Control System (GMCS). Due to low river levels during the 1Q15 LTMP sampling event, surface water and sediment samples were not collected.

2.0 FIELD ACTIVITIES

Golder conducted 1Q15 sampling events between February 2 and February 6, 2015. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 1Q15 event, Golder performed a synoptic round of water level measurements and total depth measurements at 77 monitoring wells and piezometers on January 29 and January 30, 2015. The following monitoring well and piezometer series are included in the LTMP:

- BSA-series
- CPA-series
- ESL-series
- GM-series
- GWE-series
- K-series
- PS-MW-series
- PMA-series
- PM-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 1Q15 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths were measured during the 1Q15 event. The 1Q15 well gauging information is shown on Table 1. The information collected from the MHU and the DHU was used to create a groundwater potentiometric surface map, as shown on Figure 3.

2.2 Groundwater Sample Collection

Monitoring wells and piezometers sampled during the 1Q15 LTMP event were purged and sampled using low-flow sampling techniques, low-density polyethylene tubing (LDPE) and a submersible, peristaltic

(GWE-3D) or bladder (GWE-1D and GWE-2D) 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 meter. 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 the following analyses:

- VOCs – USEPA SW-846 Method 8260B
- SVOCs – USEPA SW-846 Method 8270D
- MNA parameters – alkalinity and carbon dioxide (USEPA Method 310.1), chloride (USEPA Method 352.5), total and dissolved iron and total and dissolved manganese (USEPA SW-846 Method 6010C), methane, ethane and ethylene (RSK-175), nitrate (USEPA Method 353.2), sulfate (USEPA Method 375.4), and total and dissolved organic carbon (USEPA Method 415.1)

VOC and SVOC sample bottles were filled first followed by gas sensitive parameters and general chemistry parameters. Ferrous iron was field analyzed with a HACH 890 Colorimeter and HACH AccuVac® ampules. Samples collected for ferrous iron and dissolved analyses were field filtered using an in-line 0.2 micron disposable filter. Groundwater purging and sampling forms are included in Appendix A.

2.3 Quality Assurance and Sample Handling

Three (3) analytical duplicates (AD), three (3) equipment blanks (EB) and two (2) matrix spike/matrix spike duplicate (MS/MSD) pairs were collected during the 1Q15 LTMP sampling event. Laboratory provided trip blanks were included in each cooler containing samples for VOC analysis, for a total of six (6) trip blanks. 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 “AAA-MW#-MMYY-QA/QC” or “BBBB-MMYY-QA/QC” where:

- **"AAA"** denotes "Benzene Storage Area (BSA)", "Chlorobenzene Process Area (CPA)", "East St. Louis (ESL)", or "Groundwater Elevation (GWE)" and **"MW#"** denotes "Monitoring Well Number"
- **"BBBB"** denotes PM1M or PM1D for monitoring wells installed in January 2015
- **"MMYY"** denotes month and year of sampling quarter, e.g.: February (1st quarter), 2015 (0215)
- **"QA/QC"** denotes QA/QC sample
  - **AD** – Analytical Duplicate
  - **EB** – Equipment Blank
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

Samples that were field filtered with an in-line 0.2 micron filter include "F(0.2)" prior to the "MMYY" portion of the sample identification. 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 Biodegradation Sampling

Bio-Trap® and SIP results are evaluated to provide biodegradation potential information in the SHU, the MHU and the DHU. Bio-Trap® samplers and SIPs are passive sampling tools that collect microbes across the samplers membrane that is, after time, analyzed. SIPs are baited with a specially synthesized form of the contaminant (i.e., benzene, chlorobenzene) in order to measure the degradation of a specific contaminant.

Bio-Trap® samplers and Stable Isotope Probing samplers (SIPs), provided by Microbial Insights, Inc. in Rockford, Tennessee, were deployed on January 5, 2015 in monitoring wells downgradient of the former Chlorobenzene Process Area (CPA-MW-1D through CPA-MW-5D) and downgradient of the former Benzene Storage Area (BSA-MW-1S and BSA-MW-2D through BSA-MW-5D) for PLFA. A benzene SIP was deployed in monitoring well BSA-MW-2D and a chlorobenzene SIP was deployed in monitoring well CPA-MW-3D. Bio-Trap® samplers and SIPs were weighted and fastened to a stainless steel cable. The cable was secured to the well cap and the Bio-Trap® or SIP was lowered into the well and placed in the middle of the well screen.

On January 29, 2015, Bio-Trap® samplers and SIPs were collected from the wells, placed in laboratory provided bags, labeled with appropriate well identification, placed in a cooler with ice, properly sealed, and shipped overnight to the Microbial Insights, Inc. facility in Rockford, Tennessee for analysis.

2.5 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 TestAmerica 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 six (6) sample delivery groups (SDGs) as follows:

Sample Delivery Group (SDG)	Sample Identification
KPS135	PM1M-0215
	PM1D-0215
	PM1D-0215-AD
	ESL-MW-A-0215
	ESL-MW-C1-0215
	ESL-MW-C1-0215-EB
	ESL-MW-D1-0215
	1Q15 LTM Trip Blank #1
KPS136	BSA-MW-3D-0215
	BSA-MW-3D-0215-EB
	CPA-MW-5D-0215
	1Q15 LTM Trip Blank #3
KPS137	GWE-3D-0215
	GWE-5S-0215
	GWE-5M-0215
	GWE-5D-0215
	1Q15 LTM Trip Blank #2
KPS138	GWE-1D-0215
	GWE-2D-0215
	1Q15 LTM Trip Blank #3

KPS139	BSA-MW-2D-0215
	BSA-MW-4D-0215
	BSA-MW-5D-0215
	CPA-MW-2D-0215
	CPA-MW-2D-0215-AD
	CPA-MW-3D-0215
	CPA-MW-3D-0215-AD
	CPA-MW-4D-0215
	1Q15 LTM Trip Blank #4
KPS140	BSA-MW-1S-0215
	BSA-MW-1S-0215-EB
	CPA-MW-1D-0215
	1Q15 LTM Trip Blank #5

Golder completed validation of the analytical data following the general guidelines in Section 4.4 Data Review and Validation of the Work Plan. The Work Plan specifies that the most recent versions 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
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

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 VOCs, SVOCs and MNA parameters are discussed below and presented in Table 2 and 3, respectively.

4.1 Benzene

Benzene was detected in ten (10) of the twenty-one (21) monitoring wells and piezometers at concentrations ranging from 2.9 µg/L (GWE-5D) to 1,000,000 µg/L (BSA-MW-1S). Benzene results are summarized below.

- Former Benzene Storage Area: Benzene was detected in the former Benzene Storage Area source area well (BSA-MW-1S) at a concentration of 1,000,000 µg/L.
- Downgradient of Former Benzene Storage Area: Benzene was detected in four (4) of four (4) wells downgradient of the former Benzene Storage Area with concentrations ranging from 30 µg/L (BSA-MW-4D), in the DHU north of the GMCS, to 64,000 µg/L (BSA-MW-2D).
- Former Chlorobenzene Process Area: Benzene was detected in the former Chlorobenzene Process Area source area well (CPA-MW-1D) at a concentration of 5,600 µg/L.

- Downgradient of Former Chlorobenzene Process Area: Benzene was detected in one (1) of four (4) wells downgradient of the former Chlorobenzene Process Area at a concentration of 6,000 µg/L / 5,800 µg/L (CPA-MW-3D and AD).
- North of the Site: Benzene was detected in three (3) of eleven (11) wells and piezometers north of the Site at concentrations of 2.9 µg/L (GWE-5D), 30 µg/L (ESL-MW-D1) and 33 µg/L (GWE-3D).

4.2 Chlorobenzenes (Total)

Total chlorobenzenes (i.e., sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene) were detected in fifteen (15) of the twenty-one (21) wells at concentrations ranging from 3.9 µg/L (ESL-MW-C1) to 43,100 µg/L (CPA-MW-1D). Total chlorobenzenes results are summarized below.

- Former Benzene Storage Area: Total chlorobenzenes were not detected in the former Benzene Storage Area source area well (BSA-MW-1S).
- Downgradient of Former Benzene Storage Area: Total chlorobenzenes were detected in three (3) of four (4) wells downgradient of the former Benzene Storage Area with concentrations ranging from 240 µg/L (BSA-MW-5D) to 2,070 µg/L (BSA-MW-4D) in the DHU north of the GMCS.
- Former Chlorobenzene Process Area: Total chlorobenzenes were detected in the former Chlorobenzene Process Area source area well (CPA-MW-1D) at a concentration of 43,100 µg/L.
- Downgradient of Former Chlorobenzene Process Area: Total chlorobenzenes were detected in four (4) of four (4) wells downgradient of the former Chlorobenzene Process Area with concentrations ranging from 160 µg/L / 160 µg/L (CPA-MW-3D and AD) to 40,260 / 42,290 µg/L (CPA-MW-2D and AD). Total chlorobenzenes were detected at a concentration of 1,800 µg/L (CPA-MW-5D) north of the GMCS.
- North of the Site: Total chlorobenzenes were detected in seven (7) of eleven (11) wells and piezometers north of the Site with concentrations ranging from 3.9 µg/L (ESL-MW-C1) to 1,830 µg/L (GWE-3D).

4.3 Semi-Volatile Organic Compounds

On a semi-annual basis (1st and 3rd quarter) specific SVOCs are analyzed at various LTMP wells. The CPA and BSA wells included in the LTMP event were analyzed for 2-chlorophenol and 1,2,4-trichlorobenzene. In addition, wells BSA-MW-2D, BSA-MW-3D, BSA-MW-4D, and BSA-MW-5D were analyzed for 1,4-dioxane, while wells CPA-MW-3D, CPA-MW-4D and CPA-MW-5D were analyzed for 4-chloroaniline.

- Former Benzene Storage Area: 2-Chlorophenol and 1,2,4-trichlorobenzene were not detected in the former Benzene Storage Area source area well (BSA-MW-1S).
- Downgradient of Former Benzene Storage Area: SVOCs were not detected downgradient of the former Benzene Storage Area.
- Former Chlorobenzene Process Area: 1,2,4-Trichlorobenzene was detected in the former Chlorobenzene Process Area source area well (CPA-MW-1D) at a concentration of 380 µg/L.

- Downgradient of Former Chlorobenzene Process Area: 4-Chloroaniline was detected in CPA-MW-3D / AD and CPA-MW-4D at 28 / 28 µg/L and 130 µg/L respectively, in wells downgradient of the former Chlorobenzene Process Area. 2-Chlorophenol was detected in CPA-MW-2D and CPA-MW-5D at 35 µg/L and 22 µg/L respectively, in wells downgradient of the former Chlorobenzene Process Area.

4.4 Monitored Natural Attenuation

MNA parameter data for this quarter are presented in Table 3. Laboratory results for PLFA and SIP analysis are included in Appendix E. The SIP study (Appendix E) states the following, "Evidence for biodegradation of benzene in BSA-MW-2D-0215 and chlorobenzene in CPA-MW-3D-0215 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit in both samples". Dissolved inorganic carbon (DIC) data for BSA-MW-2D-0215 indicate that "benzene had been mineralized during the deployment period." Although DIC data for CPA-MW-3D-0215 indicate that "little or no chlorobenzene had been mineralized," the community structure contains contaminant-reducing bacteria. The PLFA analysis in the remaining BSA and CPA wells also show a community structure containing contaminant-reducing bacteria.

5.0 CLOSING

Golder appreciates the opportunity to assist Solutia Inc. with the Long-Term Monitoring Program sampling events. Please contact the undersigned if you need additional information.

Sincerely,

GOLDER ASSOCIATES INC.

Lori A. Bindner
Geological Engineer

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

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

6.0 REFERENCES

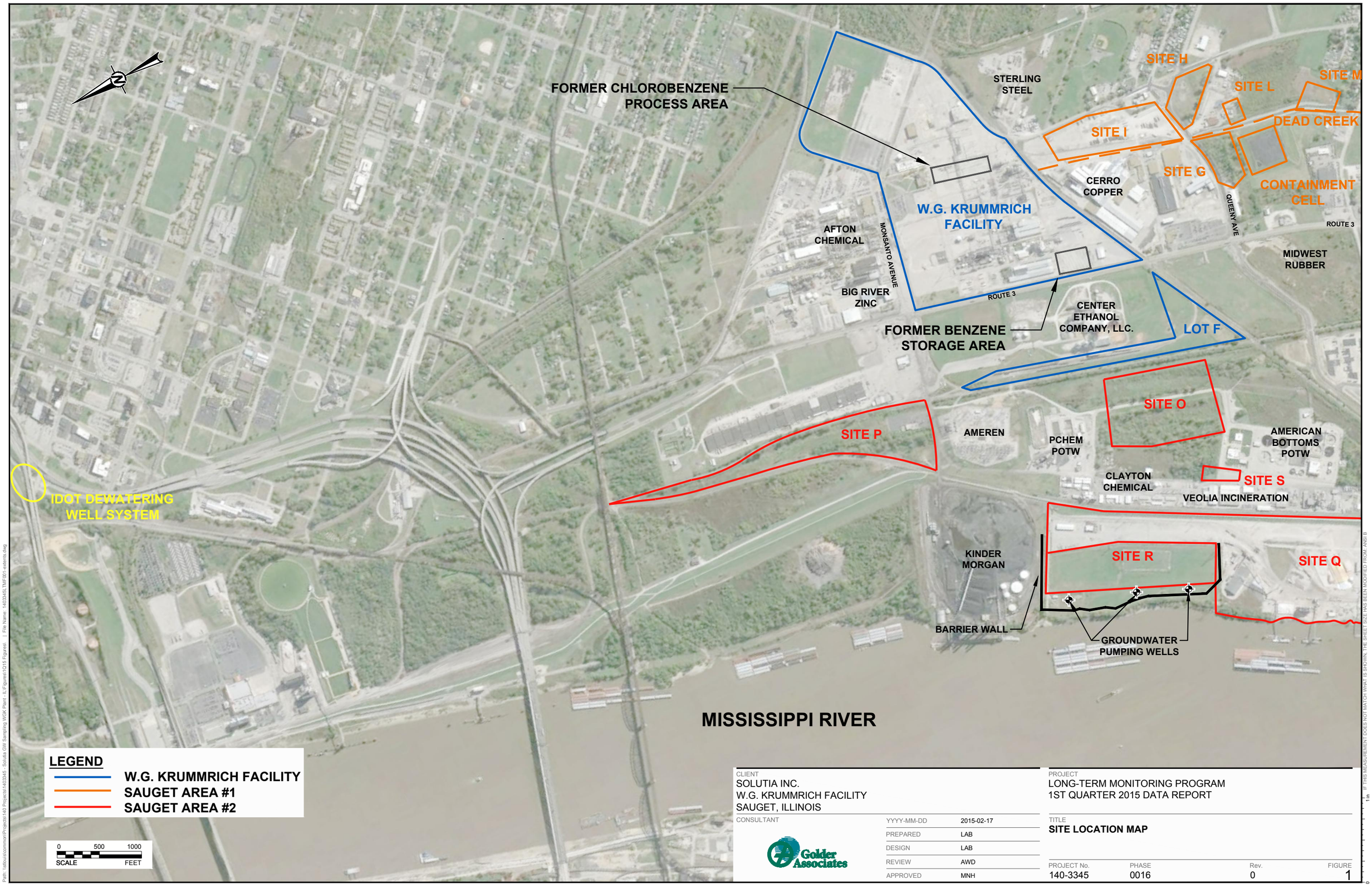
Solutia Inc., 2009. Revised Long Term Monitoring Program Work Plan, Solutia Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

USEPA, 2010. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review.

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

USEPA, 2008. Final Decision, Solutia Inc., Sauget, Illinois, February 2008.

FIGURES



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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-02-17
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
1ST QUARTER 2015 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0016	0	1

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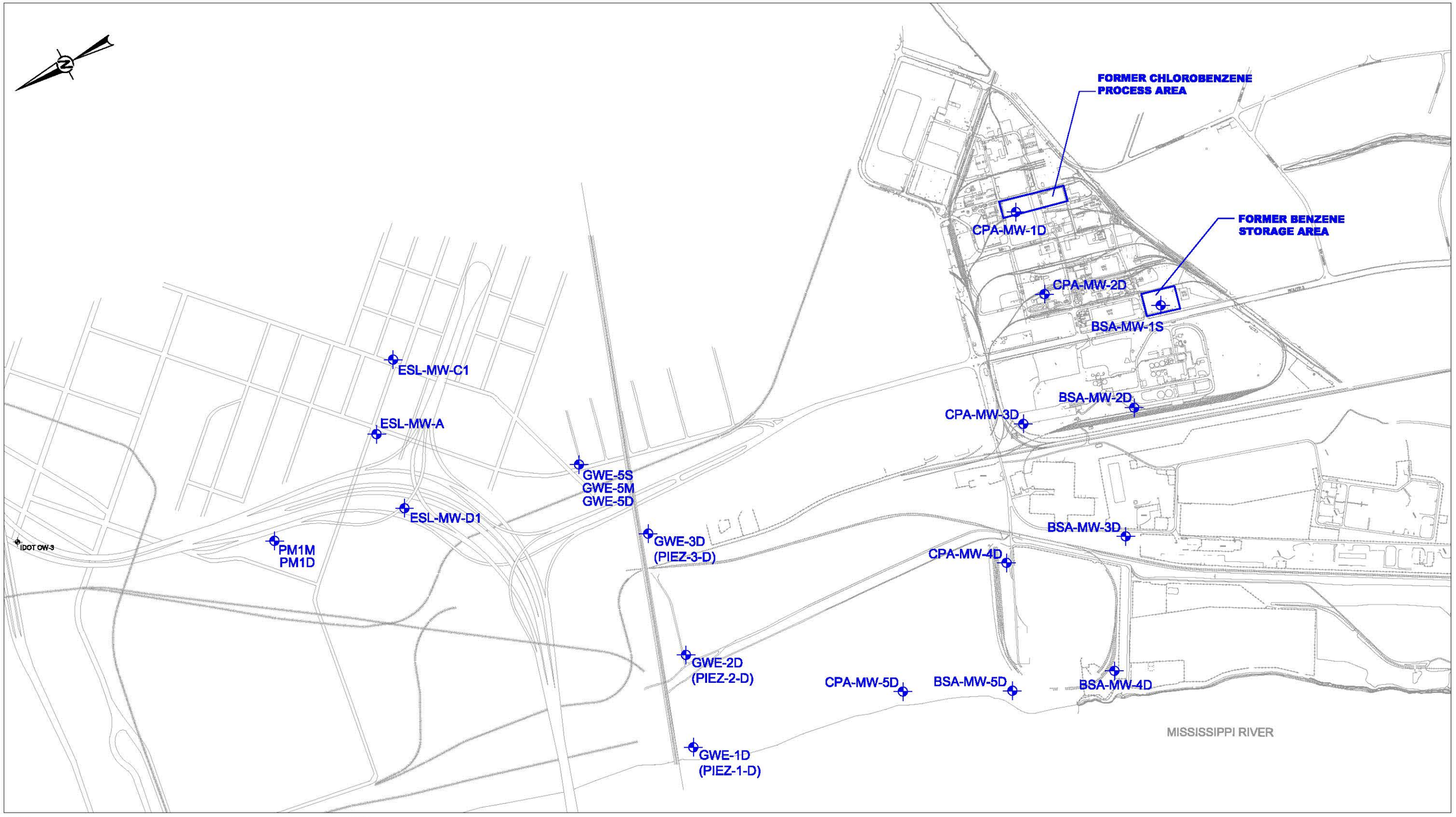

LEGEND

LONG-TERM MONITORING WELL LOCATION

NOTES

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

0 500 1000
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-02-17
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
1ST QUARTER 2015 DATA REPORT

TITLE
LONG-TERM MONITORING PROGRAM WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0016	0	2

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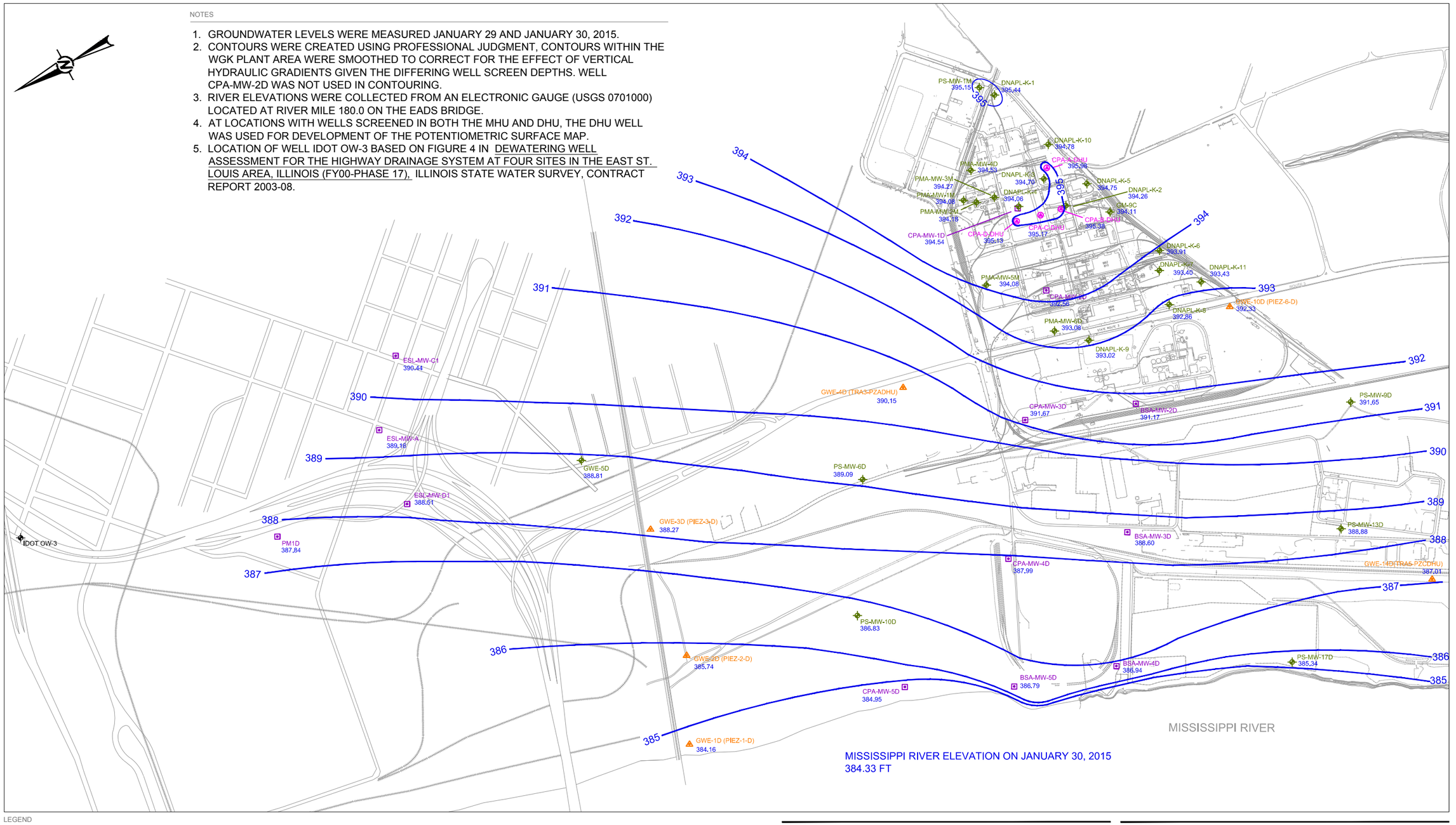
NOTES

1. GROUNDWATER LEVELS WERE MEASURED JANUARY 29 AND JANUARY 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. WELL 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.



MISSISSIPPI RIVER ELEVATION ON JANUARY 30, 2015
384.33 FT

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
- 385 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	2015-02-17
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
1ST QUARTER 2015 DATA REPORT

TITLE
POTENTIOMETRIC SURFACE MAP
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0016	0	3

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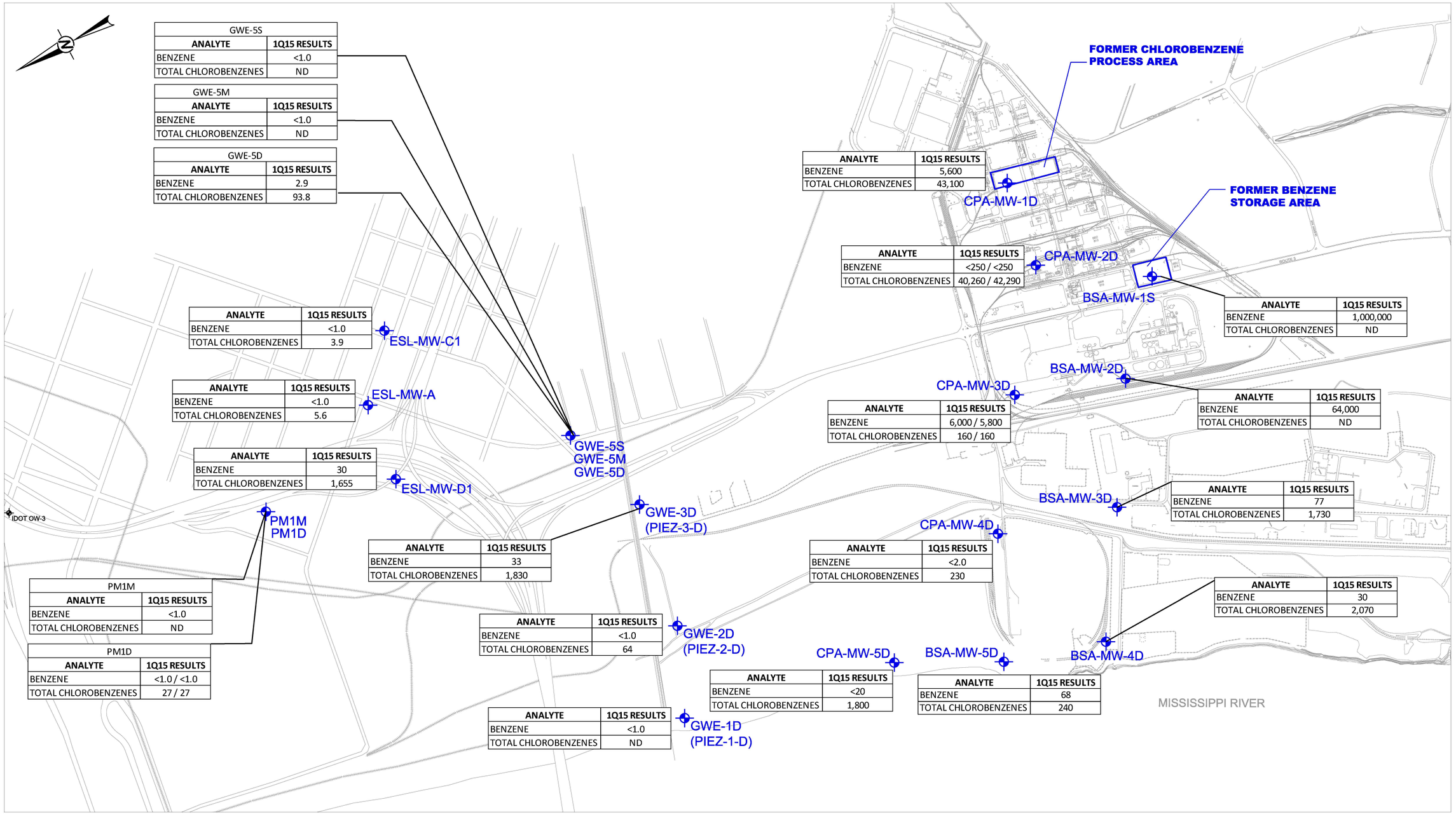

LEGEND

LONG-TERM MONITORING WELL LOCATION

NOTES

1. TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF CHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
2. RESULTS SHOWN ARE IN µg/L.
3. ND - NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE DUPLICATE SAMPLES.

SCALE 0 500 1000 FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-04-7
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
1ST QUARTER 2015 DATA REPORT

TITLE
BENZENE AND TOTAL CHLOROBENZENES RESULTS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0016	0	4

TABLES

Table 1
Monitoring Well Gauging Information
1Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						1Q15 - January 29 and January 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										
BSA-MW-1S	409.49	412.31	19.68	24.68	389.81	384.81	19.21	NP	27.31	393.10
GWE-5S	408.47	408.05	17.91	27.91	390.56	380.56	18.98	NP	27.79	389.07
MHU 380-350 ft NAVD 88										
GWE-5M	408.59	408.20	48.10	58.10	360.49	350.49	19.18	NP	58.03	389.02
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	16.00	NP	59.60	394.08
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	17.75	NP	61.27	394.18
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	17.83	NP	61.81	394.27
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	16.89	NP	56.98	394.08
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	17.44	NP	46.05	395.15
PM1M	413.07	412.80	51.64	61.41	361.43	351.66	25.01	NP	60.59	387.79
DHU 350 ft NAVD 88 - Bedrock										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	23.96	NP	77.00	391.17
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	27.14	NP	114.75	388.60
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	37.75	NP	123.12	386.94
BSA-MW-5D	420.80	420.49	115.85	120.82	304.95	299.95	33.70	NP	120.89	386.79
CPA-A-DHU	413.95	416.24	108.00	113.30	305.95	300.65	20.26	NP	115.15	395.98
CPA-B-DHU	409.12	408.68	101.00	106.50	308.12	302.62	13.30	NP	105.51	395.38
CPA-C-DHU	408.92	408.57	101.00	106.00	307.92	302.92	13.40	NP	105.44	395.17
CPA-D-DHU	409.63	412.20	101.00	105.90	308.63	303.73	17.07	NP	108.24	395.13
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	17.69	NP	74.69	394.54
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	15.64	NP	104.56	392.56
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	19.00	NP	112.76	391.67
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	33.21	NP	120.98	387.99
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	28.20	NP	114.64	384.95
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	20.12	NP	123.10	395.44
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	13.46	NP	112.40	394.26
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	21.21	NP	123.28	394.70
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	18.47	NP	118.21	394.06
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	17.16	NP	116.54	394.75
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	16.18	NP	116.87	393.91
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	14.32	NP	115.31	393.40
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	18.52	NP	117.56	392.86
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	12.95	NP	111.05	393.02
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	18.47	NP	120.26	394.78
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	18.35	NP	120.18	393.43
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	17.10	NP	108.23	394.11
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	31.44	NP	128.22	384.16
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	31.40	NP	136.59	385.74
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	29.39	NP	114.88	388.27
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	15.59	NP	78.75	390.15
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	19.57	NP	105.14	388.81
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	20.54	NP	114.81	392.33
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	35.89	NP	97.00	387.01
ESL-MW-A	412.93	412.59	105.50	110.50	307.43	302.43	23.43	NP	108.63	389.16
ESL-MW-C1	410.09	409.79	104.00	109.00	306.09	301.09	19.35	NP	109.87	390.44
ESL-MW-D1	416.38	416.04	114.00	119.00	302.38	297.38	27.53	NP	119.22	388.51
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	16.35	NP	73.38	394.53
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	14.24	NP	101.22	393.08
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	17.54	NP	109.81	389.09
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	11.87	NP	105.00	391.65
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	25.35	NP	111.25	386.83
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	16.65	NP	110.55	388.88
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	37.92	NP	133.90	385.34
SA2-MW-1D	403.79	406.03	105.01	115.01	301.02	291.02	25.89	NP	102.24	380.14
PM1D	413.41	412.78	101.42	106.45	311.99	306.96	24.94	NP	106.61	387.84

Notes
ft - feet
bgs - below ground surface
btoc - below top of casing
NP - no product observed
SHU - shallow hydrogeologic unit
MHU - middle hydrogeologic unit
DHU - deep hydrogeologic unit
[1] - Elevation based on North American Vertical Datum (NAVD) 88 datum.
[2] - Total depths are measured annually during the first quarter of each year.

Prepared By: LAB 2/10/2015
Checked By: EPW 2/26/2015
Reviewed By: AWD 2/26/2015

Table 2
Groundwater Analytical Results
1Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Sample Identification	Sample Date	VOCs (µg/L)					SVOCs (µg/L)			
		Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	4-Chloroaniline*	2-Chlorophenol*	1,4-Dioxane*	1,2,4-Trichlorobenzene*
Benzene Storage Area										
BSA-MW-1S-0215	2/6/2015	**1,000,000 D**	<10,000	<10,000	<10,000	<10,000	NA	<11	NA	<11
BSA-MW-2D-0215	2/5/2015	**64,000 D**	<1,000	<1,000	<1,000	<1,000	NA	<11	<11	<11
BSA-MW-3D-0215	2/3/2015	**77 D**	**1,400 D**	<20	<20	**330 D**	NA	<11 J	<11 J	<11 J
BSA-MW-4D-0215	2/5/2015	**30 D**	**2,000 D**	<20	<20	**70 D**	NA	<12	<12	<12
BSA-MW-5D-0215	2/5/2015	**68 D**	**240 D**	<2.0	<2.0	<2.0	NA	<11	<11	<11
Chlorobenzene Process Area										
CPA-MW-1D-0215	2/6/2015	**5,600 D**	**19,000 D**	**12,000 D**	**1,100 D**	**11,000 D**	NA	<12	NA	**380**
CPA-MW-2D-0215	2/5/2015	<250	**31,000 D**	**260 D**	**300 D**	**8,700 D**	NA	**35 J**	NA	<11
CPA-MW-2D-0215-AD	2/5/2015	<250	**32,000 D**	**300 D**	**290 D**	**9,700 D**	NA	<11 J	NA	<11 J
CPA-MW-3D-0215	2/5/2015	**6,000 D**	**160 D**	<100	<100	<100	**28**	<11	NA	<11
CPA-MW-3D-0215-AD	2/5/2015	**5,800 D**	**160 D**	<100	<100	<100	**28**	<11	NA	<11
CPA-MW-4D-0215	2/5/2015	<2.0	**230 D**	<2.0	<2.0	**4.9 D**	**130**	<10	NA	<10
CPA-MW-5D-0215	2/3/2015	<20	**1,800 D**	<20	<20	<20	<21 J	**22 J**	NA	<11 J
North of W.G. Krummrich Facility										
ESL-MW-A-0215	2/2/2015	<1.0	**1.6**	**2.2**	<1.0	**1.8**	NA	NA	NA	NA
ESL-MW-C1-0215	2/2/2015	<1.0	**1.2**	**1.4**	<1.0	**1.3**	NA	NA	NA	NA
ESL-MW-D1-0215	2/2/2015	**30 D**	**1,600 D**	<10	<10	**55 D**	NA	NA	NA	NA
GWE-1D-0215	2/4/2015	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
GWE-2D-0215	2/4/2015	<1.0	**64**	<1.0	<1.0	<1.0	NA	NA	NA	NA
GWE-3D-0215	2/3/2015	**33 D**	**1,700 D**	<20	<20	**130 D**	NA	NA	NA	NA
GWE-5S-0215	2/3/2015	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
GWE-5M-0215	2/3/2015	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
GWE-5D-0215	2/3/2015	**2.9 D**	**84 D**	<2.0	<2.0	**9.8 D**	NA	NA	NA	NA
PM1M-0215	2/2/2015	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
PM1D-0215	2/2/2015	<1.0	**27**	<1.0	<1.0	<1.0	NA	NA	NA	NA
PM1D-0215-AD	2/2/2015	<1.0	**27**	<1.0	<1.0	<1.0	NA	NA	NA	NA

Notes
VOCs - volatile organic compounds
SVOCs - semi-volatile organic compounds
* - samples are collected during the 1st and 3rd quarters
µg/L - micrograms per liter
< - result is non-detect, less than the reporting limit
J - result is an estimated value
D - compound analyzed at a dilution
AD - analytical duplicate
NA - sample not analyzed for select analyte
Bold - indicates concentration greater than reporting limit

Prepared By: EPW 3/23/2015
Checked By: LAB 4/7/2015
Reviewed By: AWD 4/10/2015

Table 3
Monitored Natural Attenuation Results
1Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Sample Identification	Sample Date	Monitored Natural Attenuation Parameters																
		Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethylene (ug/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (ug/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	ORP (mV)
Benzene Storage Area																		
BSA-MW-1S-0215	2/6/2015	850	50	110 D	0.11	<1.1	<1.0	-	12	-	0.99	-	5,300	<0.050	140 D	39 D	-	-62.87
BSA-MW-1S-F(0.2)-0215	2/6/2015	-	-	-	-	-	-	>3.30	-	11	-	0.98	-	-	-	-	20 D	-
BSA-MW-2D-0215	2/5/2015	620	36	130 D	0.10	13	<1.0	-	4.3	-	0.64	-	19,000	<0.050	<5.0	11	-	-29.81
BSA-MW-2D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	4.1	-	0.63	-	-	-	-	7.8	-
BSA-MW-3D-0215	2/3/2015	420	26	120 D	0.11	2.6	1.8	-	9.5	-	0.54	-	870	<0.050	120 D	4.0	-	-57.19
BSA-MW-3D-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	>3.30	-	9.4	-	0.54	-	-	-	-	3.4	-
BSA-MW-4D-0215	2/5/2015	440	29	91 D	0.20	3.0	<1.0	-	6.7	-	0.56	-	320	<0.050	120 D	5.2	-	-21.47
BSA-MW-4D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	6.6	-	0.57	-	-	-	-	4.8	-
BSA-MW-5D-0215	2/5/2015	1,200	63	220 D	0.12	19	<1.0	-	11	-	0.27	-	15,000	<0.050	<5.0	9.0	-	-64.42
BSA-MW-5D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	11	-	0.26	-	-	-	-	9.1	-
Chlorobenzene Process Area																		
CPA-MW-1D-0215	2/6/2015	750	5.0	91 D	0.11	12	<1.0	-	0.095	-	0.029	-	10,000	<0.050	<5.0	13	-	38.50
CPA-MW-1D-F(0.2)-0215	2/6/2015	-	-	-	-	-	-	0.00	-	0.071	-	0.029	-	-	-	-	11	-
CPA-MW-2D-0215	2/5/2015	420	21	55 D	0.30	3.8	<1.0	-	8.7	-	0.43	-	890	<0.050	56 D	8.1	-	-38.60
CPA-MW-2D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	8.8	-	0.45	-	-	-	-	7.5	-
CPA-MW-3D-0215	2/5/2015	560	38	320 D	0.07	26	<1.0	-	13	-	0.76	-	22,000	<0.050	<5.0	8.8	-	-47.86
CPA-MW-3D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	12	-	0.75	-	-	-	-	9.4	-
CPA-MW-4D-0215	2/5/2015	550	43	210 D	0.11	18	<1.0	-	15	-	0.39	-	14,000	<0.050	<5.0	8.5	-	-60.99
CPA-MW-4D-F(0.2)-0215	2/5/2015	-	-	-	-	-	-	>3.30	-	14	-	0.38	-	-	-	-	8.5	-
CPA-MW-5D-0215	2/3/2015	540	59	270 D	0.18	3.9	<1.0	-	17	-	0.59	-	660	<0.050	37 D	5.8	-	-37.49
CPA-MW-5D-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	>3.30	-	17	-	0.60	-	-	-	-	6.3	-
North of W.G. Krummrich Facility																		
ESL-MW-A-0215	2/2/2015	280	25	80 D	0.49	<1.1	<1.0	-	11	-	0.37	-	3.5	0.33	540 D	3.4	-	-28.44
ESL-MW-A-F(0.2)-0215	2/2/2015	-	-	-	-	-	-	>3.30	-	10	-	0.35	-	-	-	-	4.8	-
ESL-MW-C1-0215	2/2/2015	350	31	110 D	0.10	<1.1	<1.0	-	11	-	0.42	-	3.1	<0.050	790 D	4.2	-	-51.59
ESL-MW-C1-F(0.2)-0215	2/2/2015	-	-	-	-	-	-	>3.30	-	11	-	0.41	-	-	-	-	4.0	-
ESL-MW-D1-0215	2/2/2015	330	32	120 D	0.08	<1.1	<1.0	-	13	-	0.39	-	75	<0.050	540 D	3.0	-	-31.81
ESL-MW-D1-F(0.2)-0215	2/2/2015	-	-	-	-	-	-	>3.30	-	13	-	0.39	-	-	-	-	3.4	-
GWE-1D-0215	2/4/2015	420	31	72 D	8.52	<1.1	<1.0	-	18	-	0.64	-	3.5	<0.050	290 D	5.3	-	-2.72
GWE-1D-F(0.2)-0215	2/4/2015	-	-	-	-	-	-	>3.30	-	13	-	0.62	-	-	-	-	5.4	-
GWE-2D-0215	2/4/2015	330	29	610 D	0.31	<1.1	<1.0	-	17	-	0.43	-	19	<0.050	580 D	3.5	-	-44.61
GWE-2D-F(0.2)-0215	2/4/2015	-	-	-	-	-	-	>3.30	-	17	-	0.42	-	-	-	-	6.8	-
GWE-3D-0215	2/3/2015	360	32	850 D	1.40	<1.1	<1.0	-	23	-	0.73	-	50	<0.050	300 D	4.9	-	-55.63
GWE-3D-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	>3.30	-	23	-	0.73	-	-	-	-	4.8	-
GWE-5S-0215	2/3/2015	410	34	29 D	0.28	<1.1	<1.0	-	0.44	-	0.21	-	14	0.87	110 D	2.7	-	-2.73
GWE-5S-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	0.00	-	<0.050	-	0.14	-	-	-	-	2.9	-
GWE-5M-0215	2/3/2015	430	33	57 D	0.16	<1.1	<1.0	-	24	-	1.2	-	46	<0.050	110 D	2.1	-	-80.82
GWE-5M-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	>3.30	-	22	-	1.2	-	-	-	-	2.5	-
GWE-5D-0215	2/3/2015	330	20	88 D	0.13	<1.1	<1.0	-	13	-	0.41	-	52	<0.050	420 D	3.0	-	-40.08
GWE-5D-F(0.2)-0215	2/3/2015	-	-	-	-	-	-	>3.30	-	13	-	0.39	-	-	-	-	2.9	-
PM1M-0215	2/2/2015	470	87	410 D	0.16	<1.1	<1.0	-	2.7	-	2.2	-	15	<0.050	150 D	4.7	-	-39.21
PM1M-F(0.2)-0215	2/2/2015	-	-	-	-	-	-	2.02	-	2.4	-	2.1	-	-	-	-	3.0	-
PM1D-0215	2/2/2015	330	33	81 D	0.36	<1.1	<1.0	-	15	-	0.52	-	29	<0.050	320 D	2.0	-	-45.80
PM1D-F(0.2)-0215	2/2/2015	-	-	-	-	-	-	>3.30	-	15	-	0.50	-	-	-	-	2.1	-

Notes
Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) values represent the final field measurements prior to sampling (In-Situ - SmartTroll™)
Ferrous Iron was field measured using a 0.2 µm field filtered sample (Hach DR-890 Colorimeter)
F(0.2) - sample was field filtered using a 0.2 µm filter during sample collection
µg/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolts
< - result is non-detect, less than the reporting limit
"-" - not analyzed
D - compound analyzed at a dilution

Prepared By: EPW 3/23/2015
Checked By: LAB 4/7/2015
Reviewed By: AWD 4/10/2015

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

SmartTroll
2/6/2016

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	31.00 ft
		Pump Placement from TOC	24.81 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-1S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	363 mL
Well Total Depth	27.31 ft	Calculated Sample Rate	72 sec
Depth to Top of Screen	22.31 ft	Sample Rate	72 sec
Screen Length	5 ft	Stabilized Drawdown	0.26 ft
Depth to Water	19.21 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	9:28:25	16.20	8.26	2187.27	3.64	0.14	-17.01
	9:29:37	16.24	8.14	2172.78	3.27	0.12	-32.34
	9:30:49	16.13	8.06	2184.14	3.53	0.12	-45.88
	9:32:01	16.16	8.01	2177.13	3.47	0.11	-55.11
	9:33:13	16.15	7.96	2170.88	3.27	0.11	-62.87
Variance in Last 3 Readings		-0.11	-0.08	11.36	0.26	0.00	-13.54
		0.03	-0.05	-7.01	-0.06	-0.01	-9.23
		-0.01	-0.05	-6.25	-0.20	0.00	-7.76

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	80.55 ft
		Pump Placement from TOC	74.50 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-2D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	639 mL
Well Total Depth	77.00 ft	Calculated Sample Rate	127 sec
Depth to Top of Screen	72.00 ft	Sample Rate	127 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	24.18 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	13:15:48	14.53	7.66	1630.39	2.98	0.30	-2.41
	13:17:55	14.62	7.56	1610.77	3.79	0.17	-7.35
	13:20:02	14.70	7.50	1625.92	2.32	0.11	-16.14
	13:22:09	14.54	7.47	1630.05	1.60	0.10	-23.32
	13:24:16	14.89	7.44	1638.48	1.63	0.10	-29.81
Variance in Last 3 Readings		0.08	-0.06	15.15	-1.47	-0.06	-8.79
		-0.16	-0.03	4.13	-0.72	-0.01	-7.18
		0.35	-0.03	8.43	0.03	0.00	-6.49

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	118.35 ft
		Pump Placement from TOC	112.25 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-3D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	850 mL
Well Total Depth	114.75 ft	Calculated Sample Rate	169 sec
Depth to Top of Screen	109.75 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.04 ft
Depth to Water	27.08		

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	15:03:42	15.71	7.03	1469.80	4.35	0.24	-16.83
	15:06:31	16.01	6.99	1459.64	2.01	0.17	-34.95
	15:09:20	16.14	6.97	1456.28	2.38	0.13	-44.17
	15:12:09	16.28	6.96	1452.03	2.31	0.12	-51.35
	15:14:58	16.30	6.96	1451.86	1.87	0.11	-57.19
Variance in Last 3 Readings		0.13	-0.02	-3.36	0.37	-0.04	-9.22
		0.14	-0.01	-4.25	-0.07	-0.01	-7.18
		0.02	0.00	-0.17	-0.44	-0.01	-5.84

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	126.73 ft
		Pump Placement from TOC	120.62 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	897 mL
Well Total Depth	123.12 ft	Calculated Sample Rate	179 sec
Depth to Top of Screen	118.12 ft	Sample Rate	179 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	37.51 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	11:31:13	13.80	7.84	1500.32	6.08	0.30	8.49
	11:34:12	13.67	7.65	1483.59	3.53	0.27	-3.31
	11:37:11	13.58	7.56	1488.87	2.44	0.25	-10.03
	11:40:10	13.90	7.50	1485.32	2.09	0.23	-16.45
	11:43:09	13.90	7.46	1493.07	1.89	0.20	-21.47
Variance in Last 3 Readings		-0.09	-0.09	5.28	-1.09	-0.02	-6.72
		0.32	-0.06	-3.55	-0.35	-0.02	-6.42
		0.00	-0.04	7.75	-0.20	-0.03	-5.02

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	124.04 ft
		Pump Placement from TOC	118.39 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	882 mL
Well Total Depth	120.89 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	115.89 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.05 ft
Depth to Water	33.33 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	10:12:20	15.69	7.44	1898.47	5.13	0.31	-19.08
	10:15:16	15.67	7.39	1901.68	3.99	0.23	-37.78
	10:18:12	15.57	7.36	1904.15	3.09	0.20	-49.02
	10:21:08	15.88	7.35	1901.92	2.35	0.08	-57.91
	10:24:04	15.80	7.35	1915.85	1.69	0.12	-64.42
Variance in Last 3 Readings		-0.10	-0.03	2.47	-0.90	-0.03	-11.24
		0.31	-0.01	-2.23	-0.74	-0.12	-8.89
		-0.08	0.00	13.93	-0.66	0.04	-6.51

Notes:

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Low-Flow System
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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	73.32 ft
		Pump Placement from TOC	72.19

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	599 mL
Well Total Depth	74.69 ft	Calculated Sample Rate	119 sec
Depth to Top of Screen	69.69 ft	Sample Rate	119 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	17.81 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	8:39:02	16.15	8.92	1691.28	6.27	0.21	70.13
	8:41:01	16.28	8.93	1735.15	5.51	0.16	56.80
	8:43:00	16.24	8.90	1761.91	2.40	0.13	49.57
	8:44:59	16.23	8.87	1775.89	1.99	0.12	42.37
	8:46:59	16.24	8.86	1785.14	1.90	0.11	38.50
Variance in Last 3 Readings		-0.04	-0.03	26.76	-3.11	-0.03	-7.23
		-0.01	-0.03	13.98	-0.41	-0.01	-7.20
		0.01	-0.01	9.25	-0.09	-0.01	-3.87

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	108.15 ft
		Pump Placement from TOC	102.06 ft

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-2D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	793 mL
Well Total Depth	104.56 ft	Calculated Sample Rate	158 sec
Depth to Top of Screen	99.56 ft	Sample Rate	158 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	15.88 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	14:02:33	16.80	7.79	1061.44	25.70	0.46	8.03
	14:05:11	16.96	7.53	1078.42	12.40	0.39	-12.90
	14:07:49	16.78	7.43	1112.41	7.08	0.35	-22.75
	14:10:27	16.65	7.39	1123.78	6.69	0.33	-31.97
	14:13:05	16.60	7.37	1139.63	5.82	0.30	-38.60
Variance in Last 3 Readings		-0.18	-0.10	33.99	-5.32	-0.04	-9.85
		-0.13	-0.04	11.37	-0.39	-0.02	-9.22
		-0.05	-0.02	15.85	-0.87	-0.03	-6.63

Notes:
Conductivity slow to stabalize.

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Low-Flow System
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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	116.50 ft
		Pump Placement from TOC	110.26 ft

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-3D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	840 mL
Well Total Depth	112.76 ft	Calculated Sample Rate	167 sec
Depth to Top of Screen	107.76 ft	Sample Rate	167 sec
Screen Length	5 ft	Stabilized Drawdown	0.07 ft
Depth to Water	19.10 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	12:31:50	16.82	7.48	2196.68	8.84	0.17	7.60
	12:34:37	16.67	7.36	2119.95	18.10	0.11	-16.36
	12:37:24	16.69	7.31	2083.75	5.36	0.09	-31.41
	12:40:11	16.64	7.28	2089.40	4.00	0.08	-41.11
	12:42:59	16.55	7.26	2092.51	3.57	0.07	-47.86
Variance in Last 3 Readings		0.02	-0.05	-36.20	-12.74	-0.02	-15.05
		-0.05	-0.03	5.65	-1.36	-0.01	-9.70
		-0.09	-0.02	3.11	-0.43	-0.01	-6.75

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	124.57 ft
		Pump Placement from TOC	118.48 ft

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	885 mL
Well Total Depth	120.98 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	115.98 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	33.22 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	9:20:48	14.95	7.30	1882.87	5.30	0.24	2.24
	9:23:44	14.39	7.31	1861.59	3.62	0.11	-24.87
	9:26:40	14.26	7.31	1884.51	1.67	0.13	-41.05
	9:29:36	13.94	7.32	1882.85	1.69	0.13	-52.61
	9:32:32	13.94	7.33	1883.73	1.35	0.11	-60.99
Variance in Last 3 Readings		-0.13	0.00	22.92	-1.95	0.02	-16.18
		-0.32	0.01	-1.66	0.02	0.00	-11.56
		0.00	0.01	0.88	-0.34	-0.02	-8.38

Notes:

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Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	118.25 ft
		Pump Placement from TOC	112.14 ft

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	849 mL
Well Total Depth	114.64 ft	Calculated Sample Rate	169 sec
Depth to Top of Screen	109.64 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	28.67 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	14:00:54	14.53	7.00	1922.21	1.72	0.37	8.95
	14:06:32	14.86	6.79	1937.23	1.07	0.24	-16.49
	14:09:21	14.80	6.77	1940.38	0.67	0.22	-24.09
	14:14:59	14.76	6.74	1938.64	0.60	0.19	-34.44
	14:17:48	14.66	6.74	1937.83	0.48	0.18	-37.49
Variance in Last 3 Readings		-0.06	-0.02	3.15	-0.40	-0.02	-7.60
		-0.04	-0.03	-1.74	-0.07	-0.03	-10.35
		-0.10	0.00	-0.81	-0.12	-0.01	-3.05

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	112.50 ft
		Pump Placement from TOC	106.13 ft

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-A	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	817 mL
Well Total Depth	108.63 ft	Calculated Sample Rate	163 sec
Depth to Top of Screen	103.63 ft	Sample Rate	163 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	23.48 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	11:07:30	14.21	7.08	1790.92	39.30	0.32	-24.64
	11:10:13	14.30	7.08	1766.79	30.50	0.36	-26.48
	11:12:56	14.30	7.07	1763.11	20.20	0.41	-28.23
	11:15:39	14.46	7.07	1749.78	15.90	0.43	-28.48
	11:18:22	14.27	7.07	1749.41	11.80	0.49	-28.44
Variance in Last 3 Readings		0.00	-0.01	-3.68	-10.30	0.05	-1.75
		0.16	0.00	-13.33	-4.30	0.02	-0.25
		-0.19	0.00	-0.37	-4.10	0.06	0.04

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	111.19 ft
		Pump Placement from TOC	107.37 ft

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-C1	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	810 mL
Well Total Depth	109.87 ft	Calculated Sample Rate	161 sec
Depth to Top of Screen	104.87 ft	Sample Rate	161 sec
Screen Length	5 ft	Stabilized Drawdown	0 ft
Depth to Water	19.41 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	12:01:51	14.26	7.41	2221.62	37.00	0.19	-56.57
	12:04:32	14.23	7.29	2246.55	18.90	0.16	-53.38
	12:07:13	14.53	7.22	2239.21	19.00	0.14	-51.61
	12:09:54	14.76	7.18	2236.78	12.50	0.11	-51.01
	12:12:35	14.87	7.14	2251.77	8.28	0.10	-51.59
Variance in Last 3 Readings		0.30	-0.07	-7.34	0.10	-0.02	1.77
		0.23	-0.04	-2.43	-6.50	-0.03	0.60
		0.11	-0.04	14.99	-4.22	-0.01	-0.58

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	121.78 ft
		Pump Placement from TOC	116.72 ft

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-D1	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	869 mL
Well Total Depth	119.22 ft	Calculated Sample Rate	173 sec
Depth to Top of Screen	114.22 ft	Sample Rate	173 sec
Screen Length	5 ft	Stabilized Drawdown	0.04 ft
Depth to Water	27.61 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	10:12:32	14.40	6.96	1963.12	1.40	0.11	-6.69
	10:15:25	14.23	6.98	1980.93	1.93	0.11	-16.12
	10:18:18	14.03	7.00	1986.69	1.58	0.10	-22.46
	10:21:11	14.10	7.01	1983.04	0.87	0.09	-27.67
	10:24:04	14.23	7.02	1983.61	1.74	0.08	-31.81
Variance in Last 3 Readings		-0.20	0.02	5.76	-0.35	-0.01	-6.34
		0.07	0.01	-3.65	-0.71	-0.01	-5.21
		0.13	0.01	0.57	0.87	-0.01	-4.14

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	Bladder
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	135.0 ft
		Pump Placement from TOC	123.22 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-1D	Final Pumping Rate	100 mL/min
Well Diameter	1 in	System Volume	703 mL
Well Total Depth	128.22 ft	Calculated Sample Rate	421 sec
Depth to Top of Screen	118.22 ft	Sample Rate	421 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	31.44 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	12:58:02	8.56	7.35	1585.79	52.00	7.76	-6.21
	13:05:03	8.26	7.36	1598.08	52.90	8.23	-5.55
	13:12:06	7.89	7.36	1591.95	51.70	8.39	-4.31
	13:19:11	7.62	7.37	1601.12	56.40	8.45	-3.46
	13:26:12	7.18	7.37	1604.42	47.20	8.52	-2.72
Variance in Last 3 Readings		-0.37	0.00	-6.13	-1.2	0.16	1.24
		-0.27	0.01	9.17	4.70	0.06	0.85
		-0.44	0.00	3.30	-9.20	0.07	0.74

Notes:

In-Situ Inc.

SmartTroll
2/4/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	Bladder
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	135.0 ft
		Pump Placement from TOC	131.59

Well Information:		**Pumping Information:**	
Well Id	GWE-2D	Final Pumping Rate	100 mL/min
Well Diameter	1 in	System Volume	743 mL
Well Total Depth	136.59 ft	Calculated Sample Rate	445 sec
Depth to Top of Screen	126.59 ft	Sample Rate	445 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	31.40 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	10:09:56	14.06	7.15	3056.04	17.00	0.83	-24.01
	10:17:21	13.97	7.15	3125.49	9.67	0.51	-29.49
	10:39:24	13.99	7.15	3208.09	4.86	0.33	-41.66
	10:46:25	13.52	7.16	3229.64	1.76	0.31	-42.70
	10:53:26	13.76	7.16	3243.09	1.23	0.31	-44.61
Variance in Last 3 Readings		0.02	0.00	82.60	-4.81	-0.18	-12.17
		-0.47	0.01	21.55	-3.10	-0.02	-1.04
		0.24	0.00	13.45	-0.53	0.00	-1.91

Notes:

In-Situ Inc.

SmartTroll
2/3/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	116.0 ft
		Pump Placement from TOC	109.88 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-3D	Final Pumping Rate	250 mL/min
Well Diameter	1 in	System Volume	747 mL
Well Total Depth	114.88 ft	Calculated Sample Rate	179 sec
Depth to Top of Screen	104.88 ft	Sample Rate	179 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	29.39 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	12:08:11	12.05	6.88	3174.77	0.68	1.51	-54.08
	12:11:10	12.04	6.85	3450.66	0.72	1.44	-53.88
	12:14:09	12.48	6.85	3543.24	0.56	1.48	-55.02
	12:17:08	12.30	6.86	3597.12	0.47	1.44	-55.09
	12:20:07	12.30	6.86	3600.58	0.40	1.40	-55.63
Variance in Last 3 Readings		0.44	0.00	92.58	-0.16	0.04	-1.14
		-0.18	0.01	53.88	-0.09	-0.04	-0.07
		0.00	0.00	3.46	-0.07	-0.04	-0.54

Notes:

In-Situ Inc.

SmartTroll
2/3/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	28.49 ft
		Pump Placement from TOC	22.79 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-5S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	349 mL
Well Total Depth	27.79 ft	Calculated Sample Rate	69 sec
Depth to Top of Screen	17.79 ft	Sample Rate	69 sec
Screen Length	10 ft	Stabilized Drawdown	0.03 ft
Depth to Water	18.95 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	10:46:31	15.56	6.76	1113.58	15.70	0.32	-6.73
	10:47:40	15.61	6.75	1118.28	15.90	0.32	-5.66
	10:48:50	15.77	6.75	1110.36	14.90	0.31	-4.54
	10:49:59	15.83	6.74	1116.10	13.00	0.30	-3.64
	10:51:08	15.89	6.74	1109.19	11.10	0.28	-2.73
Variance in Last 3 Readings		0.16	0.00	-7.92	-1.00	-0.01	1.12
		0.06	-0.01	5.74	-1.90	-0.01	0.90
		0.06	0.00	-6.91	-1.90	-0.02	0.91

Notes:

In-Situ Inc.

SmartTroll
2/3/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	58.71 ft
		Pump Placement from TOC	53.03 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-5M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	517 mL
Well Total Depth	58.03 ft	Calculated Sample Rate	103 sec
Depth to Top of Screen	48.03 ft	Sample Rate	103 sec
Screen Length	10 ft	Stabilized Drawdown	0.00 ft
Depth to Water	19.22 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	10:13:45	14.98	6.91	1272.56	114.00	0.56	-65.88
	10:15:28	15.04	6.91	1272.20	115.00	0.58	-71.33
	10:17:11	15.04	6.91	1266.63	102.00	0.10	-74.93
	10:18:54	15.12	6.91	1279.69	90.50	0.16	-78.31
	10:20:37	15.16	6.92	1269.55	84.50	0.16	-80.82
Variance in Last 3 Readings		0.00	0.00	-5.57	-13.00	-0.48	-3.60
		0.08	0.00	13.06	-11.50	0.06	-3.38
		0.04	0.01	-10.14	-6.00	0.00	-2.51

Notes:

In-Situ Inc.

SmartTroll
2/3/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	108.52 ft
		Pump Placement from TOC	102.64 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	795 mL
Well Total Depth	105.14 ft	Calculated Sample Rate	159 sec
Depth to Top of Screen	100.14 ft	Sample Rate	159 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	19.60 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	9:34:07	13.35	6.71	1705.34	165.00	0.23	-5.42
	9:36:46	13.55	6.72	1697.61	67.40	0.20	-14.21
	9:39:25	13.83	6.75	1704.85	36.50	0.17	-24.77
	9:42:04	13.96	6.77	1698.64	20.60	0.14	-33.00
	9:44:43	14.03	6.80	1705.22	17.00	0.13	-40.08
Variance in Last 3 Readings		0.28	0.03	7.24	-30.90	-0.03	-10.56
		0.13	0.02	-6.21	-15.90	-0.03	-8.23
		0.07	0.03	6.58	-3.60	-0.01	-7.08

Notes:

In-Situ Inc.

SmartTroll
2/2/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	67.00 ft
		Pump Placement from TOC	55.59 ft

Well Information:		**Pumping Information:**	
Well Id	PM1M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	564 mL
Well Total Depth	60.59 ft	Calculated Sample Rate	112 sec
Depth to Top of Screen	50.59 ft	Sample Rate	112 sec
Screen Length	10 ft	Stabilized Drawdown	0.02 ft
Depth to Water	25.06 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	9:07:58	13.30	6.86	2451.15	38.20	0.30	-35.30
	9:09:50	13.58	6.86	2451.37	30.50	0.35	-36.48
	9:11:42	13.80	6.85	2427.55	21.90	0.25	-37.39
	9:13:34	13.94	6.86	2397.53	15.80	0.22	-38.22
	9:15:26	14.03	6.85	2415.22	14.00	0.16	-39.21
Variance in Last 3 Readings		0.22	-0.01	-23.82	-8.60	-0.10	-0.91
		0.14	0.01	-30.02	-6.10	-0.03	-0.83
		0.09	-0.01	17.69	-1.80	-0.06	-0.99

Notes:

In-Situ Inc.

SmartTroll
2/2/2015

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	112.00 ft
		Pump Placement from TOC	104.11

Well Information:		**Pumping Information:**	
Well Id	PM1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	814 mL
Well Total Depth	106.61	Calculated Sample Rate	162 sec
Depth to Top of Screen	101.61	Sample Rate	162 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	25.05		

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	8:18:01	12.51	7.08	1532.57	13.20	0.59	-37.84
	8:20:43	12.76	7.07	1545.42	8.59	0.43	-39.89
	8:23:25	12.98	7.07	1547.12	6.75	0.49	-42.89
	8:26:07	12.93	7.07	1543.02	5.30	0.46	-43.76
	8:28:49	12.97	7.07	1529.09	4.98	0.36	-45.80
Variance in Last 3 Readings		0.22	0.00	1.70	-1.84	0.06	-3.00
		-0.05	0.00	-4.10	-1.45	-0.03	-0.87
		0.04	0.00	-13.93	-0.32	-0.10	-2.04

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

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/2/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
PMID-0215	2/2/15	0930	G	W	14				3	1	1	1	3	2	3			
PMID-F(0.2)-0215		1			4	Y										1	3	
PMID-0215-AD		1			3				3									
PMIM-0215		1018			14				3	1	1	1	3	2	3			
PMIM-F(0.2)-0215		1			4	Y										1	3	
ESL-MW-D1-0215		1126			14				3	1	1	1	3	2	3			
ESL-MW-D1-F(0.2)-0215		1			4	Y										1	3	
ESL-MW-C1-0215		1315			14				3	1	1	1	3	2	3			
ESL-MW-C1-F(0.2)-0215		1			4											1	3	
ESL-MW-C1-0215-EB		1330			3				3									
ESL-MW-A-0215		1220			14				3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0215		1			4	Y										1	3	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								1	2	4	1	1	2	1,3	3	4	3	

680-109553 Chain of Custody

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109553

0.8, 2.8(CF) 0.5, 2.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419311 / 419312	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jen Bruno	Golder	2/2/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			Amanda	TA SAV.	020315 0928

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

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/2/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: Fed Ex	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
ESL-MW-A-0215-MS	2/2/15	1220	G	W	3				3									
ESL-MW-A-0215-MSD	"	"	"	"	3				3									
1Q15 LTM Trip Blank #1	—	—	—	—	2				2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								1	2	4	1	1	2	1,3	3	4	3	

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109553

0.8, 2.8 (CF) 0.5, 2.5°c

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 419311 / 419312 | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jen Bindner	Golder	2/2/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			Bauda	TASAV.	020315 0928

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:

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/3/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: Fed Ex	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-5D-0215	2/3/15	1420	G	W	16			2	3	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0215		1			4											—	3	
BSA-MW-3D-0215		1515			16			2	3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0215		1			4											1	3	
BSA-MW-3D-0215-EB					5			2	3									
1Q15 LTM TripBlank #3	—	—	—	—	2				2									

680-109575 Chain of Custody

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

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109575-1 1.2,0.8(EF)0.9, 0.5°c

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 419314 | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jen Bindner	Golder	2/3/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TA SAV.	02/4/15 0938

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:

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/3/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-5D-0215	2/3/15	0945	G	W	14				3	1	1	1	3	2	3			
GWE-5D-F(0.2)-0215		1			4											1	3	
GWE-5M-0215		1020			14				3	1	1	1	3	2	3			
GWE-5M-F(0.2)-0215		1			4											1	3	
GWE-5S-0215		1052			14				3	1	1	1	3	2	3			
GWE-5S-F(0.2)-0215		1			4											1	3	
GWE-3D-0215		1210			14				3	1	1	1	3	2	3			
GWE-3D-F(0.2)-0215		1			4											1	3	
1Q15 LTM Trip Blank #2					2				2									
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other								1	2	4	1	1	2	1,3	3	4	3	

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109575-2 1.3 0.8 (F) 0, 0.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 41933	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Golder	2/3/15			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Company: TA STL	Date/Time: 02/04/15 0938

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:

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/4/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-2D-0215	2/4/15	1055	G	W	14				3	1	1	1	3	2	3			
GWE-2D-F(0.2)-0215	"	"	"	"	4											1	3	
GWE-1D-0215	"	1238	"	"	14				3	1	1	1	3	2	3			
GWE-1D-F(0.2)-0215	"	"	"	"	4											1	3	
1Q15 LTM Trip Blank #3	—	—	—	—	2				2									

680-109641 Chain of Custody

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

	1	2	4	1	1	2	1,3	3	4	3			

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419316		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by: J. Brunner	Company: Golder	Date/Time: 2/4/15	Received by: [signature]	Company: TA SAV	Date/Time: 020515 0918
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 1.2CF 0.9C

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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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-5D-0215	2/5/15	1025	G	W	16			2	3	1	1	1	3	2	3			
BSA-MW-5D-F(0.2)-0215					4	Y										1	3	
BSA-MW-5D-0215-MS					5			2	3									
BSA-MW-5D-0215-MSD					5			2	3									
BSA-MW-4D-0215		1144			16			2	3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-0215					4	Y										1	3	
BSA-MW-2D-0215		1325			16			2	3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)-0215					4	Y										1	3	
CPA-MW-4D-0215		0933			16			2	3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0215					4	Y										1	3	
CPA-MW-3D-0215		1245			16			2	3	1	1	1	3	2	3			
CPA-MW-3D-F(0.2)-0215					4	Y										1	3	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								1	2	4	1	1	2	1,3	3	4	3	

680-109694 Chain of Custody

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes/No

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419315 / 4360228	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by: J Bindner	Golder	2/5/15		TASAV.	02-0615 0927
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: 680-109694	Company: 1.8/2.0(CF)	Date/Time: 1.5/1.7°C

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

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: Fed Ex	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-3D-0215-AD	2/5/15	1245	G	W	5			2	3									
CPA-MW-2D-0215	"	1415	"	"	16			2	3	1	1	1	3	2	3			
CPA-MW-2D-F(0.2)-0215	"	"	"	"	4	Y										1	3	
CPA-MW-2D-0215-AD	"	"	"	"	5			2	3									
1Q15 LTM Trip Blank #4	—	—	—	—	2				2									

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

								1	2	4	1	1	2	1,3	3	4	3	

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419315/426228		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Golder	2/5/15	[signature]	TA SAV.	02-06-15 0927
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: 680-109694	Company: 1.8/2.0 (CF)	Date/Time: 1.5/1.7

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:

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/6/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-1S-0215	2/6/15	0932	G	W	16			2	3	1	1	1	3	2	3			
BSA-MW-1S-F(0.2)-0215		1			4	Y										1	3	
BSA-MW-1S-0215-EB		0955			5			2	3									
CPA-MW-1D-0215		0846			16			2	3	1	1	1	3	2	3			
CPA-MW-1D-F(0.2)-0215		1			4	Y										1	3	
1Q15 LTM TripBlank #5	—		—		2				2									

680-109732 Chain of Custody

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

								1	2	4	1	1	2	1,3	3	4	3	

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

1.8/1.6/1.0(CF)1.5/1.3/0.7°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 818638	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by: J Bindner	Company: Golder	Date/Time: 2/6/15	Received by: Banda	Company: TAS	Date/Time: 02-07-15 0918
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

APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

LONG-TERM MONITORING 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

April 2015 **140-3345**

A world of capabilities delivered locally

Golder Associates

Table of Contents

1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on between February 2 and February 6, 2015 at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility (Site) in Sauget, Illinois. Golder collected a total of thirty six (36) samples from groundwater monitoring wells and piezometers as part of the 1st Quarter 2015 (1Q15) Long-Term Monitoring Program (LTMP). Twenty-one (21) groundwater samples, including wells PM1M and PM1D installed in January 2015, six (6) trip blanks, three (3) equipment blanks (EB), three (3) analytical duplicates (AD), and two (2) matrix spike/matrix spike duplicate (MS/MSD) pairs were prepared. Groundwater monitoring locations were located at the WGK facility or approximately 1.0 to 1.5 miles north of the Site. The samples were submitted to the TestAmerica Laboratories, Inc. (TestAmerica) facility located in Savannah, Georgia for analysis using United States Environmental Protection Agency (USEPA) methods, standard methods and USEPA SW-846 test methods. Samples submitted to TestAmerica were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total and dissolved metals, dissolved gases, and general chemistry parameters. The analytical results were placed into six (6) sample delivery groups (SDGs) and described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KPS135	PM1M-0215
	PM1D-0215
	PM1D-0215-AD
	ESL-MW-A-0215
	ESL-MW-C1-0215
	ESL-MW-C1-0215-EB
	ESL-MW-D1-0215
	1Q15 LTM Trip Blank #1
KPS136	BSA-MW-3D-0215
	BSA-MW-3D-0215-EB
	CPA-MW-5D-0215
	1Q15 LTM Trip Blank #3
KPS137	GWE-3D-0215
	GWE-5S-0215
	GWE-5M-0215
	GWE-5D-0215
	1Q15 LTM Trip Blank #2
KPS138	GWE-1D-0215
	GWE-2D-0215
	1Q15 LTM Trip Blank #3
KPS139	BSA-MW-2D-0215
	BSA-MW-4D-0215
	BSA-MW-5D-0215

KPS139 (continued)	CPA-MW-2D-0215
	CPA-MW-2D-0215-AD
	CPA-MW-3D-0215
	CPA-MW-3D-0215-AD
	CPA-MW-4D-0215
	1Q15 LTM Trip Blank #4
KPS140	BSA-MW-1S-0215
	BSA-MW-1S-0215-EB
	CPA-MW-1D-0215
	1Q15 LTM Trip Blank #5

The samples were collected and analyzed in general accordance with the Revised Long-Term Monitoring Program (LTMP) Work Plan (Work Plan) (Solutia 2009). Groundwater samples were analyzed for VOCs, SVOCs, total and dissolved metals, dissolved gases, and general chemistry parameters. The general chemistry parameters included chloride, nitrate, sulfate, total organic carbon (TOC), alkalinity, carbon dioxide, and dissolved organic carbon (DOC). Six (6) trip blanks, three (3) EBs, three (3) ADs, and two (2) MS/MSD pairs were submitted and analyzed for VOC and SVOC analysis. SVOC analysis was not performed on the supplemental wells north of the Site. The following analytical methods used are from USEPA document SW-846, Test Methods for Evaluating Solid Waste, Revision 6 contained in Final Update III August 2002 and listed below:

- VOCs were analyzed using USEPA SW-846 Method 8260B Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- SVOCs were analyzed using USEPA SW-846 Method 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- Total and Dissolved Iron and Manganese were analyzed by USEPA SW-846 Method 6010C Inductively Coupled Plasma-Atomic Emission Spectrometry

The following standard methods were used to analyze monitored natural attenuation (MNA) parameters:

- Dissolved Gases analyzed by Method RSK-175
- Alkalinity and Free Carbon Dioxide analyzed by USEPA Method 310.1 by Titration
- Chloride analyzed by USEPA Method 325.2 by Automated Colorimetry
- Nitrogen, Nitrate analyzed by USEPA Method 353.2 by Automated Colorimetry
- Sulfate analyzed by USEPA Method 375.4 by Spectrophotometer
- Total and Dissolved Organic Carbon analyzed by USEPA Method 415.1

Golder completed validation of the analytical data following the general guidelines in Section 4.4 Data Review and Validation of the Work Plan. The Work Plan specifies that the most recent versions 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

- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

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
- J – The analyte was detected and the result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value
- X – Surrogate is outside control limits
- F1 – MS/MSD Recovery exceeds the control limits
- * - LCS or LCSD exceed the control limits
- H – Sample was prepped or analyzed beyond specified holding time

Golder data qualifiers are defined below:

- U – The analyte was analyzed for but not detected
- J – The analyte was detected and the result is considered an estimated value
- UJ – The analyte was not detected at or above the MDL; the detection limit is estimated
- D – The analyte was analyzed at a dilution

Sections 2, 3 and 4 summarize 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 5.0.

2.0 VOLATILE ORGANIC COMPOUNDS

Samples were collected from twenty-one (21) groundwater monitoring locations and analyzed for VOCs. Analytical duplicate samples were collected from three (3) sampling locations, PM1D, CPA-MW-2D and CPA-MW-3D. Three (3) EBs and six (6) trip blanks were also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into six (6) data packages or SDGs (KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140), and were prepared and analyzed using

SW-846 Method 8260B. 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. A summary of affected SDGs is provided below.

KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140 – Samples were received at temperatures below the 4°C+/-2°C criteria. The samples were otherwise received in good condition and data qualification was not required.

2.2 Blanks

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

Six (6) laboratory prepared trip blanks, one (1) for each SDG, were shipped and analyzed for VOCs during the 1Q15 event to evaluate whether cross contamination occurred during sample shipment. Results for the trip blanks were non-detect.

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.

Three (3) EBs were collected during the 1Q15 event to assess the effectiveness of the decontamination procedure. Detections were noted in the following EBs:

- BSA-MW-1S-0215-EB (SDG KPS140): benzene at 130 µg/L, 1,2-dichlorobenzene at 2.3 µg/L and 1,4-dichlorobenzene at 3.5 µg/L

The samples associated with the EBs were not qualified based on the 5Xs concentration criteria.

2.3 Surrogate Spike Recoveries

Samples to be analyzed for VOCs were spiked with surrogate compounds: 4-bromofluorobenzene, 1,2-dichloroethane-d4, dibromofluoromethane, and toluene-d8, prior to analysis, to evaluate overall laboratory performance. Surrogate recoveries were within control limits.

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. Two (2) MS/MSD pairs were collected during the 1Q15 event associated with samples ESL-MW-A and BSA-MW-5D. MS/MSD accuracy data did not meet criteria for benzene and chlorobenzene associated with sample BSA-MW-5D. MS/MSD precision data met criteria. Since MS/MSD data alone cannot be used to evaluate the precision and accuracy of data, data qualification was not required for associated samples.

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. Three (3) ADs were collected during the 1Q15 event associated with samples PM1D, CPA-MW-2D and CPA-MW-3D. The relative percent difference (RPD) between the samples and the associated ADs did not exceed 25%; therefore, data qualification was not required.

2.7 Internal Standard Responses

Internal standard performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. Internal standard area counts did not vary by more than a factor of two (2) from the associated 12 hour calibration standard. Internal standard retention times did not vary more than +/-30 seconds from the retention time of the associated 12 hour calibration standard. Data qualification was not required.

2.8 Results Reported From Dilutions

Several VOC samples required dilutions due to high levels of target analytes. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 5.0.

3.0 SEMI-VOLATILE ORGANIC COMPOUNDS

Samples were collected from ten (10) groundwater monitoring locations and analyzed for SVOCs. An AD sample was collected from two (2) sampling locations, CPA-MW-2D and CPA-MW-3D. Two (2) EBs were also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into six (6) data packages or SDGs (KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140), and were prepared and analyzed using SW-846 Method 8270D. Samples were validated in general accordance with the functional guidelines. Results of the validation are summarized below.

3.1 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. A summary of affected SDGs is provided below.

KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140 – Samples were received at temperatures below the 4°C+/-2°C criteria. The samples were otherwise received in good condition and data qualification was not required.

3.2 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.

Two (2) EBs were collected during the 1Q15 event, associated with sample BSA-MW-1S and BSA-MW-3D, to assess the effectiveness of the decontamination procedure. Results for the EBs were non-detect.

3.3 Surrogate Spike Recoveries

Samples to be analyzed for SVOCs were spiked with surrogate compounds: 2-flourobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, terphenyl-d14, and 2,4,6-tribromophenol, prior to analysis, to evaluate overall laboratory performance. Surrogate recoveries for the LCS run on batch 370829, in SDG KPS 136, were outside control limits for 2-fluorophenol, nitrobenzene-d5 and phenol-d5. Qualification not required. Surrogate recovery for BSA-MW-2D was outside the control limit for 2-fluorophenol. Qualification not required. Surrogates recoveries for CPA-MW-2D-AD were outside control limits for 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, and 2,4,6-tribromophenol. CPA-MW-2D-AD was re-extracted and re-analyzed outside holding time. Result qualifications are shown in Section 5.0.

3.4 Laboratory Control Sample Recoveries

A LCS is analyzed on each laboratory system to evaluate the analytical method accuracy and laboratory performance. LCS/LCSD recoveries exceeded acceptance criteria for 2-chlorophenol and 1,4-dioxane, in SDG KPS136. Result qualifications are shown in Section 5.0.

3.5 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. Two (2) MS/MSD pairs were collected during the 1Q15 event associated with samples ESL-MW-A and BSA-MW-5D. MS/MSD accuracy and precision data met criteria.

3.6 Analytical Duplicates

One (1) AD is collected for every ten (10) field samples to determine the overall precision of field and laboratory methods. Two (2) ADs were collected during the 1Q15 event associated with samples CPA-MW-2D and CPA-MW-3D. The RPD between CPA-MW-2D, and the AD, CPA-MW-2D-AD, exceeded 25%. Result qualifications are shown in Section 5.0.

3.7 Internal Standard Responses

Internal standard performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. Internal standard area counts did not vary by more than a factor of two (2) from the associated 12 hour calibration standard. Internal standard retention times did not vary more than +/-30 seconds from the retention time of the associated 12 hour calibration standard. Data qualification was not required.

3.8 Results Reported From Dilutions

SVOC samples did not require dilutions.

4.0 INORGANICS AND GENERAL CHEMISTRY

Samples were collected from twenty-one (21) groundwater monitoring locations and analyzed for inorganics and general chemistry. The samples were submitted to TestAmerica, placed into six (6) data packages or SDGs (KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140), and were prepared and analyzed using the following methods:

- Total and Dissolved Iron and Manganese analyzed by Method 6010C Inductively Coupled Plasma-Atomic Emission Spectrometry
- Dissolved Gases analyzed by Method RSK-175
- Alkalinity and Free Carbon Dioxide analyzed by USEPA Method 310.1 by Titration
- Chloride analyzed by USEPA Method 325.2 by Automated Colorimetry
- Nitrogen, Nitrate analyzed by USEPA Method 353.2 by Automated Colorimetry
- Sulfate analyzed by USEPA Method 375.4 by Spectrophotometer
- Total and Dissolved Organic Carbon analyzed by USEPA Method 415.1

Samples were validated in general accordance with the functional guidelines. Results of the validation are summarized below.

4.1 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. A summary of affected SDGs is provided below.

KPS135, KPS136, KPS137, KPS138, KPS139, and KPS140 – Samples were received at temperatures below the 4°C+/-2°C criteria. The samples were otherwise received in good condition and data qualification was not required.

4.2 Blanks

Laboratory method blanks are prepared and analyzed to determine if contamination occurred as a result of laboratory 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.

4.3 Laboratory Control Sample Recoveries

A LCS is analyzed on each laboratory system to evaluate the analytical method accuracy and laboratory performance. LCS recoveries were within acceptance criteria; therefore, data qualification was not required.

4.4 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. Although MS/MSD analysis was not required for inorganic and general chemistry per the Work Plan, the laboratory spiked groundwater samples BSA-MW-3D, CPA-MW-5D, PM1D, GWE-3D, GWE-5S, ESL-MW-A, and ESL-MW-C1 for various analytes. Some MS/MSD data for these samples was outside acceptance criteria. Since MS/MSD data alone cannot be used to evaluate the precision and accuracy of data, data qualification was not required for associated samples.

4.5 Results Reported From Dilutions

Samples in each SDG required dilutions due to high levels of target analytes. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 5.0.

5.0 SUMMARY

Golder validated the data collected during the 1Q15 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	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chloride, Sulfate, TOC, and DOC	D	PM1M, PM1D, ESL-MW-A, ESL-MW-C1, ESL-MW-D1, GWE-1D, GWE-2D, GWE-3D, GWE-5D, GWE-5M, GWE-5S, BSA-MW-1S, BSA-MW-1S-EB, BSA-MW-2D, BSA-MW-3D, BSA-MW-4D, BSA-MW-5D, CPA-MW-1D, CPA-MW-2D, CPA-MW-2D-AD, CPA-MW-3D, CPA-MW-3D-AD, CPA-MW-4D, and CPA-MW-5D
Duplicate outside RPD	2-Chlorophenol	J	CPA-MW-2D and CPA-MW-2D-AD
LCS/LCSD outside control limits	4-Chloroaniline, 2-Chlorophenol, 1,2,4-Trichlorobenzene, and 1,4-Dioxane	J	BSA-MW-3D, BSA-MW-3D-EB and CPA-MW-5D
Detected at reporting limit	2-Chlorophenol and Chlorobenzene	U	BSA-MW-3D and BSA-MW-1S-EB
Re-extracted and re-analyzed outside hold time	2-Chlorophenol and 1,2,4-Trichlorobenzene	J	CPA-MW-2D-AD

6.0 REFERENCES

Solutia Inc., 2009. Revised Long Term Monitoring Program Work Plan, Solutia Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

USEPA, 2010. Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review.

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
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS135
Matrix: Water

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

Analytical Method: VOC (8260B), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: PM1M-0215, PM1M-F(0.2)-0215, PM1D-0215, PM1D-0215-AD, PM1D-F(0.2)-0215, ESL-MW-A-0215, ESL-MW-A-F(0.2)-0215, ESL-MW-C1-0215, ESL-MW-C1-0215-EB, ESL-MW-C1-F(0.2)-0215, ESL-MW-D1-0215, ESL-MW-D1-F(0.2)-0215, 1Q15 LTM Trip Blank #1

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

Comments:

VOC: Sample ESL-MW-D1-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 369468.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples PM1M-0215, PM1D-0215, ESL-MW-A-0215, ESL-MW-C1-0215, and ESL-MW-D1-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples PM1M-0215, PM1D-0215, ESL-MW-A-0215, ESL-MW-C1-0215, and ESL-MW-D1-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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 0.5°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.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	**YES**	**NO**	**NA**
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank ESL-MW-C1-0215-EB was submitted with SDG KPS135.

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 PM1D-0215-AD was submitted with SDG KPS135.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	PM1M, PM1D, ESL-MW-A, ESL-MW-C1, and ESL-MW-D1

SDG KPS135

Sample Results from:

PM1D
PM1M
ESL-MW-A
ESL-MW-C1
ESL-MW-D1

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: 680-109553-1
TestAmerica Sample Delivery Group: KPS135
Client Project/Site: 1Q15 LTM 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:
2/25/2015 2:26:24 PM

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

LAB 3/5/15

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LAB 3/5/15

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

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)

CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109553-1

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 2/3/2015 9:28 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.5° C and 2.5° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples PM1D-0215 (680-109553-1), PM1D-0215-AD (680-109553-3), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8), ESL-MW-C1-0215-EB (680-109553-10), ESL-MW-A-0215 (680-109553-11) and 1Q15 LTM Trip Blank #1 (680-109553-13) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/10/2015 and 02/11/2015.

Sample ESL-MW-D1-0215 (680-109553-6)[10X] 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.

DISSOLVED GASES

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/04/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 369468.

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

METALS (ICP)

Samples PM1D-F(0.2)-0215 (680-109553-2), PM1M-F(0.2)-0215 (680-109553-5), ESL-MW-D1-F(0.2)-0215 (680-109553-7), ESL-MW-C1-F(0.2)-0215 (680-109553-9) and ESL-MW-A-F(0.2)-0215 (680-109553-12) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/09/2015 and analyzed on 02/11/2015.

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

METALS (ICP)

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/04/2015 and analyzed on 02/05/2015.

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

Job ID: 680-109553-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

ALKALINITY

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/03/2015.

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

CHLORIDE

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples PM1D-0215 (680-109553-1)[2X], PM1M-0215 (680-109553-4)[10X], ESL-MW-D1-0215 (680-109553-6)[5X], ESL-MW-C1-0215 (680-109553-8)[5X] and ESL-MW-A-0215 (680-109553-11)[2X] 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.

NITRATE-NITRITE AS NITROGEN

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/03/2015.

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

SULFATE

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Samples PM1D-0215 (680-109553-1)[10X], PM1M-0215 (680-109553-4)[5X], ESL-MW-D1-0215 (680-109553-6)[20X], ESL-MW-C1-0215 (680-109553-8)[50X] and ESL-MW-A-0215 (680-109553-11)[20X] 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.

TOTAL ORGANIC CARBON

Samples PM1D-0215 (680-109553-1), PM1M-0215 (680-109553-4), ESL-MW-D1-0215 (680-109553-6), ESL-MW-C1-0215 (680-109553-8) and ESL-MW-A-0215 (680-109553-11) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

DISSOLVED ORGANIC CARBON (DOC)

Samples PM1D-F(0.2)-0215 (680-109553-2), PM1M-F(0.2)-0215 (680-109553-5), ESL-MW-D1-F(0.2)-0215 (680-109553-7), ESL-MW-C1-F(0.2)-0215 (680-109553-9) and ESL-MW-A-F(0.2)-0215 (680-109553-12) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1D-0215 — Lab Sample ID: 680-109553-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	27		1.0		ug/L	1		8260B	Total/NA
Methane	29		0.58		ug/L	1		RSK-175	Total/NA
Iron	15		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.52		0.010		mg/L	1		6010C	Total Recoverable
Chloride	81		2.0		mg/L	2		325.2	Total/NA
Sulfate	320		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	2.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	33		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1D-F(0.2)-0215 — Lab Sample ID: 680-109553-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	15		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.50		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: PM1D-0215-AD — Lab Sample ID: 680-109553-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	27		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: PM1M-0215 — Lab Sample ID: 680-109553-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	15		0.58		ug/L	1		RSK-175	Total/NA
Iron	2.7		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.2		0.010		mg/L	1		6010C	Total Recoverable
Chloride	410		10		mg/L	10		325.2	Total/NA
Sulfate	150		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	4.7		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	470		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	87		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1M-F(0.2)-0215 — Lab Sample ID: 680-109553-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	2.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.1		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-D1-0215 — Lab Sample ID: 680-109553-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	30		10		ug/L	10		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah
LAB 3/5/15

Client Sample ID: ESL-MW-D1-0215 (Continued) — Lab Sample ID: 680-109553-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1600		10		ug/L	10		8260B	Total/NA
1,4-Dichlorobenzene	55		10		ug/L	10		8260B	Total/NA
Methane	75		0.58		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.39		0.010		mg/L	1		6010C	Total Recoverable
Chloride	120		5.0		mg/L	5		325.2	Total/NA
Sulfate	540		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-D1-F(0.2)-0215 — Lab Sample ID: 680-109553-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.39		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-0215 — Lab Sample ID: 680-109553-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1.2		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	1.4		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.3		1.0		ug/L	1		8260B	Total/NA
Methane	3.1		0.58		ug/L	1		RSK-175	Total/NA
Iron	11		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.42		0.010		mg/L	1		6010C	Total Recoverable
Chloride	110		5.0		mg/L	5		325.2	Total/NA
Sulfate	790		250		mg/L	50		375.4	Total/NA
Total Organic Carbon	4.2		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	350		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	31		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-C1-F(0.2)-0215 — Lab Sample ID: 680-109553-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.41		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-0215-EB — Lab Sample ID: 680-109553-10

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-A-0215 — Lab Sample ID: 680-109553-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1.6		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	2.2		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.8		1.0		ug/L	1		8260B	Total/NA
Methane	3.5		0.58		ug/L	1		RSK-175	Total/NA
Iron	11		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.37		0.010		mg/L	1		6010C	Total Recoverable
Chloride	80		2.0		mg/L	2		325.2	Total/NA
Nitrate as N	0.33		0.050		mg/L	1		353.2	Total/NA
Sulfate	540		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.4		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	280		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	25		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-A-F(0.2)-0215 — Lab Sample ID: 680-109553-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	10		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.35		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 1Q15 LTM Trip Blank #1 — Lab Sample ID: 680-109553-13

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1D-0215
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 15:08	1
Chlorobenzene	27		1.0		ug/L			02/10/15 15:08	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:08	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:08	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*02/10/15 15:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*02/10/15 15:08*	*1*
Dibromofluoromethane (Surr)	*114*		*70 - 130*		*02/10/15 15:08*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*02/10/15 15:08*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 11:26	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 11:26	1
Methane	29		0.58		ug/L			02/04/15 11:26	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	15		0.050		mg/L		02/04/15 10:52	02/05/15 05:08	1
Manganese	0.52		0.010		mg/L		02/04/15 10:52	02/05/15 05:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	81	D	2.0		mg/L			02/11/15 12:29	2
Nitrate as N	0.050	U	0.050		mg/L			02/03/15 16:43	1
Sulfate	320	D	50		mg/L			02/11/15 13:25	10
Total Organic Carbon	2.0		1.0		mg/L			02/24/15 12:42	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	330		5.0		mg/L			02/03/15 16:30	1
Carbon Dioxide, Free	33		5.0		mg/L			02/03/15 16:30	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1D-F(0.2)-0215
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	15		0.050		mg/L		02/09/15 10:32	02/11/15 03:51	1
Manganese, Dissolved	0.50		0.010		mg/L		02/09/15 10:32	02/11/15 03:51	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.1		1.0		mg/L			02/24/15 17:24	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1D-0215-AD
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 15:29	1
Chlorobenzene	27		1.0		ug/L			02/10/15 15:29	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:29	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:29	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*02/10/15 15:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*02/10/15 15:29*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*02/10/15 15:29*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*02/10/15 15:29*	*1*

TestAmerica Savannah
LAB 3/5/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1M-0215

Date Collected: 02/02/15 10:18
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/11/15 16:13	1
Chlorobenzene	1.0	U	1.0		ug/L			02/11/15 16:13	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 16:13	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 16:13	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*70 - 130*		*02/11/15 16:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*02/11/15 16:13*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*02/11/15 16:13*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*02/11/15 16:13*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 11:39	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 11:39	1
Methane	15		0.58		ug/L			02/04/15 11:39	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.7		0.050		mg/L		02/04/15 10:52	02/05/15 05:03	1
Manganese	2.2		0.010		mg/L		02/04/15 10:52	02/05/15 05:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	410	D	10		mg/L			02/11/15 12:39	10
Nitrate as N	0.050	U	0.050		mg/L			02/03/15 16:47	1
Sulfate	150	D	25		mg/L			02/11/15 12:32	5
Total Organic Carbon	4.7		1.0		mg/L			02/24/15 12:57	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	470		5.0		mg/L			02/03/15 16:15	1
Carbon Dioxide, Free	87		5.0		mg/L			02/03/15 16:15	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1M-F(0.2)-0215
Date Collected: 02/02/15 10:18
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-5
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	2.4		0.050		mg/L		02/09/15 10:32	02/11/15 03:56	1
Manganese, Dissolved	2.1		0.010		mg/L		02/09/15 10:32	02/11/15 03:56	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.0		1.0		mg/L			02/24/15 17:39	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-D1-0215
Date Collected: 02/02/15 11:26
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	30	D	10		ug/L			02/11/15 18:40	10
Chlorobenzene	1600	D	10		ug/L			02/11/15 18:40	10
1,2-Dichlorobenzene	10	U	10		ug/L			02/11/15 18:40	10
1,3-Dichlorobenzene	10	U	10		ug/L			02/11/15 18:40	10
1,4-Dichlorobenzene	55	D	10		ug/L			02/11/15 18:40	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/11/15 18:40*	*10*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*		*02/11/15 18:40*	*10*
Dibromofluoromethane (Surr)	*113*		*70 - 130*		*02/11/15 18:40*	*10*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*02/11/15 18:40*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 11:52	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 11:52	1
Methane	75		0.58		ug/L			02/04/15 11:52	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13		0.050		mg/L		02/04/15 10:52	02/05/15 05:12	1
Manganese	0.39		0.010		mg/L		02/04/15 10:52	02/05/15 05:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120	D	5.0		mg/L			02/11/15 12:39	5
Nitrate as N	0.050	U	0.050		mg/L			02/03/15 16:48	1
Sulfate	540	D	100		mg/L			02/11/15 13:44	20
Total Organic Carbon	3.0		1.0		mg/L			02/24/15 13:02	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	330		5.0		mg/L			02/03/15 16:46	1
Carbon Dioxide, Free	32		5.0		mg/L			02/03/15 16:46	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-D1-F(0.2)-0215
Date Collected: 02/02/15 11:26
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-7
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		02/09/15 10:32	02/11/15 04:10	1
Manganese, Dissolved	0.39		0.010		mg/L		02/09/15 10:32	02/11/15 04:10	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.4		1.0		mg/L			02/24/15 17:44	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-C1-0215

Lab Sample ID: 680-109553-8

Date Collected: 02/02/15 13:15
Date Received: 02/03/15 09:28

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 15:50	1
Chlorobenzene	1.2		1.0		ug/L			02/10/15 15:50	1
1,2-Dichlorobenzene	1.4		1.0		ug/L			02/10/15 15:50	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 15:50	1
1,4-Dichlorobenzene	1.3		1.0		ug/L			02/10/15 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*02/10/15 15:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*02/10/15 15:50*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*02/10/15 15:50*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*02/10/15 15:50*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 12:05	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 12:05	1
Methane	3.1		0.58		ug/L			02/04/15 12:05	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	11		0.050		mg/L		02/04/15 10:52	02/05/15 04:31	1
Manganese	0.42		0.010		mg/L		02/04/15 10:52	02/05/15 04:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	5.0		mg/L			02/11/15 12:52	5
Nitrate as N	0.050	U	0.050		mg/L			02/03/15 16:49	1
Sulfate	790	D	250		mg/L			02/11/15 13:58	50
Total Organic Carbon	4.2		1.0		mg/L			02/24/15 13:07	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	350		5.0		mg/L			02/03/15 16:39	1
Carbon Dioxide, Free	31		5.0		mg/L			02/03/15 16:39	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-C1-F(0.2)-0215
Date Collected: 02/02/15 13:15
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-9
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	11		0.050		mg/L		02/09/15 10:32	02/11/15 04:15	1
Manganese, Dissolved	0.41		0.010		mg/L		02/09/15 10:32	02/11/15 04:15	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.0		1.0		mg/L			02/24/15 17:49	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-C1-0215-EB
Date Collected: 02/02/15 13:30
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 16:11	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:11	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:11	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:11	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*02/10/15 16:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*02/10/15 16:11*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*02/10/15 16:11*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*02/10/15 16:11*	*1*

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-A-0215
Date Collected: 02/02/15 12:20
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 16:32	1
Chlorobenzene	1.6		1.0		ug/L			02/10/15 16:32	1
1,2-Dichlorobenzene	2.2		1.0		ug/L			02/10/15 16:32	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:32	1
1,4-Dichlorobenzene	1.8		1.0		ug/L			02/10/15 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*70 - 130*		*02/10/15 16:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*02/10/15 16:32*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*02/10/15 16:32*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*02/10/15 16:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 12:17	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 12:17	1
Methane	3.5		0.58		ug/L			02/04/15 12:17	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	11		0.050		mg/L		02/04/15 10:52	02/05/15 05:17	1
Manganese	0.37		0.010		mg/L		02/04/15 10:52	02/05/15 05:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	80	D	2.0		mg/L			02/11/15 12:29	2
Nitrate as N	0.33		0.050		mg/L			02/03/15 16:37	1
Sulfate	540	D	100		mg/L			02/11/15 13:44	20
Total Organic Carbon	3.4		1.0		mg/L			02/24/15 13:12	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	280		5.0		mg/L			02/03/15 16:22	1
Carbon Dioxide, Free	25		5.0		mg/L			02/03/15 16:22	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-A-F(0.2)-0215
Date Collected: 02/02/15 12:20
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-12
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	10		0.050		mg/L		02/09/15 10:32	02/11/15 04:19	1
Manganese, Dissolved	0.35		0.010		mg/L		02/09/15 10:32	02/11/15 04:19	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.8		1.0		mg/L			02/24/15 18:17	1

TestAmerica Savannah
LAB 3/5/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: 1Q15 LTM Trip Blank #1
Date Collected: 02/02/15 00:00
Date Received: 02/03/15 09:28

Lab Sample ID: 680-109553-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 14:47	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:47	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:47	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:47	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*02/10/15 14:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*		*02/10/15 14:47*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*02/10/15 14:47*	*1*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*		*02/10/15 14:47*	*1*

TestAmerica Savannah
LAB 3/5/15

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-109553-1	PM1D-0215	98	100	114	91
680-109553-3	PM1D-0215-AD	97	102	111	92
680-109553-4	PM1M-0215	107	97	104	108
680-109553-6	ESL-MW-D1-0215	109	111	113	106
680-109553-8	ESL-MW-C1-0215	98	94	104	93
680-109553-10	ESL-MW-C1-0215-EB	98	100	104	93
680-109553-11	ESL-MW-A-0215	105	106	106	93
680-109553-11 MS	ESL-MW-A-0215	97	92	91	96
680-109553-11 MSD	ESL-MW-A-0215	99	101	96	98
680-109553-13	1Q15 LTM Trip Blank #1	96	90	104	88
LCS 680-370271/5	Lab Control Sample	99	111	111	93
LCS 680-370449/4	Lab Control Sample	112	102	107	103
LCSD 680-370271/9	Lab Control Sample Dup	102	107	107	93
LCSD 680-370449/5	Lab Control Sample Dup	106	96	100	102
MB 680-370271/12	Method Blank	95	87	100	93
MB 680-370449/8	Method Blank	110	98	105	105

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370271/12
Matrix: Water
Analysis Batch: 370271

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 14:26	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:26	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:26	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:26	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 14:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*02/10/15 14:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 130*		*02/10/15 14:26*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*02/10/15 14:26*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*02/10/15 14:26*	*1*

Lab Sample ID: LCS 680-370271/5
Matrix: Water
Analysis Batch: 370271

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	56.9		ug/L		114	73 - 131
Chlorobenzene	50.0	50.7		ug/L		101	80 - 120
1,2-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	50.6		ug/L		101	80 - 120
1,4-Dichlorobenzene	50.0	50.2		ug/L		100	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*
Dibromofluoromethane (Surr)	*111*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 680-370271/9
Matrix: Water
Analysis Batch: 370271

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	58.3		ug/L		117	73 - 131	2	30
Chlorobenzene	50.0	50.8		ug/L		102	80 - 120	0	20
1,2-Dichlorobenzene	50.0	52.8		ug/L		106	80 - 120	0	20
1,3-Dichlorobenzene	50.0	50.6		ug/L		101	80 - 120	0	20
1,4-Dichlorobenzene	50.0	50.5		ug/L		101	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-109553-11 MS
Matrix: Water
Analysis Batch: 370271

Client Sample ID: ESL-MW-A-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.0	U	50.0	50.1		ug/L		100	73 - 131
Chlorobenzene	1.6		50.0	51.6		ug/L		100	80 - 120
1,2-Dichlorobenzene	2.2		50.0	53.5		ug/L		103	80 - 120
1,3-Dichlorobenzene	1.0	U	50.0	51.7		ug/L		103	80 - 120
1,4-Dichlorobenzene	1.8		50.0	53.5		ug/L		104	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*91*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: 680-109553-11 MSD
Matrix: Water
Analysis Batch: 370271

Client Sample ID: ESL-MW-A-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.0	U	50.0	51.7		ug/L		103	73 - 131	3	30
Chlorobenzene	1.6		50.0	53.5		ug/L		104	80 - 120	4	20
1,2-Dichlorobenzene	2.2		50.0	56.1		ug/L		108	80 - 120	5	20
1,3-Dichlorobenzene	1.0	U	50.0	53.4		ug/L		107	80 - 120	3	20
1,4-Dichlorobenzene	1.8		50.0	55.3		ug/L		107	80 - 120	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: MB 680-370449/8
Matrix: Water
Analysis Batch: 370449

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/11/15 11:48	1
Chlorobenzene	1.0	U	1.0		ug/L			02/11/15 11:48	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 11:48	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 11:48	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/11/15 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*70 - 130*		*02/11/15 11:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/11/15 11:48*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/11/15 11:48*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*02/11/15 11:48*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-370449/4
Matrix: Water
Analysis Batch: 370449

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	52.7		ug/L		105	73 - 131
Chlorobenzene	50.0	49.1		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	52.3		ug/L		105	80 - 120
1,4-Dichlorobenzene	50.0	50.8		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*107*		*70 - 130*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: LCSD 680-370449/5
Matrix: Water
Analysis Batch: 370449

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.6		ug/L		101	73 - 131	4	30
Chlorobenzene	50.0	48.3		ug/L		97	80 - 120	2	20
1,2-Dichlorobenzene	50.0	51.3		ug/L		103	80 - 120	3	20
1,3-Dichlorobenzene	50.0	51.3		ug/L		103	80 - 120	2	20
1,4-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-369468/7
Matrix: Water
Analysis Batch: 369468

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/04/15 10:41	1
Ethylene	1.0	U	1.0		ug/L			02/04/15 10:41	1
Methane	0.58	U	0.58		ug/L			02/04/15 10:41	1

Lab Sample ID: LCS 680-369468/6
Matrix: Water
Analysis Batch: 369468

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	253		ug/L		88	75 - 125
Ethylene	269	234		ug/L		87	75 - 125

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-369468/6
Matrix: Water
Analysis Batch: 369468

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	154	134		ug/L		87	75 - 125

Lab Sample ID: LCSD 680-369468/14
Matrix: Water
Analysis Batch: 369468

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	267		ug/L		93	75 - 125	6	30
Ethylene	269	247		ug/L		92	75 - 125	5	30
Methane	154	148		ug/L		96	75 - 125	10	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-369516/1-A
Matrix: Water
Analysis Batch: 369692

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 369516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/04/15 10:52	02/05/15 04:22	1
Manganese	0.010	U	0.010		mg/L		02/04/15 10:52	02/05/15 04:22	1

Lab Sample ID: LCS 680-369516/2-A
Matrix: Water
Analysis Batch: 369692

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 369516

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.83		mg/L		97	80 - 120
Manganese	0.500	0.524		mg/L		105	80 - 120

Lab Sample ID: 680-109553-8 MS
Matrix: Water
Analysis Batch: 369692

Client Sample ID: ESL-MW-C1-0215
Prep Type: Total Recoverable
Prep Batch: 369516

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	11		5.00	15.4		mg/L		90	75 - 125
Manganese	0.42		0.500	0.933		mg/L		102	75 - 125

Lab Sample ID: 680-109553-8 MSD
Matrix: Water
Analysis Batch: 369692

Client Sample ID: ESL-MW-C1-0215
Prep Type: Total Recoverable
Prep Batch: 369516

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	11		5.00	15.3		mg/L		89	75 - 125	1	20
Manganese	0.42		0.500	0.930		mg/L		101	75 - 125	0	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 680-370112/1-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 02:01	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/09/15 10:32	02/11/15 02:01	1

Lab Sample ID: LCS 680-370112/2-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	5.00	4.82		mg/L		96	80 - 120
Manganese, Dissolved	0.500	0.513		mg/L		103	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-369500/25
Matrix: Water
Analysis Batch: 369500

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/03/15 15:52	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/03/15 15:52	1

Lab Sample ID: LCS 680-369500/26
Matrix: Water
Analysis Batch: 369500

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	214		mg/L		85	80 - 120

Lab Sample ID: LCSD 680-369500/46
Matrix: Water
Analysis Batch: 369500

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	259		mg/L		103	80 - 120	19	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370556/23
Matrix: Water
Analysis Batch: 370556

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 12:39	1

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCS 680-370556/13
Matrix: Water
Analysis Batch: 370556

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.8		mg/L		103	85 - 115

Lab Sample ID: 680-109553-4 DU
Matrix: Water
Analysis Batch: 370556

Client Sample ID: PM1M-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	410		415		mg/L		0.8	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-369447/13
Matrix: Water
Analysis Batch: 369447

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/03/15 16:32	1

Lab Sample ID: LCS 680-369447/16
Matrix: Water
Analysis Batch: 369447

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.552		mg/L		110	75 - 125
Nitrate Nitrite as N	1.00	1.07		mg/L		107	90 - 110
Nitrite as N	0.500	0.519		mg/L		104	90 - 110

Lab Sample ID: 680-109553-11 MS
Matrix: Water
Analysis Batch: 369447

Client Sample ID: ESL-MW-A-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.33		0.500	0.798		mg/L		94	75 - 125
Nitrate Nitrite as N	0.34		1.00	1.30		mg/L		97	90 - 110
Nitrite as N	0.050	U	0.500	0.507		mg/L		101	90 - 110

Lab Sample ID: 680-109553-11 MSD
Matrix: Water
Analysis Batch: 369447

Client Sample ID: ESL-MW-A-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.33		0.500	0.804		mg/L		95	75 - 125	1	30
Nitrate Nitrite as N	0.34		1.00	1.32		mg/L		98	90 - 110	1	10
Nitrite as N	0.050	U	0.500	0.513		mg/L		103	90 - 110	1	10

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370564/58
Matrix: Water
Analysis Batch: 370564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 14:00	1

Lab Sample ID: LCS 680-370564/4
Matrix: Water
Analysis Batch: 370564

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.5		mg/L		102	75 - 125

Lab Sample ID: 680-109553-4 DU
Matrix: Water
Analysis Batch: 370564

Client Sample ID: PM1M-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	150		157		mg/L		2	30

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/43
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 17:05	1

Lab Sample ID: LCS 160-175823/44
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.87		mg/L		99	90 - 110

Lab Sample ID: 680-109553-2 MS
Matrix: Water
Analysis Batch: 175823

Client Sample ID: PM1D-F(0.2)-0215
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	2.1		5.00	7.40		mg/L		106	82 - 132

Lab Sample ID: 680-109553-2 DU
Matrix: Water
Analysis Batch: 175823

Client Sample ID: PM1D-F(0.2)-0215
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	2.1		2.08		mg/L		1	20

Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/4
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 12:28	1

Lab Sample ID: LCS 160-175822/5
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.67		mg/L		97	90 - 110

Lab Sample ID: 680-109553-1 MS
Matrix: Water
Analysis Batch: 175822

Client Sample ID: PM1D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.0		5.00	7.18		mg/L		104	76 - 120

Lab Sample ID: 680-109553-1 DU
Matrix: Water
Analysis Batch: 175822

Client Sample ID: PM1D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	2.0		1.96		mg/L		2	20

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

GC/MS VOA

Analysis Batch: 370271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	8260B	
680-109553-3	PM1D-0215-AD	Total/NA	Water	8260B	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	8260B	
680-109553-10	ESL-MW-C1-0215-EB	Total/NA	Water	8260B	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	8260B	
680-109553-11 MS	ESL-MW-A-0215	Total/NA	Water	8260B	
680-109553-11 MSD	ESL-MW-A-0215	Total/NA	Water	8260B	
680-109553-13	1Q15 LTM Trip Blank #1	Total/NA	Water	8260B	
LCS 680-370271/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-370271/9	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-370271/12	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 370449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-4	PM1M-0215	Total/NA	Water	8260B	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	8260B	
LCS 680-370449/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-370449/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-370449/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 369468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	RSK-175	
680-109553-4	PM1M-0215	Total/NA	Water	RSK-175	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	RSK-175	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	RSK-175	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	RSK-175	
LCS 680-369468/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-369468/14	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-369468/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 369516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total Recoverable	Water	3005A	
680-109553-4	PM1M-0215	Total Recoverable	Water	3005A	
680-109553-6	ESL-MW-D1-0215	Total Recoverable	Water	3005A	
680-109553-8	ESL-MW-C1-0215	Total Recoverable	Water	3005A	
680-109553-8 MS	ESL-MW-C1-0215	Total Recoverable	Water	3005A	
680-109553-8 MSD	ESL-MW-C1-0215	Total Recoverable	Water	3005A	
680-109553-11	ESL-MW-A-0215	Total Recoverable	Water	3005A	
LCS 680-369516/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-369516/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 369692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total Recoverable	Water	6010C	369516

Metals (Continued)

Analysis Batch: 369692 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-4	PM1M-0215	Total Recoverable	Water	6010C	369516
680-109553-6	ESL-MW-D1-0215	Total Recoverable	Water	6010C	369516
680-109553-8	ESL-MW-C1-0215	Total Recoverable	Water	6010C	369516
680-109553-8 MS	ESL-MW-C1-0215	Total Recoverable	Water	6010C	369516
680-109553-8 MSD	ESL-MW-C1-0215	Total Recoverable	Water	6010C	369516
680-109553-11	ESL-MW-A-0215	Total Recoverable	Water	6010C	369516
LCS 680-369516/2-A	Lab Control Sample	Total Recoverable	Water	6010C	369516
MB 680-369516/1-A	Method Blank	Total Recoverable	Water	6010C	369516

Prep Batch: 370112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-2	PM1D-F(0.2)-0215	Dissolved	Water	3005A	
680-109553-5	PM1M-F(0.2)-0215	Dissolved	Water	3005A	
680-109553-7	ESL-MW-D1-F(0.2)-0215	Dissolved	Water	3005A	
680-109553-9	ESL-MW-C1-F(0.2)-0215	Dissolved	Water	3005A	
680-109553-12	ESL-MW-A-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 370470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-2	PM1D-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109553-5	PM1M-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109553-7	ESL-MW-D1-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109553-9	ESL-MW-C1-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109553-12	ESL-MW-A-F(0.2)-0215	Dissolved	Water	6010C	370112
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370112
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	6010C	370112

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	415.1	
680-109553-1 DU	PM1D-0215	Total/NA	Water	415.1	
680-109553-1 MS	PM1D-0215	Total/NA	Water	415.1	
680-109553-4	PM1M-0215	Total/NA	Water	415.1	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	415.1	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	415.1	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	415.1	
LCS 160-175822/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-2	PM1D-F(0.2)-0215	Dissolved	Water	415.1	
680-109553-2 DU	PM1D-F(0.2)-0215	Dissolved	Water	415.1	
680-109553-2 MS	PM1D-F(0.2)-0215	Dissolved	Water	415.1	
680-109553-5	PM1M-F(0.2)-0215	Dissolved	Water	415.1	
680-109553-7	ESL-MW-D1-F(0.2)-0215	Dissolved	Water	415.1	

General Chemistry (Continued)

Analysis Batch: 175823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-9	ESL-MW-C1-F(0.2)-0215	Dissolved	Water	415.1	
680-109553-12	ESL-MW-A-F(0.2)-0215	Dissolved	Water	415.1	
LCS 160-175823/44	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/43	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 369447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	353.2	
680-109553-4	PM1M-0215	Total/NA	Water	353.2	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	353.2	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	353.2	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	353.2	
680-109553-11 MS	ESL-MW-A-0215	Total/NA	Water	353.2	
680-109553-11 MSD	ESL-MW-A-0215	Total/NA	Water	353.2	
LCS 680-369447/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-369447/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 369500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	310.1	
680-109553-4	PM1M-0215	Total/NA	Water	310.1	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	310.1	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	310.1	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	310.1	
LCS 680-369500/26	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-369500/46	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-369500/25	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 370556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	325.2	
680-109553-4	PM1M-0215	Total/NA	Water	325.2	
680-109553-4 DU	PM1M-0215	Total/NA	Water	325.2	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	325.2	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	325.2	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	325.2	
LCS 680-370556/13	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370556/23	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109553-1	PM1D-0215	Total/NA	Water	375.4	
680-109553-4	PM1M-0215	Total/NA	Water	375.4	
680-109553-4 DU	PM1M-0215	Total/NA	Water	375.4	
680-109553-6	ESL-MW-D1-0215	Total/NA	Water	375.4	
680-109553-8	ESL-MW-C1-0215	Total/NA	Water	375.4	
680-109553-11	ESL-MW-A-0215	Total/NA	Water	375.4	
LCS 680-370564/4	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370564/58	Method Blank	Total/NA	Water	375.4	

Client Sample ID: PM1D-0215

Lab Sample ID: 680-109553-1
Matrix: Water
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 15:08	DJK	TAL SAV
Total/NA	Analysis	RSK-175		1	369468	02/04/15 11:26	AJMC	TAL SAV
Total Recoverable	Prep	3005A			369516	02/04/15 10:52	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	369692	02/05/15 05:08	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369500	02/03/15 16:30	CAR	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	369447	02/03/15 16:43	GRX	TAL SAV
Total/NA	Analysis	375.4		10	370564	02/11/15 13:25	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 12:42	JCB	TAL SL

Client Sample ID: PM1D-F(0.2)-0215

Lab Sample ID: 680-109553-2
Matrix: Water
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:51	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 17:24	JCB	TAL SL

Client Sample ID: PM1D-0215-AD

Lab Sample ID: 680-109553-3
Matrix: Water
Date Collected: 02/02/15 09:30
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 15:29	DJK	TAL SAV

Client Sample ID: PM1M-0215

Lab Sample ID: 680-109553-4
Matrix: Water
Date Collected: 02/02/15 10:18
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370449	02/11/15 16:13	MMT	TAL SAV
Total/NA	Analysis	RSK-175		1	369468	02/04/15 11:39	AJMC	TAL SAV
Total Recoverable	Prep	3005A			369516	02/04/15 10:52	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	369692	02/05/15 05:03	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369500	02/03/15 16:15	CAR	TAL SAV
Total/NA	Analysis	325.2		10	370556	02/11/15 12:39	JME	TAL SAV
Total/NA	Analysis	353.2		1	369447	02/03/15 16:47	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370564	02/11/15 12:32	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 12:57	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: PM1M-F(0.2)-0215

Lab Sample ID: 680-109553-5
Matrix: Water

Date Collected: 02/02/15 10:18
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:56	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 17:39	JCB	TAL SL

Client Sample ID: ESL-MW-D1-0215

Lab Sample ID: 680-109553-6
Matrix: Water

Date Collected: 02/02/15 11:26
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	370449	02/11/15 18:40	MMT	TAL SAV
Total/NA	Analysis	RSK-175		1	369468	02/04/15 11:52	AJMC	TAL SAV
Total Recoverable	Prep	3005A			369516	02/04/15 10:52	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	369692	02/05/15 05:12	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369500	02/03/15 16:46	CAR	TAL SAV
Total/NA	Analysis	325.2		5	370556	02/11/15 12:39	JME	TAL SAV
Total/NA	Analysis	353.2		1	369447	02/03/15 16:48	GRX	TAL SAV
Total/NA	Analysis	375.4		20	370564	02/11/15 13:44	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:02	JCB	TAL SL

Client Sample ID: ESL-MW-D1-F(0.2)-0215

Lab Sample ID: 680-109553-7
Matrix: Water

Date Collected: 02/02/15 11:26
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 04:10	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 17:44	JCB	TAL SL

Client Sample ID: ESL-MW-C1-0215

Lab Sample ID: 680-109553-8
Matrix: Water

Date Collected: 02/02/15 13:15
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 15:50	DJK	TAL SAV
Total/NA	Analysis	RSK-175		1	369468	02/04/15 12:05	AJMC	TAL SAV
Total Recoverable	Prep	3005A			369516	02/04/15 10:52	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	369692	02/05/15 04:31	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369500	02/03/15 16:39	CAR	TAL SAV
Total/NA	Analysis	325.2		5	370556	02/11/15 12:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	369447	02/03/15 16:49	GRX	TAL SAV
Total/NA	Analysis	375.4		50	370564	02/11/15 13:58	JME	TAL SAV

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: ESL-MW-C1-0215

Lab Sample ID: 680-109553-8
Matrix: Water

Date Collected: 02/02/15 13:15
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	415.1		1	175822	02/24/15 13:07	JCB	TAL SL

Client Sample ID: ESL-MW-C1-F(0.2)-0215

Lab Sample ID: 680-109553-9
Matrix: Water

Date Collected: 02/02/15 13:15
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 04:15	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 17:49	JCB	TAL SL

Client Sample ID: ESL-MW-C1-0215-EB

Lab Sample ID: 680-109553-10
Matrix: Water

Date Collected: 02/02/15 13:30
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 16:11	DJK	TAL SAV

Client Sample ID: ESL-MW-A-0215

Lab Sample ID: 680-109553-11
Matrix: Water

Date Collected: 02/02/15 12:20
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 16:32	DJK	TAL SAV
Total/NA	Analysis	RSK-175		1	369468	02/04/15 12:17	AJMC	TAL SAV
Total Recoverable	Prep	3005A			369516	02/04/15 10:52	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	369692	02/05/15 05:17	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369500	02/03/15 16:22	CAR	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	369447	02/03/15 16:37	GRX	TAL SAV
Total/NA	Analysis	375.4		20	370564	02/11/15 13:44	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:12	JCB	TAL SL

Client Sample ID: ESL-MW-A-F(0.2)-0215

Lab Sample ID: 680-109553-12
Matrix: Water

Date Collected: 02/02/15 12:20
Date Received: 02/03/15 09:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 04:19	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:17	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Client Sample ID: 1Q15 LTM Trip Blank #1

Lab Sample ID: 680-109553-13

Date Collected: 02/02/15 00:00
Date Received: 02/03/15 09:28

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370271	02/10/15 14:47	DJK	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

LAB 3/5/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Savannah
LAB 3/5/15

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/5/15

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109553-1
SDG: KPS135

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109553-1	PM1D-0215	Water	02/02/15 09:30	02/03/15 09:28
680-109553-2	PM1D-F(0.2)-0215	Water	02/02/15 09:30	02/03/15 09:28
680-109553-3	PM1D-0215-AD	Water	02/02/15 09:30	02/03/15 09:28
680-109553-4	PM1M-0215	Water	02/02/15 10:18	02/03/15 09:28
680-109553-5	PM1M-F(0.2)-0215	Water	02/02/15 10:18	02/03/15 09:28
680-109553-6	ESL-MW-D1-0215	Water	02/02/15 11:26	02/03/15 09:28
680-109553-7	ESL-MW-D1-F(0.2)-0215	Water	02/02/15 11:26	02/03/15 09:28
680-109553-8	ESL-MW-C1-0215	Water	02/02/15 13:15	02/03/15 09:28
680-109553-9	ESL-MW-C1-F(0.2)-0215	Water	02/02/15 13:15	02/03/15 09:28
680-109553-10	ESL-MW-C1-0215-EB	Water	02/02/15 13:30	02/03/15 09:28
680-109553-11	ESL-MW-A-0215	Water	02/02/15 12:20	02/03/15 09:28
680-109553-12	ESL-MW-A-F(0.2)-0215	Water	02/02/15 12:20	02/03/15 09:28
680-109553-13	1Q15 LTM Trip Blank #1	Water	02/02/15 00:00	02/03/15 09:28

TestAmerica Savannah
LAB 3/5/15

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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/2/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
PMID-0215	2/2/15	0930	G	W	14				3	1	1	1	3	2	3			
PMID-F(0.2)-0215					4	Y										1	3	
PMID-0215-AD					3				3									
PMIM-0215		1018			14				3	1	1	1	3	2	3			
PMIM-F(0.2)-0215					4	Y										1	3	
ESL-MW-D1-0215		1126			14				3	1	1	1	3	2	3			
ESL-MW-D1-F(0.2)-0215					4	Y										1	3	
ESL-MW-C1-0215		1315			14				3	1	1	1	3	2	3			
ESL-MW-C1-F(0.2)-0215					4											1	3	
ESL-MW-C1-0215-EB		1330			3				3									
ESL-MW-A-0215		1220			14				3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0215					4	Y										1	3	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other								1	2	4	1	1	2	1,3	3	4	3	

680-109553 Chain of Custody

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109553

0.8, 2.8(CF) 0.5, 2.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419311 / 419312	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by: Jen Bindner	Company: Golder	Date/Time: 2/2/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: C Banda	Company: TASAJ.	Date/Time: 020315 0928

LAB 3/5/15

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

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/2/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: Fed Ex	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
ESL-MW-A-0215-MS	2/2/15	1220	G	W	3				3									
ESL-MW-A-0215-MSD	〃	〃	〃	〃	3				3									
1Q15 LTM Trip Blank #1	—	—	—	—	2				2									
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other								1	2	4	1	1	2	1,3	3	4	3	

Page 43 of 45

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109553

0.8, 2.8 (CF) 0.5, 2.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419311 / 419312		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____		
Relinquished by:	Company: Golder	Date/Time: 2/2/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TASAV.	Date/Time: 020315 0928

CAB 3/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109553-1
SDG Number: KPS135

Login Number: 109553
List Number: 1
Creator: Banda, Christy S

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	

LAB 3/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109553-1
SDG Number: KPS135

Login Number: 109553
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/05/15 02:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	~~3.1~~ 0.5, 2.5 °C
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?	False	
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	

LAB 3/5/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS136
Matrix: Water

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

Analytical Method: VOC (8260B), SVOC (8270D), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: BSA-MW-3D-0215, BSA-MW-3D-0215-EB, BSA-MW-3D-F(0.2)-0215, CPA-MW-5D-0215, CPA-MW-5D-F(0.2)-0215, and 1Q15 LTM Trip Blank #3

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

Comments:

VOC: Samples BSA-MW-3D-0215 and CPA-MW-5D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly. Insufficient volume to perform MS/MSD associated with batch 370981.

SVOC: Insufficient volume to perform MS/MSD associated with batch 369646 and batch 371177. The RPD of the LCS/LCSD recovered outside control limits for 1,4-dioxane and 4-chloroaniline associated with batch 371177. Samples were re-extracted and/or re-analyzed outside holding time with acceptable results.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 369841.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-3D-0215 and CPA-MW-5D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples BSA-MW-3D-0215 and CPA-MW-5D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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 0.5°C and 0.9°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. SVOC samples were re-extracted and/or re-analyzed outside holing time with acceptable limits. Samples extracted within holding time are reported.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB/DFTPP meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank BSA-MW-3D-0215-EB was submitted with SDG KPS136.

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: LCS/LCSD recoveries for SVOCs 2-chlorophenol and 1,4-dioxane, associated with samples in SDG KPS136, were outside control limits. Qualification required.

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

Comments: Surrogate recoveries for the SVOC LCS run on batch 370829 were outside control limits for 2-fluorophenol, nitrobenzene-d5 and phenol-d5. Qualification not required.

Duplicates

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

Comments: Duplicate samples were not submitted with SDG KPS136.

Additional Comments: None

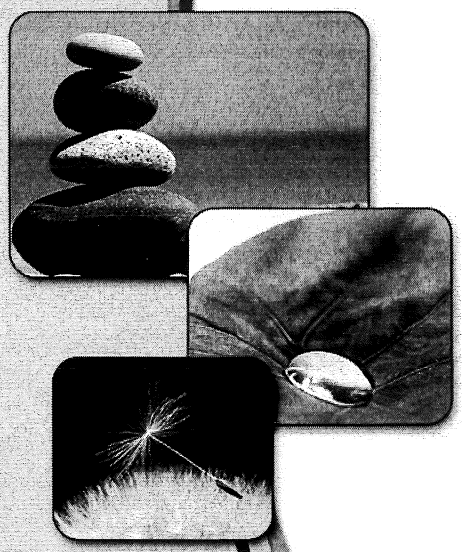
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	BSA-MW-3D and CPA-MW-5D
LCS/LCSD outside control limits	4-Chloroaniline, 2-Chlorophenol, 1,2,4-Trichlorobenzene, and 1,4-Dioxane	J	BSA-MW-3D, BSA-MW-3D-EB and CPA-MW-5D
Detected at reporting limit	2-Chlorophenol	U	BSA-MW-3D

SDG KPS136

Sample Results from:

BSA-MW-3D
CPA-MW-5D



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: 680-109575-1
TestAmerica Sample Delivery Group: KPS136
Client Project/Site: 1Q15 LTM GW Sampling - 1403345
Revision: 1

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
3/25/2015 1:25:07 PM

Michele Kersey, Project Manager I
(912)354-7858
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Job ID: 680-109575-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109575-1

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 2/4/2015 9:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.5° C and 0.9° C.

NOTE: Revised case narrative to include cooler temp upon receipt and remove erroneous listing of sample IDs under SVOC.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples CPA-MW-5D-0215 (680-109575-1), BSA-MW-3D-0215 (680-109575-3), BSA-MW-3D-0215-EB (680-109575-5) and 1Q15 LTM Trip Blank #3 (680-109575-6) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/14/2015 and 02/15/2015.

Samples CPA-MW-5D-0215 (680-109575-1)[20X] and BSA-MW-3D-0215 (680-109575-3)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 370981.

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

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Samples CPA-MW-5D-0215 (680-109575-1), BSA-MW-3D-0215 (680-109575-3) and BSA-MW-3D-0215-EB (680-109575-5) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/05/2015 and 02/17/2015 and analyzed on 02/13/2015 and 02/18/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 369646.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 371177.

The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 371177 recovered outside control limits for the following analytes: 1,4 dioxane and 4 chloroaniline.

Target recovery for the LCS/LCSD associated with the following sample(s) was outside control limits: BSA-MW-3D-0215 (680-109575-3), BSA-MW-3D-0215-EB (680-109575-5), CPA-MW-5D-0215 (680-109575-1). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

Job ID: 680-109575-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

DISSOLVED GASES

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/06/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 369841.

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

METALS (ICP)

Samples CPA-MW-5D-F(0.2)-0215 (680-109575-2) and BSA-MW-3D-F(0.2)-0215 (680-109575-4) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/09/2015 and analyzed on 02/11/2015.

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

METALS (ICP)

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/09/2015 and analyzed on 02/11/2015.

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

ALKALINITY

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/04/2015.

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

CHLORIDE

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples CPA-MW-5D-0215 (680-109575-1)[10X] and BSA-MW-3D-0215 (680-109575-3)[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.

NITRATE-NITRITE AS NITROGEN

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/04/2015.

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

SULFATE

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Samples CPA-MW-5D-0215 (680-109575-1)[2X] and BSA-MW-3D-0215 (680-109575-3)[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.

TOTAL ORGANIC CARBON

Samples CPA-MW-5D-0215 (680-109575-1) and BSA-MW-3D-0215 (680-109575-3) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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Job ID: 680-109575-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

DISSOLVED ORGANIC CARBON (DOC)

Samples CPA-MW-5D-F(0.2)-0215 (680-109575-2) and BSA-MW-3D-F(0.2)-0215 (680-109575-4) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109575-1	CPA-MW-5D-0215	Water	02/03/15 14:20	02/04/15 09:38
680-109575-2	CPA-MW-5D-F(0.2)-0215	Water	02/03/15 14:20	02/04/15 09:38
680-109575-3	BSA-MW-3D-0215	Water	02/03/15 15:15	02/04/15 09:38
680-109575-4	BSA-MW-3D-F(0.2)-0215	Water	02/03/15 15:15	02/04/15 09:38
680-109575-5	BSA-MW-3D-0215-EB	Water	02/03/15 15:15	02/04/15 09:38
680-109575-6	1Q15 LTM Trip Blank #3	Water	02/03/15 00:00	02/04/15 09:38

LAB 3/6/15

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/6/15

Qualifiers

GC/MS VOA

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

GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time
X	Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

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

Metals

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

General Chemistry

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)

LAB 3/6/15

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: CPA-MW-5D-0215 — Lab Sample ID: 680-109575-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1800		20		ug/L	20		8260B	Total/NA
2-Chlorophenol	22	*	11		ug/L	1		8270D	Total/NA
2-Chlorophenol - RE	22	H	10		ug/L	1		8270D	Total/NA
Ethane	3.9		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	660		390		ug/L	1		RSK-175	Total/NA
Iron	17		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.59		0.010		mg/L	1		6010C	Total Recoverable
Chloride	270		10		mg/L	10		325.2	Total/NA
Sulfate	37		10		mg/L	2		375.4	Total/NA
Total Organic Carbon	5.8		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	540		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	59		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-5D-F(0.2)-0215 — Lab Sample ID: 680-109575-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	17		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.60		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.3		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-3D-0215 — Lab Sample ID: 680-109575-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	77		20		ug/L	20		8260B	Total/NA
Chlorobenzene	1400		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	330		20		ug/L	20		8260B	Total/NA
2-Chlorophenol	11	*	11		ug/L	1		8270D	Total/NA
2-Chlorophenol - RE	12	H	11		ug/L	1		8270D	Total/NA
Ethane	2.6		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	1.8		1.0		ug/L	1		RSK-175	Total/NA
Methane (TCD)	870		390		ug/L	1		RSK-175	Total/NA
Iron	9.5		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.54		0.010		mg/L	1		6010C	Total Recoverable
Chloride	120		5.0		mg/L	5		325.2	Total/NA
Sulfate	120		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	4.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	26		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-3D-F(0.2)-0215 — Lab Sample ID: 680-109575-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	9.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.54		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.4		1.0		mg/L	1		415.1	Dissolved

This Detection Summary does not include radiochemical test results.

LAB 3/6/15

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-0215-EB — **Lab Sample ID: 680-109575-5**

No Detections.

Client Sample ID: 1Q15 LTM Trip Blank #3 — **Lab Sample ID: 680-109575-6**

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 3/6/15

Client Sample ID: CPA-MW-5D-0215

Date Collected: 02/03/15 14:20
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20	U	20		ug/L			02/14/15 15:55	20
Chlorobenzene	1800	D	20		ug/L			02/14/15 15:55	20
1,2-Dichlorobenzene	20	U	20		ug/L			02/14/15 15:55	20
1,3-Dichlorobenzene	20	U	20		ug/L			02/14/15 15:55	20
1,4-Dichlorobenzene	20	U	20		ug/L			02/14/15 15:55	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/14/15 15:55*	*20*
1,2-Dichloroethane-d4 (Surr)	*116*		*70 - 130*		*02/14/15 15:55*	*20*
Dibromofluoromethane (Surr)	*118*		*70 - 130*		*02/14/15 15:55*	*20*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*02/14/15 15:55*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	21	U J	21		ug/L		02/05/15 16:14	02/13/15 14:00	1
2-Chlorophenol	22	J	11		ug/L		02/05/15 16:14	02/13/15 14:00	1
1,2,4-Trichlorobenzene	11	U J	11		ug/L		02/05/15 16:14	02/13/15 14:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*32 - 114*	*02/05/15 16:14*	*02/13/15 14:00*	*1*
2-Fluorophenol	*51*		*26 - 107*	*02/05/15 16:14*	*02/13/15 14:00*	*1*
Nitrobenzene-d5	*53*		*30 - 117*	*02/05/15 16:14*	*02/13/15 14:00*	*1*
Phenol-d5	*50*		*25 - 109*	*02/05/15 16:14*	*02/13/15 14:00*	*1*
Terphenyl-d14	*75*		*10 - 132*	*02/05/15 16:14*	*02/13/15 14:00*	*1*
2,4,6-Tribromophenol	*74*		*34 - 140*	*02/05/15 16:14*	*02/13/15 14:00*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	21	U H J	21		ug/L		02/17/15 15:36	02/18/15 20:32	1
2-Chlorophenol	22	H J	10		ug/L		02/17/15 15:36	02/18/15 20:32	1
1,2,4-Trichlorobenzene	10	U H J	10		ug/L		02/17/15 15:36	02/18/15 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*65*		*32 - 114*	*02/17/15 15:36*	*02/18/15 20:32*	*1*
2-Fluorophenol	*52*		*26 - 107*	*02/17/15 15:36*	*02/18/15 20:32*	*1*
Nitrobenzene-d5	*60*		*30 - 117*	*02/17/15 15:36*	*02/18/15 20:32*	*1*
Phenol-d5	*53*		*25 - 109*	*02/17/15 15:36*	*02/18/15 20:32*	*1*
Terphenyl-d14	*81*		*10 - 132*	*02/17/15 15:36*	*02/18/15 20:32*	*1*
2,4,6-Tribromophenol	*68*		*34 - 140*	*02/17/15 15:36*	*02/18/15 20:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	3.9		1.1		ug/L			02/06/15 11:03	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 11:03	1
Methane (TCD)	660		390		ug/L			02/06/15 11:03	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17		0.050		mg/L		02/09/15 10:32	02/11/15 02:42	1
Manganese	0.59		0.010		mg/L		02/09/15 10:32	02/11/15 02:42	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: CPA-MW-5D-0215
Date Collected: 02/03/15 14:20
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270	D	10		mg/L			02/11/15 13:28	10
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:44	1
Sulfate	37	D	10		mg/L			02/11/15 12:42	2
Total Organic Carbon	5.8		1.0		mg/L			02/24/15 13:17	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	540		5.0		mg/L			02/04/15 19:32	1
Carbon Dioxide, Free	59		5.0		mg/L			02/04/15 19:32	1

LAB 3/6/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: CPA-MW-5D-F(0.2)-0215
Date Collected: 02/03/15 14:20
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	17		0.050		mg/L		02/09/15 10:32	02/11/15 02:47	1
Manganese, Dissolved	0.60		0.010		mg/L		02/09/15 10:32	02/11/15 02:47	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.3		1.0		mg/L			02/24/15 18:22	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-0215

Lab Sample ID: 680-109575-3

Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	77	D	20		ug/L			02/15/15 14:43	20
Chlorobenzene	1400	D	20		ug/L			02/15/15 14:43	20
1,2-Dichlorobenzene	20	U	20		ug/L			02/15/15 14:43	20
1,3-Dichlorobenzene	20	U	20		ug/L			02/15/15 14:43	20
1,4-Dichlorobenzene	330	D	20		ug/L			02/15/15 14:43	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*70 - 130*		*02/15/15 14:43*	*20*
1,2-Dichloroethane-d4 (Surr)	*118*		*70 - 130*		*02/15/15 14:43*	*20*
Dibromofluoromethane (Surr)	*119*		*70 - 130*		*02/15/15 14:43*	*20*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/15/15 14:43*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	~~U~~ UJ	11		ug/L		02/05/15 16:14	02/13/15 14:24	1
1,4-Dioxane	11	U~~U~~ J	11		ug/L		02/05/15 16:14	02/13/15 14:24	1
1,2,4-Trichlorobenzene	11	U~~U~~ J	11		ug/L		02/05/15 16:14	02/13/15 14:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*59*		*32 - 114*	*02/05/15 16:14*	*02/13/15 14:24*	*1*
2-Fluorophenol	*54*		*26 - 107*	*02/05/15 16:14*	*02/13/15 14:24*	*1*
Nitrobenzene-d5	*59*		*30 - 117*	*02/05/15 16:14*	*02/13/15 14:24*	*1*
Phenol-d5	*51*		*25 - 109*	*02/05/15 16:14*	*02/13/15 14:24*	*1*
Terphenyl-d14	*85*		*10 - 132*	*02/05/15 16:14*	*02/13/15 14:24*	*1*
2,4,6-Tribromophenol	*81*		*34 - 140*	*02/05/15 16:14*	*02/13/15 14:24*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	12	~~H~~ J	11		ug/L		02/17/15 15:36	02/18/15 20:56	1
1,4-Dioxane	11	U~~H~~ J	11		ug/L		02/17/15 15:36	02/18/15 20:56	1
1,2,4-Trichlorobenzene	11	U~~H~~ J	11		ug/L		02/17/15 15:36	02/18/15 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*32 - 114*	*02/17/15 15:36*	*02/18/15 20:56*	*1*
2-Fluorophenol	*48*		*26 - 107*	*02/17/15 15:36*	*02/18/15 20:56*	*1*
Nitrobenzene-d5	*57*		*30 - 117*	*02/17/15 15:36*	*02/18/15 20:56*	*1*
Phenol-d5	*49*		*25 - 109*	*02/17/15 15:36*	*02/18/15 20:56*	*1*
Terphenyl-d14	*78*		*10 - 132*	*02/17/15 15:36*	*02/18/15 20:56*	*1*
2,4,6-Tribromophenol	*55*		*34 - 140*	*02/17/15 15:36*	*02/18/15 20:56*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	2.6		1.1		ug/L			02/06/15 11:16	1
Ethylene	1.8		1.0		ug/L			02/06/15 11:16	1
Methane (TCD)	870		390		ug/L			02/06/15 11:16	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.5		0.050		mg/L		02/09/15 10:32	02/11/15 02:19	1
Manganese	0.54		0.010		mg/L		02/09/15 10:32	02/11/15 02:19	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-0215
Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120	D	5.0		mg/L			02/11/15 13:28	5
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:48	1
Sulfate	120	D	25		mg/L			02/11/15 12:35	5
Total Organic Carbon	4.0		1.0		mg/L			02/24/15 13:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			02/04/15 20:05	1
Carbon Dioxide, Free	26		5.0		mg/L			02/04/15 20:05	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-F(0.2)-0215
Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	9.4		0.050		mg/L		02/09/15 10:32	02/11/15 02:52	1
Manganese, Dissolved	0.54		0.010		mg/L		02/09/15 10:32	02/11/15 02:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.4		1.0		mg/L			02/24/15 18:27	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-0215-EB
Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 17:17	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:17	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:17	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:17	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*70 - 130*		*02/14/15 17:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/14/15 17:17*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*02/14/15 17:17*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*02/14/15 17:17*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U J	11		ug/L		02/05/15 16:14	02/13/15 14:48	1
1,4-Dioxane	11	U J	11		ug/L		02/05/15 16:14	02/13/15 14:48	1
1,2,4-Trichlorobenzene	11	U J	11		ug/L		02/05/15 16:14	02/13/15 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*32 - 114*	*02/05/15 16:14*	*02/13/15 14:48*	*1*
2-Fluorophenol	*53*		*26 - 107*	*02/05/15 16:14*	*02/13/15 14:48*	*1*
Nitrobenzene-d5	*57*		*30 - 117*	*02/05/15 16:14*	*02/13/15 14:48*	*1*
Phenol-d5	*53*		*25 - 109*	*02/05/15 16:14*	*02/13/15 14:48*	*1*
Terphenyl-d14	*83*		*10 - 132*	*02/05/15 16:14*	*02/13/15 14:48*	*1*
2,4,6-Tribromophenol	*67*		*34 - 140*	*02/05/15 16:14*	*02/13/15 14:48*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U J	11		ug/L		02/17/15 15:36	02/18/15 21:19	1
1,4-Dioxane	11	U J	11		ug/L		02/17/15 15:36	02/18/15 21:19	1
1,2,4-Trichlorobenzene	11	U J	11		ug/L		02/17/15 15:36	02/18/15 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*60*		*32 - 114*	*02/17/15 15:36*	*02/18/15 21:19*	*1*
2-Fluorophenol	*51*		*26 - 107*	*02/17/15 15:36*	*02/18/15 21:19*	*1*
Nitrobenzene-d5	*64*		*30 - 117*	*02/17/15 15:36*	*02/18/15 21:19*	*1*
Phenol-d5	*52*		*25 - 109*	*02/17/15 15:36*	*02/18/15 21:19*	*1*
Terphenyl-d14	*82*		*10 - 132*	*02/17/15 15:36*	*02/18/15 21:19*	*1*
2,4,6-Tribromophenol	*59*		*34 - 140*	*02/17/15 15:36*	*02/18/15 21:19*	*1*

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: 1Q15 LTM Trip Blank #3
Date Collected: 02/03/15 00:00
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 14:32	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:32	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:32	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:32	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*70 - 130*		*02/14/15 14:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*02/14/15 14:32*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/14/15 14:32*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*02/14/15 14:32*	*1*

LAB 3/6/15

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-109575-1	CPA-MW-5D-0215	109	116	118	103
680-109575-3	BSA-MW-3D-0215	110	118	119	101
680-109575-5	BSA-MW-3D-0215-EB	106	98	107	99
680-109575-6	1Q15 LTM Trip Blank #3	107	97	105	107
LCS 680-370981/4	Lab Control Sample	115	106	112	102
LCS 680-371036/4	Lab Control Sample	112	104	109	100
LCSD 680-370981/5	Lab Control Sample Dup	114	104	109	101
LCSD 680-371036/5	Lab Control Sample Dup	112	104	110	99
MB 680-370981/9	Method Blank	109	98	106	105
MB 680-371036/9	Method Blank	108	98	105	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(32-114)	(26-107)	(30-117)	(25-109)	(10-132)	(34-140)
680-109575-1	CPA-MW-5D-0215	57	51	53	50	75	74
680-109575-1 - RE	CPA-MW-5D-0215	65	52	60	53	81	68
680-109575-3	BSA-MW-3D-0215	59	54	59	51	85	81
680-109575-3 - RE	BSA-MW-3D-0215	57	48	57	49	78	55
680-109575-5	BSA-MW-3D-0215-EB	57	53	57	53	83	67
680-109575-5 - RE	BSA-MW-3D-0215-EB	60	51	64	52	82	59
LCS 680-369646/7-A	Lab Control Sample	48	13 X	23 X	16 X	82	77
LCS 680-371177/5-A	Lab Control Sample	72	59	72	64	80	78
LCSD 680-369646/8-A	Lab Control Sample Dup	69	47	55	50	81	84
LCSD 680-371177/6-A	Lab Control Sample Dup	55	28	50	25	68	61
MB 680-369646/6-A	Method Blank	73	57	61	58	104	90
MB 680-371177/4-A	Method Blank	54	41	51	45	91	54

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

LAB 3/6/15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370981/9
Matrix: Water
Analysis Batch: 370981

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/14/15 13:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/14/15 13:16*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*02/14/15 13:16*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*02/14/15 13:16*	*1*

Lab Sample ID: LCS 680-370981/4
Matrix: Water
Analysis Batch: 370981

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.5		ug/L		107	73 - 131
Chlorobenzene	50.0	52.5		ug/L		105	80 - 120
1,2-Dichlorobenzene	50.0	53.1		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	52.1		ug/L		104	80 - 120
1,4-Dichlorobenzene	50.0	51.0		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*115*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
Dibromofluoromethane (Surr)	*112*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 680-370981/5
Matrix: Water
Analysis Batch: 370981

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	53.2		ug/L		106	73 - 131	1	30
Chlorobenzene	50.0	51.0		ug/L		102	80 - 120	3	20
1,2-Dichlorobenzene	50.0	53.7		ug/L		107	80 - 120	1	20
1,3-Dichlorobenzene	50.0	53.4		ug/L		107	80 - 120	2	20
1,4-Dichlorobenzene	50.0	51.4		ug/L		103	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*114*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-371036/9
Matrix: Water
Analysis Batch: 371036

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
Chlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*70 - 130*		*02/15/15 13:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/15/15 13:20*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/15/15 13:20*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/15/15 13:20*	*1*

Lab Sample ID: LCS 680-371036/4
Matrix: Water
Analysis Batch: 371036

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.0		ug/L		106	73 - 131
Chlorobenzene	50.0	51.8		ug/L		104	80 - 120
1,2-Dichlorobenzene	50.0	53.5		ug/L		107	80 - 120
1,3-Dichlorobenzene	50.0	53.2		ug/L		106	80 - 120
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 680-371036/5
Matrix: Water
Analysis Batch: 371036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	52.7		ug/L		105	73 - 131	1	30
Chlorobenzene	50.0	51.7		ug/L		103	80 - 120	0	20
1,2-Dichlorobenzene	50.0	54.0		ug/L		108	80 - 120	1	20
1,3-Dichlorobenzene	50.0	52.5		ug/L		105	80 - 120	1	20
1,4-Dichlorobenzene	50.0	51.3		ug/L		103	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-369646/6-A
Matrix: Water
Analysis Batch: 370829

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 369646

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	20	U	20		ug/L		02/05/15 16:14	02/13/15 13:35	1
2-Chlorophenol	10	U	10		ug/L		02/05/15 16:14	02/13/15 13:35	1
1,4-Dioxane	10	U	10		ug/L		02/05/15 16:14	02/13/15 13:35	1
1,2,4-Trichlorobenzene	10	U	10		ug/L		02/05/15 16:14	02/13/15 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*32 - 114*	*02/05/15 16:14*	*02/13/15 13:35*	*1*
2-Fluorophenol	*57*		*26 - 107*	*02/05/15 16:14*	*02/13/15 13:35*	*1*
Nitrobenzene-d5	*61*		*30 - 117*	*02/05/15 16:14*	*02/13/15 13:35*	*1*
Phenol-d5	*58*		*25 - 109*	*02/05/15 16:14*	*02/13/15 13:35*	*1*
Terphenyl-d14	*104*		*10 - 132*	*02/05/15 16:14*	*02/13/15 13:35*	*1*
2,4,6-Tribromophenol	*90*		*34 - 140*	*02/05/15 16:14*	*02/13/15 13:35*	*1*

Lab Sample ID: LCS 680-369646/7-A
Matrix: Water
Analysis Batch: 370829

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 369646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	100	34.1		ug/L		34	10 - 112
2-Chlorophenol	100	15.8	*	ug/L		16	38 - 98
1,4-Dioxane	100	12.8	*	ug/L		13	16 - 79
1,2,4-Trichlorobenzene	100	19.4		ug/L		19	16 - 80

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*48*		*32 - 114*
2-Fluorophenol	*13*	*X*	*26 - 107*
Nitrobenzene-d5	*23*	*X*	*30 - 117*
Phenol-d5	*16*	*X*	*25 - 109*
Terphenyl-d14	*82*		*10 - 132*
2,4,6-Tribromophenol	*77*		*34 - 140*

Lab Sample ID: LCSD 680-369646/8-A
Matrix: Water
Analysis Batch: 370829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 369646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloroaniline	100	10.2	J *	ug/L		10	10 - 112	108	50
2-Chlorophenol	100	59.1	*	ug/L		59	38 - 98	115	50
1,4-Dioxane	100	36.5	*	ug/L		37	16 - 79	96	50
1,2,4-Trichlorobenzene	100	53.0	*	ug/L		53	16 - 80	93	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*32 - 114*
2-Fluorophenol	*47*		*26 - 107*
Nitrobenzene-d5	*55*		*30 - 117*
Phenol-d5	*50*		*25 - 109*
Terphenyl-d14	*81*		*10 - 132*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-369646/8-A
Matrix: Water
Analysis Batch: 370829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 369646

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4,6-Tribromophenol	84		34 - 140

Lab Sample ID: MB 680-371177/4-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371177

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	5.0	U	5.0		ug/L		02/17/15 15:36	02/18/15 20:08	1
2-Chlorophenol	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1
1,4-Dioxane	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1
1,2,4-Trichlorobenzene	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	54		32 - 114	02/17/15 15:36	02/18/15 20:08	1
2-Fluorophenol	41		26 - 107	02/17/15 15:36	02/18/15 20:08	1
Nitrobenzene-d5	51		30 - 117	02/17/15 15:36	02/18/15 20:08	1
Phenol-d5	45		25 - 109	02/17/15 15:36	02/18/15 20:08	1
Terphenyl-d14	91		10 - 132	02/17/15 15:36	02/18/15 20:08	1
2,4,6-Tribromophenol	54		34 - 140	02/17/15 15:36	02/18/15 20:08	1

Lab Sample ID: LCS 680-371177/5-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371177

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	25.0	17.2		ug/L		69	10 - 112
2-Chlorophenol	25.0	15.2		ug/L		61	38 - 98
1,4-Dioxane	25.0	13.0		ug/L		52	16 - 79
1,2,4-Trichlorobenzene	25.0	13.5		ug/L		54	16 - 80

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	72		32 - 114
2-Fluorophenol	59		26 - 107
Nitrobenzene-d5	72		30 - 117
Phenol-d5	64		25 - 109
Terphenyl-d14	80		10 - 132
2,4,6-Tribromophenol	78		34 - 140

Lab Sample ID: LCSD 680-371177/6-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 371177

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloroaniline	25.0	4.57	J *	ug/L		18	10 - 112	116	50
2-Chlorophenol	25.0	10.4		ug/L		42	38 - 98	37	50
1,4-Dioxane	25.0	5.26	*	ug/L		21	16 - 79	85	50
1,2,4-Trichlorobenzene	25.0	10.1		ug/L		41	16 - 80	29	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-371177/6-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 371177

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl	55		32 - 114
2-Fluorophenol	28		26 - 107
Nitrobenzene-d5	50		30 - 117
Phenol-d5	25		25 - 109
Terphenyl-d14	68		10 - 132
2,4,6-Tribromophenol	61		34 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-369841/7
Matrix: Water
Analysis Batch: 369841

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 10:42	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 10:42	1
Methane	0.58	U	0.58		ug/L			02/06/15 10:42	1
Methane (TCD)	390	U	390		ug/L			02/06/15 10:42	1

Lab Sample ID: LCS 680-369841/2
Matrix: Water
Analysis Batch: 369841

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	1670		ug/L		87	75 - 125

Lab Sample ID: LCS 680-369841/5
Matrix: Water
Analysis Batch: 369841

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	280		ug/L		97	75 - 125
Ethylene	269	262		ug/L		97	75 - 125
Methane	154	148		ug/L		96	75 - 125

Lab Sample ID: LCSD 680-369841/29
Matrix: Water
Analysis Batch: 369841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	1680		ug/L		87	75 - 125	0	30

Lab Sample ID: LCSD 680-369841/6
Matrix: Water
Analysis Batch: 369841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	284		ug/L		98	75 - 125	1	30
Ethylene	269	263		ug/L		98	75 - 125	0	30

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCSD 680-369841/6
Matrix: Water
Analysis Batch: 369841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	154	151		ug/L		98	75 - 125	2	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-370112/1-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 02:01	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 02:01	1
Manganese	0.010	U	0.010		mg/L		02/09/15 10:32	02/11/15 02:01	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/09/15 10:32	02/11/15 02:01	1

Lab Sample ID: LCS 680-370112/2-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.82		mg/L		96	80 - 120
Iron, Dissolved	5.00	4.82		mg/L		96	80 - 120
Manganese	0.500	0.513		mg/L		103	80 - 120
Manganese, Dissolved	0.500	0.513		mg/L		103	80 - 120

Lab Sample ID: 680-109575-3 MS
Matrix: Water
Analysis Batch: 370470

Client Sample ID: BSA-MW-3D-0215
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	9.5		5.00	14.0		mg/L		90	75 - 125
Iron, Dissolved	9.5		5.00	14.0		mg/L		90	75 - 125
Manganese	0.54		0.500	1.03		mg/L		99	75 - 125
Manganese, Dissolved	0.54		0.500	1.03		mg/L		99	75 - 125

Lab Sample ID: 680-109575-3 MSD
Matrix: Water
Analysis Batch: 370470

Client Sample ID: BSA-MW-3D-0215
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	9.5		5.00	14.2		mg/L		94	75 - 125	1	20
Iron, Dissolved	9.5		5.00	14.2		mg/L		94	75 - 125	1	20
Manganese	0.54		0.500	1.05		mg/L		101	75 - 125	1	20
Manganese, Dissolved	0.54		0.500	1.05		mg/L		101	75 - 125	1	20

LAB 3/6/15

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-369668/5
Matrix: Water
Analysis Batch: 369668

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/04/15 19:09	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/04/15 19:09	1

Lab Sample ID: LCS 680-369668/6
Matrix: Water
Analysis Batch: 369668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	220		mg/L		88	80 - 120

Lab Sample ID: LCSD 680-369668/24
Matrix: Water
Analysis Batch: 369668

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	218		mg/L		87	80 - 120	1	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370556/23
Matrix: Water
Analysis Batch: 370556

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 12:39	1

Lab Sample ID: LCS 680-370556/13
Matrix: Water
Analysis Batch: 370556

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.8		mg/L		103	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-369648/13
Matrix: Water
Analysis Batch: 369648

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:40	1

Lab Sample ID: LCS 680-369648/16
Matrix: Water
Analysis Batch: 369648

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.527		mg/L		105	75 - 125
Nitrate Nitrite as N	1.00	1.03		mg/L		103	90 - 110

LAB 3/6/15

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-369648/16
Matrix: Water
Analysis Batch: 369648

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.500	0.505		mg/L		101	90 - 110

Lab Sample ID: 680-109575-1 MS
Matrix: Water
Analysis Batch: 369648

Client Sample ID: CPA-MW-5D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.050	U	0.500	0.524		mg/L		105	75 - 125
Nitrate Nitrite as N	0.050	U	1.00	1.03		mg/L		103	90 - 110
Nitrite as N	0.050	U	0.500	0.504		mg/L		101	90 - 110

Lab Sample ID: 680-109575-1 MSD
Matrix: Water
Analysis Batch: 369648

Client Sample ID: CPA-MW-5D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.050	U	0.500	0.526		mg/L		105	75 - 125	0	30
Nitrate Nitrite as N	0.050	U	1.00	1.03		mg/L		103	90 - 110	0	10
Nitrite as N	0.050	U	0.500	0.506		mg/L		101	90 - 110	0	10

Lab Sample ID: 680-109575-3 DU
Matrix: Water
Analysis Batch: 369648

Client Sample ID: BSA-MW-3D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.050	U	0.050	U	mg/L		NC	30

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370564/58
Matrix: Water
Analysis Batch: 370564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 14:00	1

Lab Sample ID: LCS 680-370564/4
Matrix: Water
Analysis Batch: 370564

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.5		mg/L		102	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/43
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 17:05	1

Lab Sample ID: LCS 160-175823/44
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.87		mg/L		99	90 - 110

Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/4
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 12:28	1

Lab Sample ID: LCS 160-175822/5
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.67		mg/L		97	90 - 110

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

GC/MS VOA

Analysis Batch: 370981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	8260B	
680-109575-5	BSA-MW-3D-0215-EB	Total/NA	Water	8260B	
680-109575-6	1Q15 LTM Trip Blank #3	Total/NA	Water	8260B	
LCS 680-370981/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-370981/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-370981/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 371036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	8260B	
LCS 680-371036/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371036/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371036/9	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 369646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	3520C	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	3520C	
680-109575-5	BSA-MW-3D-0215-EB	Total/NA	Water	3520C	
LCS 680-369646/7-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-369646/8-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 680-369646/6-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 370829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	8270D	369646
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	8270D	369646
680-109575-5	BSA-MW-3D-0215-EB	Total/NA	Water	8270D	369646
LCS 680-369646/7-A	Lab Control Sample	Total/NA	Water	8270D	369646
LCSD 680-369646/8-A	Lab Control Sample Dup	Total/NA	Water	8270D	369646
MB 680-369646/6-A	Method Blank	Total/NA	Water	8270D	369646

Prep Batch: 371177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1 - RE	CPA-MW-5D-0215	Total/NA	Water	3520C	
680-109575-3 - RE	BSA-MW-3D-0215	Total/NA	Water	3520C	
680-109575-5 - RE	BSA-MW-3D-0215-EB	Total/NA	Water	3520C	
LCS 680-371177/5-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-371177/6-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 680-371177/4-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 371444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1 - RE	CPA-MW-5D-0215	Total/NA	Water	8270D	371177
680-109575-3 - RE	BSA-MW-3D-0215	Total/NA	Water	8270D	371177
680-109575-5 - RE	BSA-MW-3D-0215-EB	Total/NA	Water	8270D	371177
LCS 680-371177/5-A	Lab Control Sample	Total/NA	Water	8270D	371177
LCSD 680-371177/6-A	Lab Control Sample Dup	Total/NA	Water	8270D	371177

GC/MS Semi VOA (Continued)

Analysis Batch: 371444 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-371177/4-A	Method Blank	Total/NA	Water	8270D	371177

GC VOA

Analysis Batch: 369841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	RSK-175	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	RSK-175	
LCS 680-369841/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-369841/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-369841/29	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-369841/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-369841/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 370112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total Recoverable	Water	3005A	
680-109575-2	CPA-MW-5D-F(0.2)-0215	Dissolved	Water	3005A	
680-109575-3	BSA-MW-3D-0215	Total Recoverable	Water	3005A	
680-109575-3 MS	BSA-MW-3D-0215	Total Recoverable	Water	3005A	
680-109575-3 MSD	BSA-MW-3D-0215	Total Recoverable	Water	3005A	
680-109575-4	BSA-MW-3D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 370470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total Recoverable	Water	6010C	370112
680-109575-2	CPA-MW-5D-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109575-3	BSA-MW-3D-0215	Total Recoverable	Water	6010C	370112
680-109575-3 MS	BSA-MW-3D-0215	Total Recoverable	Water	6010C	370112
680-109575-3 MSD	BSA-MW-3D-0215	Total Recoverable	Water	6010C	370112
680-109575-4	BSA-MW-3D-F(0.2)-0215	Dissolved	Water	6010C	370112
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370112
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	6010C	370112

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	415.1	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	415.1	
LCS 160-175822/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-2	CPA-MW-5D-F(0.2)-0215	Dissolved	Water	415.1	

General Chemistry (Continued)

Analysis Batch: 175823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-4	BSA-MW-3D-F(0.2)-0215	Dissolved	Water	415.1	
LCS 160-175823/44	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/43	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 369648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	353.2	
680-109575-1 MS	CPA-MW-5D-0215	Total/NA	Water	353.2	
680-109575-1 MSD	CPA-MW-5D-0215	Total/NA	Water	353.2	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	353.2	
680-109575-3 DU	BSA-MW-3D-0215	Total/NA	Water	353.2	
LCS 680-369648/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-369648/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 369668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	310.1	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	310.1	
LCS 680-369668/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-369668/24	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-369668/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 370556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	325.2	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	325.2	
LCS 680-370556/13	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370556/23	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-1	CPA-MW-5D-0215	Total/NA	Water	375.4	
680-109575-3	BSA-MW-3D-0215	Total/NA	Water	375.4	
LCS 680-370564/4	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370564/58	Method Blank	Total/NA	Water	375.4	

LAB 3/16/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: CPA-MW-5D-0215

Lab Sample ID: 680-109575-1
Matrix: Water

Date Collected: 02/03/15 14:20
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	370981	02/14/15 15:55	TF1	TAL SAV
Total/NA	Prep	3520C			369646	02/05/15 16:14	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370829	02/13/15 14:00	RAM	TAL SAV
Total/NA	Prep	3520C	RE		371177	02/17/15 15:36	RBS	TAL SAV
Total/NA	Analysis	8270D	RE	1	371444	02/18/15 20:32	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 11:03	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 02:42	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 19:32	LBH	TAL SAV
Total/NA	Analysis	325.2		10	370556	02/11/15 13:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:44	GRX	TAL SAV
Total/NA	Analysis	375.4		2	370564	02/11/15 12:42	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:17	JCB	TAL SL

Client Sample ID: CPA-MW-5D-F(0.2)-0215

Lab Sample ID: 680-109575-2
Matrix: Water

Date Collected: 02/03/15 14:20
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 02:47	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:22	JCB	TAL SL

Client Sample ID: BSA-MW-3D-0215

Lab Sample ID: 680-109575-3
Matrix: Water

Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	371036	02/15/15 14:43	TF1	TAL SAV
Total/NA	Prep	3520C			369646	02/05/15 16:14	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370829	02/13/15 14:24	RAM	TAL SAV
Total/NA	Prep	3520C	RE		371177	02/17/15 15:36	RBS	TAL SAV
Total/NA	Analysis	8270D	RE	1	371444	02/18/15 20:56	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 11:16	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 02:19	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 20:05	LBH	TAL SAV
Total/NA	Analysis	325.2		5	370556	02/11/15 13:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:48	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370564	02/11/15 12:35	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:46	JCB	TAL SL

LAB 3/6/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Client Sample ID: BSA-MW-3D-F(0.2)-0215

Lab Sample ID: 680-109575-4
Matrix: Water

Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 02:52	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:27	JCB	TAL SL

Client Sample ID: BSA-MW-3D-0215-EB

Lab Sample ID: 680-109575-5
Matrix: Water

Date Collected: 02/03/15 15:15
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370981	02/14/15 17:17	TF1	TAL SAV
Total/NA	Prep	3520C			369646	02/05/15 16:14	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370829	02/13/15 14:48	RAM	TAL SAV
Total/NA	Prep	3520C	RE		371177	02/17/15 15:36	RBS	TAL SAV
Total/NA	Analysis	8270D	RE	1	371444	02/18/15 21:19	RAM	TAL SAV

Client Sample ID: 1Q15 LTM Trip Blank #3

Lab Sample ID: 680-109575-6
Matrix: Water

Date Collected: 02/03/15 00:00
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370981	02/14/15 14:32	TF1	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/6/15

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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/3/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: Fed Ex	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-5D-0215	2/3/15	1420	G	W	16			2	3	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0215	"	1	"	"	4											1	3	
BSA-MW-3D-0215	"	1515	"	"	16			2	3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0215	"	1	"	"	4											1	3	
BSA-MW-3D-0215-EB	"		"	"	5			2	3									
1Q15 LTM TripBlank #3	—	—	—	—	2				2									

680-109575 Chain of Custody

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

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes/No

680-109575-1 1.2,0.8(EF)0.9, 0.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419314	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by:	Company: Golder	Date/Time: 2/3/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TASAV.	Date/Time: 02/04/15 0938

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

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LAB 3/6/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109575-1
SDG Number: KPS136

Login Number: 109575
List Number: 1
Creator: Banda, Christy S

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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 3/6/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109575-1
SDG Number: KPS136

Login Number: 109575
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/05/15 02:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	3.1
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?	False	
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	

LAB 3/6/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

LAB 3/6/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-1
SDG: KPS136

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15 *
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 3/6/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS137
Matrix: Water

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

Analytical Method: VOC (8260B), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: GWE-5D-0215, GWE-5D-F(0.2)-0215, GWE-5M-0215, GWE-5M-F(0.2)-0215, GWE-5S-0215, GWE-5S-F(0.2)-0215, GWE-3D-0215, GWE-3D-F(0.2)-0215, and 1Q15 LTM Trip Blank #2

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

Comments:

VOC: Samples GWE-5D-0215 and GWE-3D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly. Insufficient volume to perform MS/MSD associated with batch 370981 and batch 371152.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 369841.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples GWE-5D-0215, GWE-5M-0215, GWE-5S-0215, and GWE-3D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples GWE-5D-0215, GWE-5M-0215, GWE-5S-0215, and GWE-3D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly. Sulfate exceed the recovery criteria low for the MS/MSD of sample GWE-5S-0215.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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 0.5°C and 0.9°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.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	**YES**	**NO**	**NA**
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blanks were not submitted with SDG KPS137.

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: MS/MSD recovered low for sulfate in batch 370564. Data was not qualified based on MS/MSD data alone.

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 samples were not submitted with SDG KPS137.

Additional Comments: None

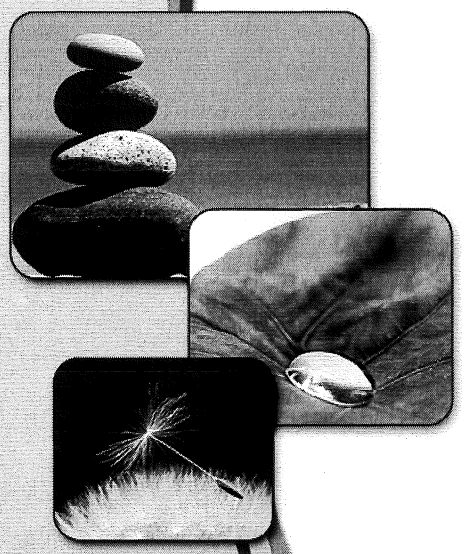
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	GWE-3D, GWE-5S, GWE-5M, and GWE-5D

SDG KPS137

Sample Results from:

GWE-3D
GWE-5S
GWE-5M
GWE-5D



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: 680-109575-2
TestAmerica Sample Delivery Group: KPS137
Client Project/Site: 1Q15 LTM 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:
2/25/2015 2:59:46 PM

Michele Kersey, Project Manager I
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LAD 3/24/15

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Definitions/Glossary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
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)

LAB 3/24/15

CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109575-2

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 2/4/2015 9:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.5° C and 0.9° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11), GWE-3D-0215 (680-109575-13) and 1Q15 LTM Trip Blank #2 (680-109575-15) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/14/2015, 02/15/2015 and 02/17/2015.

Samples GWE-5D-0215 (680-109575-7)[2X] and GWE-3D-0215 (680-109575-13)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 370981.

The following sample(s) was diluted due to the nature of the sample matrix: GWE-5D-0215 (680-109575-7). Elevated reporting limits (RLs) are provided.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 371152.

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

DISSOLVED GASES

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/06/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 369841.

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

METALS (ICP)

Samples GWE-5D-F(0.2)-0215 (680-109575-8), GWE-5M-F(0.2)-0215 (680-109575-10), GWE-5S-F(0.2)-0215 (680-109575-12) and GWE-3D-F(0.2)-0215 (680-109575-14) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/09/2015 and analyzed on 02/11/2015.

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

Job ID: 680-109575-2 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/09/2015 and analyzed on 02/11/2015.

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

ALKALINITY

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/04/2015.

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

CHLORIDE

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples GWE-5D-0215 (680-109575-7)[2X], GWE-5M-0215 (680-109575-9)[2X], GWE-5S-0215 (680-109575-11)[2X] and GWE-3D-0215 (680-109575-13)[20X] 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.

NITRATE-NITRITE AS NITROGEN

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/04/2015.

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

SULFATE

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Sulfate exceeded the recovery criteria low for the MS and MSd of sample GWE-5S-0215 (680-109575-11) in batch 680-370564.

Refer to the QC report for details.

Samples GWE-5D-0215 (680-109575-7)[20X], GWE-5M-0215 (680-109575-9)[5X], GWE-5S-0215 (680-109575-11)[5X] and GWE-3D-0215 (680-109575-13)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON

Samples GWE-5D-0215 (680-109575-7), GWE-5M-0215 (680-109575-9), GWE-5S-0215 (680-109575-11) and GWE-3D-0215 (680-109575-13) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

DISSOLVED ORGANIC CARBON (DOC)

Samples GWE-5D-F(0.2)-0215 (680-109575-8), GWE-5M-F(0.2)-0215 (680-109575-10), GWE-5S-F(0.2)-0215 (680-109575-12) and GWE-3D-F(0.2)-0215 (680-109575-14) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5D-0215 — Lab Sample ID: 680-109575-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.9		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	84		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	9.8		2.0		ug/L	2		8260B	Total/NA
Methane	52		0.58		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.41		0.010		mg/L	1		6010C	Total Recoverable
Chloride	88		2.0		mg/L	2		325.2	Total/NA
Sulfate	420		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	20		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5D-F(0.2)-0215 — Lab Sample ID: 680-109575-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.39		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.9		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5M-0215 — Lab Sample ID: 680-109575-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	46		0.58		ug/L	1		RSK-175	Total/NA
Iron	24		0.050		mg/L	1		6010C	Total Recoverable
Manganese	1.2		0.010		mg/L	1		6010C	Total Recoverable
Chloride	57		2.0		mg/L	2		325.2	Total/NA
Sulfate	110		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	2.1		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	430		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	33		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5M-F(0.2)-0215 — Lab Sample ID: 680-109575-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	22		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.2		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5S-0215 — Lab Sample ID: 680-109575-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	14		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.44		0.050		mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: GWE-5S-0215 (Continued) — Lab Sample ID: 680-109575-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	0.21		0.010		mg/L	1		6010C	Total Recoverable
Chloride	29		2.0		mg/L	2		325.2	Total/NA
Nitrate as N	0.87		0.050		mg/L	1		353.2	Total/NA
Sulfate	110		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	2.7		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	410		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	34		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5S-F(0.2)-0215 — Lab Sample ID: 680-109575-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.14		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.9		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-3D-0215 — Lab Sample ID: 680-109575-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	33		20		ug/L	20		8260B	Total/NA
Chlorobenzene	1700		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	130		20		ug/L	20		8260B	Total/NA
Methane	50		0.58		ug/L	1		RSK-175	Total/NA
Iron	23		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.73		0.010		mg/L	1		6010C	Total Recoverable
Chloride	850		20		mg/L	20		325.2	Total/NA
Sulfate	300		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	4.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	360		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-3D-F(0.2)-0215 — Lab Sample ID: 680-109575-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	23		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.73		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 1Q15 LTM Trip Blank #2 — Lab Sample ID: 680-109575-15

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 3/24/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5D-0215
Date Collected: 02/03/15 09:45
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.9	D	2.0		ug/L			02/17/15 19:31	2
Chlorobenzene	84	D	2.0		ug/L			02/17/15 19:31	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			02/17/15 19:31	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			02/17/15 19:31	2
1,4-Dichlorobenzene	9.8	D	2.0		ug/L			02/17/15 19:31	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*114*		*70 - 130*		*02/17/15 19:31*	*2*
1,2-Dichloroethane-d4 (Surr)	*121*		*70 - 130*		*02/17/15 19:31*	*2*
Dibromofluoromethane (Surr)	*119*		*70 - 130*		*02/17/15 19:31*	*2*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*02/17/15 19:31*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 11:29	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 11:29	1
Methane	52		0.58		ug/L			02/06/15 11:29	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13		0.050		mg/L		02/09/15 10:32	02/11/15 02:56	1
Manganese	0.41		0.010		mg/L		02/09/15 10:32	02/11/15 02:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	88	D	2.0		mg/L			02/11/15 12:56	2
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:50	1
Sulfate	420	D	100		mg/L			02/11/15 13:44	20
Total Organic Carbon	3.0		1.0		mg/L			02/24/15 13:51	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	330		5.0		mg/L			02/04/15 19:57	1
Carbon Dioxide, Free	20		5.0		mg/L			02/04/15 19:57	1

LAB 3/24/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5D-F(0.2)-0215
Date Collected: 02/03/15 09:45
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-8
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		02/09/15 10:32	02/11/15 03:01	1
Manganese, Dissolved	0.39		0.010		mg/L		02/09/15 10:32	02/11/15 03:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.9		1.0		mg/L			02/24/15 18:32	1

LAB 3/24/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5M-0215

Lab Sample ID: 680-109575-9

Date Collected: 02/03/15 10:20
Date Received: 02/04/15 09:38

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 17:38	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:38	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:38	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:38	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/14/15 17:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*02/14/15 17:38*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*02/14/15 17:38*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*02/14/15 17:38*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 11:42	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 11:42	1
Methane	46		0.58		ug/L			02/06/15 11:42	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	24		0.050		mg/L		02/09/15 10:32	02/11/15 03:15	1
Manganese	1.2		0.010		mg/L		02/09/15 10:32	02/11/15 03:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57	D	2.0		mg/L			02/11/15 12:56	2
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:54	1
Sulfate	110	D	25		mg/L			02/11/15 12:42	5
Total Organic Carbon	2.1		1.0		mg/L			02/24/15 13:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	430		5.0		mg/L			02/04/15 20:32	1
Carbon Dioxide, Free	33		5.0		mg/L			02/04/15 20:32	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5M-F(0.2)-0215
Date Collected: 02/03/15 10:20
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-10
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	22		0.050		mg/L		02/09/15 10:32	02/11/15 03:19	1
Manganese, Dissolved	1.2		0.010		mg/L		02/09/15 10:32	02/11/15 03:19	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.5		1.0		mg/L			02/24/15 18:37	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5S-0215
Date Collected: 02/03/15 10:52
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 17:58	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:58	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:58	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:58	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*70 - 130*		*02/14/15 17:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*02/14/15 17:58*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*02/14/15 17:58*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*02/14/15 17:58*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 11:55	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 11:55	1
Methane	14		0.58		ug/L			02/06/15 11:55	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.44		0.050		mg/L		02/09/15 10:32	02/11/15 03:24	1
Manganese	0.21		0.010		mg/L		02/09/15 10:32	02/11/15 03:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29	D	2.0		mg/L			02/11/15 12:29	2
Nitrate as N	0.87		0.050		mg/L			02/04/15 16:55	1
Sulfate	110	D	25		mg/L			02/11/15 12:10	5
Total Organic Carbon	2.7		1.0		mg/L			02/24/15 14:01	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	410		5.0		mg/L			02/04/15 19:41	1
Carbon Dioxide, Free	34		5.0		mg/L			02/04/15 19:41	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5S-F(0.2)-0215
Date Collected: 02/03/15 10:52
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-12
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 03:28	1
Manganese, Dissolved	0.14		0.010		mg/L		02/09/15 10:32	02/11/15 03:28	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.9		1.0		mg/L			02/24/15 18:42	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-3D-0215
Date Collected: 02/03/15 12:10
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	33	D	20		ug/L			02/15/15 15:04	20
Chlorobenzene	1700	D	20		ug/L			02/15/15 15:04	20
1,2-Dichlorobenzene	20	U	20		ug/L			02/15/15 15:04	20
1,3-Dichlorobenzene	20	U	20		ug/L			02/15/15 15:04	20
1,4-Dichlorobenzene	130	D	20		ug/L			02/15/15 15:04	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/15/15 15:04*	*20*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*02/15/15 15:04*	*20*
Dibromofluoromethane (Surr)	*115*		*70 - 130*		*02/15/15 15:04*	*20*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*02/15/15 15:04*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 12:07	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 12:07	1
Methane	50		0.58		ug/L			02/06/15 12:07	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	23		0.050		mg/L		02/09/15 10:32	02/11/15 03:33	1
Manganese	0.73		0.010		mg/L		02/09/15 10:32	02/11/15 03:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	850	D	20		mg/L			02/11/15 14:01	20
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:56	1
Sulfate	300	D	50		mg/L			02/11/15 13:41	10
Total Organic Carbon	4.9		1.0		mg/L			02/24/15 14:06	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	360		5.0		mg/L			02/04/15 19:48	1
Carbon Dioxide, Free	32		5.0		mg/L			02/04/15 19:48	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-3D-F(0.2)-0215
Date Collected: 02/03/15 12:10
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-14
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	23		0.050		mg/L		02/09/15 10:32	02/11/15 03:38	1
Manganese, Dissolved	0.73		0.010		mg/L		02/09/15 10:32	02/11/15 03:38	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.8		1.0		mg/L			02/24/15 18:47	1

LAB 3/24/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: 1Q15 LTM Trip Blank #2
Date Collected: 02/03/15 00:00
Date Received: 02/04/15 09:38

Lab Sample ID: 680-109575-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 14:53	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*70 - 130*		*02/14/15 14:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*02/14/15 14:53*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*02/14/15 14:53*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*02/14/15 14:53*	*1*

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-109575-7	GWE-5D-0215	114	121	119	106
680-109575-9	GWE-5M-0215	109	99	106	104
680-109575-11	GWE-5S-0215	106	99	108	100
680-109575-13	GWE-3D-0215	109	114	115	103
680-109575-15	1Q15 LTM Trip Blank #2	106	99	108	102
LCS 680-370981/4	Lab Control Sample	115	106	112	102
LCS 680-371036/4	Lab Control Sample	112	104	109	100
LCS 680-371152/4	Lab Control Sample	119	110	117	101
LCSD 680-370981/5	Lab Control Sample Dup	114	104	109	101
LCSD 680-371036/5	Lab Control Sample Dup	112	104	110	99
LCSD 680-371152/5	Lab Control Sample Dup	118	107	113	102
MB 680-370981/9	Method Blank	109	98	106	105
MB 680-371036/9	Method Blank	108	98	105	101
MB 680-371152/8	Method Blank	110	103	109	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370981/9
Matrix: Water
Analysis Batch: 370981

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
Chlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/14/15 13:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*70 - 130*		*02/14/15 13:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/14/15 13:16*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*02/14/15 13:16*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*02/14/15 13:16*	*1*

Lab Sample ID: LCS 680-370981/4
Matrix: Water
Analysis Batch: 370981

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.5		ug/L		107	73 - 131
Chlorobenzene	50.0	52.5		ug/L		105	80 - 120
1,2-Dichlorobenzene	50.0	53.1		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	52.1		ug/L		104	80 - 120
1,4-Dichlorobenzene	50.0	51.0		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*115*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*
Dibromofluoromethane (Surr)	*112*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 680-370981/5
Matrix: Water
Analysis Batch: 370981

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	53.2		ug/L		106	73 - 131	1	30
Chlorobenzene	50.0	51.0		ug/L		102	80 - 120	3	20
1,2-Dichlorobenzene	50.0	53.7		ug/L		107	80 - 120	1	20
1,3-Dichlorobenzene	50.0	53.4		ug/L		107	80 - 120	2	20
1,4-Dichlorobenzene	50.0	51.4		ug/L		103	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*114*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-371036/9
Matrix: Water
Analysis Batch: 371036

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
Chlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/15/15 13:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*70 - 130*		*02/15/15 13:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*02/15/15 13:20*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/15/15 13:20*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/15/15 13:20*	*1*

Lab Sample ID: LCS 680-371036/4
Matrix: Water
Analysis Batch: 371036

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.0		ug/L		106	73 - 131
Chlorobenzene	50.0	51.8		ug/L		104	80 - 120
1,2-Dichlorobenzene	50.0	53.5		ug/L		107	80 - 120
1,3-Dichlorobenzene	50.0	53.2		ug/L		106	80 - 120
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 680-371036/5
Matrix: Water
Analysis Batch: 371036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	52.7		ug/L		105	73 - 131	1	30
Chlorobenzene	50.0	51.7		ug/L		103	80 - 120	0	20
1,2-Dichlorobenzene	50.0	54.0		ug/L		108	80 - 120	1	20
1,3-Dichlorobenzene	50.0	52.5		ug/L		105	80 - 120	1	20
1,4-Dichlorobenzene	50.0	51.3		ug/L		103	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*112*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*110*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

LAB 3/24/15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-371152/8
Matrix: Water
Analysis Batch: 371152

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/17/15 11:09	1
Chlorobenzene	1.0	U	1.0		ug/L			02/17/15 11:09	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/17/15 11:09	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/17/15 11:09	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/17/15 11:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*70 - 130*		*02/17/15 11:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*02/17/15 11:09*	*1*
Dibromofluoromethane (Surr)	*109*		*70 - 130*		*02/17/15 11:09*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*02/17/15 11:09*	*1*

Lab Sample ID: LCS 680-371152/4
Matrix: Water
Analysis Batch: 371152

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	54.7		ug/L		109	73 - 131
Chlorobenzene	50.0	53.0		ug/L		106	80 - 120
1,2-Dichlorobenzene	50.0	53.5		ug/L		107	80 - 120
1,3-Dichlorobenzene	50.0	53.9		ug/L		108	80 - 120
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*119*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*117*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 680-371152/5
Matrix: Water
Analysis Batch: 371152

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	53.7		ug/L		107	73 - 131	2	30
Chlorobenzene	50.0	51.6		ug/L		103	80 - 120	3	20
1,2-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 120	1	20
1,3-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 120	2	20
1,4-Dichlorobenzene	50.0	50.2		ug/L		100	80 - 120	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*118*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*113*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-369841/7
Matrix: Water
Analysis Batch: 369841

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 10:42	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 10:42	1
Methane	0.58	U	0.58		ug/L			02/06/15 10:42	1

Lab Sample ID: LCS 680-369841/5
Matrix: Water
Analysis Batch: 369841

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	280		ug/L		97	75 - 125
Ethylene	269	262		ug/L		97	75 - 125
Methane	154	148		ug/L		96	75 - 125

Lab Sample ID: LCSD 680-369841/6
Matrix: Water
Analysis Batch: 369841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	284		ug/L		98	75 - 125	1	30
Ethylene	269	263		ug/L		98	75 - 125	0	30
Methane	154	151		ug/L		98	75 - 125	2	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-370112/1-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 02:01	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/09/15 10:32	02/11/15 02:01	1
Manganese	0.010	U	0.010		mg/L		02/09/15 10:32	02/11/15 02:01	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/09/15 10:32	02/11/15 02:01	1

Lab Sample ID: LCS 680-370112/2-A
Matrix: Water
Analysis Batch: 370470

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370112

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.82		mg/L		96	80 - 120
Iron, Dissolved	5.00	4.82		mg/L		96	80 - 120
Manganese	0.500	0.513		mg/L		103	80 - 120
Manganese, Dissolved	0.500	0.513		mg/L		103	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-369668/5
Matrix: Water
Analysis Batch: 369668

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/04/15 19:09	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/04/15 19:09	1

Lab Sample ID: LCS 680-369668/6
Matrix: Water
Analysis Batch: 369668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	220		mg/L		88	80 - 120

Lab Sample ID: LCSD 680-369668/24
Matrix: Water
Analysis Batch: 369668

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	218		mg/L		87	80 - 120	1	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370556/23
Matrix: Water
Analysis Batch: 370556

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 12:39	1

Lab Sample ID: LCS 680-370556/13
Matrix: Water
Analysis Batch: 370556

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.8		mg/L		103	85 - 115

Lab Sample ID: 680-109575-11 MS
Matrix: Water
Analysis Batch: 370556

Client Sample ID: GWE-5S-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	29		25.0	53.1		mg/L		98	85 - 115

Lab Sample ID: 680-109575-11 MSD
Matrix: Water
Analysis Batch: 370556

Client Sample ID: GWE-5S-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	29		25.0	53.5		mg/L		100	85 - 115	1	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-369648/13
Matrix: Water
Analysis Batch: 369648

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/04/15 16:40	1

Lab Sample ID: LCS 680-369648/16
Matrix: Water
Analysis Batch: 369648

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.527		mg/L		105	75 - 125
Nitrate Nitrite as N	1.00	1.03		mg/L		103	90 - 110
Nitrite as N	0.500	0.505		mg/L		101	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370564/58
Matrix: Water
Analysis Batch: 370564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 14:00	1

Lab Sample ID: LCS 680-370564/4
Matrix: Water
Analysis Batch: 370564

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.5		mg/L		102	75 - 125

Lab Sample ID: 680-109575-11 MS
Matrix: Water
Analysis Batch: 370564

Client Sample ID: GWE-5S-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	110		20.0	117	4	mg/L		50	75 - 125

Lab Sample ID: 680-109575-11 MSD
Matrix: Water
Analysis Batch: 370564

Client Sample ID: GWE-5S-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	110		20.0	119	4	mg/L		59	75 - 125	2	30

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/43
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 17:05	1

Method: 415.1 - DOC (Continued)

Lab Sample ID: LCS 160-175823/44
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.87		mg/L		99	90 - 110

Lab Sample ID: 680-109575-14 MS
Matrix: Water
Analysis Batch: 175823

Client Sample ID: GWE-3D-F(0.2)-0215
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	4.8		5.00	10.1		mg/L		106	82 - 132

Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/4
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 12:28	1

Lab Sample ID: LCS 160-175822/5
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.67		mg/L		97	90 - 110

Lab Sample ID: 680-109575-13 MS
Matrix: Water
Analysis Batch: 175822

Client Sample ID: GWE-3D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.9		5.00	9.98		mg/L		102	76 - 120

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

GC/MS VOA

Analysis Batch: 370981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-9	GWE-5M-0215	Total/NA	Water	8260B	
680-109575-11	GWE-5S-0215	Total/NA	Water	8260B	
680-109575-15	1Q15 LTM Trip Blank #2	Total/NA	Water	8260B	
LCS 680-370981/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-370981/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-370981/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 371036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-13	GWE-3D-0215	Total/NA	Water	8260B	
LCS 680-371036/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371036/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371036/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 371152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	8260B	
LCS 680-371152/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371152/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371152/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 369841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	RSK-175	
680-109575-9	GWE-5M-0215	Total/NA	Water	RSK-175	
680-109575-11	GWE-5S-0215	Total/NA	Water	RSK-175	
680-109575-13	GWE-3D-0215	Total/NA	Water	RSK-175	
LCS 680-369841/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-369841/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-369841/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 370112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total Recoverable	Water	3005A	
680-109575-8	GWE-5D-F(0.2)-0215	Dissolved	Water	3005A	
680-109575-9	GWE-5M-0215	Total Recoverable	Water	3005A	
680-109575-10	GWE-5M-F(0.2)-0215	Dissolved	Water	3005A	
680-109575-11	GWE-5S-0215	Total Recoverable	Water	3005A	
680-109575-12	GWE-5S-F(0.2)-0215	Dissolved	Water	3005A	
680-109575-13	GWE-3D-0215	Total Recoverable	Water	3005A	
680-109575-14	GWE-3D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	3005A	

Metals (Continued)

Analysis Batch: 370470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total Recoverable	Water	6010C	370112
680-109575-8	GWE-5D-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109575-9	GWE-5M-0215	Total Recoverable	Water	6010C	370112
680-109575-10	GWE-5M-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109575-11	GWE-5S-0215	Total Recoverable	Water	6010C	370112
680-109575-12	GWE-5S-F(0.2)-0215	Dissolved	Water	6010C	370112
680-109575-13	GWE-3D-0215	Total Recoverable	Water	6010C	370112
680-109575-14	GWE-3D-F(0.2)-0215	Dissolved	Water	6010C	370112
LCS 680-370112/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370112
MB 680-370112/1-A	Method Blank	Total Recoverable	Water	6010C	370112

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	415.1	
680-109575-9	GWE-5M-0215	Total/NA	Water	415.1	
680-109575-11	GWE-5S-0215	Total/NA	Water	415.1	
680-109575-13	GWE-3D-0215	Total/NA	Water	415.1	
680-109575-13 MS	GWE-3D-0215	Total/NA	Water	415.1	
LCS 160-175822/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-8	GWE-5D-F(0.2)-0215	Dissolved	Water	415.1	
680-109575-10	GWE-5M-F(0.2)-0215	Dissolved	Water	415.1	
680-109575-12	GWE-5S-F(0.2)-0215	Dissolved	Water	415.1	
680-109575-14	GWE-3D-F(0.2)-0215	Dissolved	Water	415.1	
680-109575-14 MS	GWE-3D-F(0.2)-0215	Dissolved	Water	415.1	
LCS 160-175823/44	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/43	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 369648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	353.2	
680-109575-9	GWE-5M-0215	Total/NA	Water	353.2	
680-109575-11	GWE-5S-0215	Total/NA	Water	353.2	
680-109575-13	GWE-3D-0215	Total/NA	Water	353.2	
LCS 680-369648/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-369648/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 369668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	310.1	
680-109575-9	GWE-5M-0215	Total/NA	Water	310.1	
680-109575-11	GWE-5S-0215	Total/NA	Water	310.1	
680-109575-13	GWE-3D-0215	Total/NA	Water	310.1	
LCS 680-369668/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-369668/24	Lab Control Sample Dup	Total/NA	Water	310.1	

General Chemistry (Continued)

Analysis Batch: 369668 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-369668/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 370556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	325.2	
680-109575-9	GWE-5M-0215	Total/NA	Water	325.2	
680-109575-11	GWE-5S-0215	Total/NA	Water	325.2	
680-109575-11 MS	GWE-5S-0215	Total/NA	Water	325.2	
680-109575-11 MSD	GWE-5S-0215	Total/NA	Water	325.2	
680-109575-13	GWE-3D-0215	Total/NA	Water	325.2	
LCS 680-370556/13	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370556/23	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109575-7	GWE-5D-0215	Total/NA	Water	375.4	
680-109575-9	GWE-5M-0215	Total/NA	Water	375.4	
680-109575-11	GWE-5S-0215	Total/NA	Water	375.4	
680-109575-11 MS	GWE-5S-0215	Total/NA	Water	375.4	
680-109575-11 MSD	GWE-5S-0215	Total/NA	Water	375.4	
680-109575-13	GWE-3D-0215	Total/NA	Water	375.4	
LCS 680-370564/4	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370564/58	Method Blank	Total/NA	Water	375.4	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5D-0215

Lab Sample ID: 680-109575-7
Matrix: Water

Date Collected: 02/03/15 09:45
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	371152	02/17/15 19:31	MMT	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 11:29	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 02:56	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 19:57	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:56	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:50	GRX	TAL SAV
Total/NA	Analysis	375.4		20	370564	02/11/15 13:44	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:51	JCB	TAL SL

Client Sample ID: GWE-5D-F(0.2)-0215

Lab Sample ID: 680-109575-8
Matrix: Water

Date Collected: 02/03/15 09:45
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:01	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:32	JCB	TAL SL

Client Sample ID: GWE-5M-0215

Lab Sample ID: 680-109575-9
Matrix: Water

Date Collected: 02/03/15 10:20
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370981	02/14/15 17:38	TF1	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 11:42	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 03:15	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 20:32	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:56	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:54	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370564	02/11/15 12:42	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 13:56	JCB	TAL SL

Client Sample ID: GWE-5M-F(0.2)-0215

Lab Sample ID: 680-109575-10
Matrix: Water

Date Collected: 02/03/15 10:20
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:19	BCB	TAL SAV

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-5M-F(0.2)-0215

Lab Sample ID: 680-109575-10
Matrix: Water

Date Collected: 02/03/15 10:20
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	175823	02/24/15 18:37	JCB	TAL SL

Client Sample ID: GWE-5S-0215

Lab Sample ID: 680-109575-11
Matrix: Water

Date Collected: 02/03/15 10:52
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370981	02/14/15 17:58	TF1	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 11:55	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 03:24	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 19:41	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:29	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:55	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370564	02/11/15 12:10	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:01	JCB	TAL SL

Client Sample ID: GWE-5S-F(0.2)-0215

Lab Sample ID: 680-109575-12
Matrix: Water

Date Collected: 02/03/15 10:52
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:28	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:42	JCB	TAL SL

Client Sample ID: GWE-3D-0215

Lab Sample ID: 680-109575-13
Matrix: Water

Date Collected: 02/03/15 12:10
Date Received: 02/04/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	371036	02/15/15 15:04	TF1	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 12:07	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370470	02/11/15 03:33	BCB	TAL SAV
Total/NA	Analysis	310.1		1	369668	02/04/15 19:48	LBH	TAL SAV
Total/NA	Analysis	325.2		20	370556	02/11/15 14:01	JME	TAL SAV
Total/NA	Analysis	353.2		1	369648	02/04/15 16:56	GRX	TAL SAV
Total/NA	Analysis	375.4		10	370564	02/11/15 13:41	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:06	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Client Sample ID: GWE-3D-F(0.2)-0215

Lab Sample ID: 680-109575-14

Date Collected: 02/03/15 12:10
Date Received: 02/04/15 09:38

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370112	02/09/15 10:32	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370470	02/11/15 03:38	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:47	JCB	TAL SL

Client Sample ID: 1Q15 LTM Trip Blank #2

Lab Sample ID: 680-109575-15

Date Collected: 02/03/15 00:00
Date Received: 02/04/15 09:38

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370981	02/14/15 14:53	TF1	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/24/15

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109575-2
SDG: KPS137

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109575-7	GWE-5D-0215	Water	02/03/15 09:45	02/04/15 09:38
680-109575-8	GWE-5D-F(0.2)-0215	Water	02/03/15 09:45	02/04/15 09:38
680-109575-9	GWE-5M-0215	Water	02/03/15 10:20	02/04/15 09:38
680-109575-10	GWE-5M-F(0.2)-0215	Water	02/03/15 10:20	02/04/15 09:38
680-109575-11	GWE-5S-0215	Water	02/03/15 10:52	02/04/15 09:38
680-109575-12	GWE-5S-F(0.2)-0215	Water	02/03/15 10:52	02/04/15 09:38
680-109575-13	GWE-3D-0215	Water	02/03/15 12:10	02/04/15 09:38
680-109575-14	GWE-3D-F(0.2)-0215	Water	02/03/15 12:10	02/04/15 09:38
680-109575-15	1Q15 LTM Trip Blank #2	Water	02/03/15 00:00	02/04/15 09:38

LAB 3/24/15

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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/3/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-5D-0215	2/3/15	0945	G	W	14				3	1	1	1	3	2	3			
GWE-5D-F(0.2)-0215					4											1	3	
GWE-5M-0215		1020			14				3	1	1	1	3	2	3			
GWE-5M-F(0.2)-0215					4											1	3	
GWE-5S-0215		1052			14				3	1	1	1	3	2	3			
GWE-5S-F(0.2)-0215					4											1	3	
GWE-3D-0215		1210			14				3	1	1	1	3	2	3			
GWE-3D-F(0.2)-0215					4											1	3	
1Q15 LTM Trip Blank #2		—	—	—	2				2									

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

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

680-109575-2 1.30.8(CF) 0.9, 0.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419313		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by:	Company: Golder	Date/Time: 2/3/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA SAV.	Date/Time: 020415 0938

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

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LAB 3/24/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109575-2
SDG Number: KPS137

Login Number: 109575
List Number: 1
Creator: Banda, Christy S

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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 3/24/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109575-2
SDG Number: KPS137

Login Number: 109575
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/05/15 02:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	3.1
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?	False	
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	

LAB 3/24/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS138
Matrix: Water

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

Analytical Method: VOC (8260B), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: GWE-1D-0215, GWE-1D-F(0.2)-0215, GWE-2D-0215, GWE-2D-F(0.2)-0215, and 1Q15 LTM Trip Blank #3

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

Comments:

VOC: Insufficient volume to perform MS/MSD associated with batch 370276.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 369841.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples GWE-1D-0215 and GWE-2D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples GWE-1D-0215 and GWE-2D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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: Some samples were received at 0.9°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.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB/DFTPP meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blanks were not submitted with SDG KPS138.

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: MS/MSD not performed due to insufficient volume.

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 samples were not submitted with SDG KPS138.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chloride and Sulfate	D	GWE-1D and GWE-2D

SDG KPS138

Sample Results from:

GWE-1D
GWE-2D

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: 680-109641-1
TestAmerica Sample Delivery Group: KPS138
Client Project/Site: 1Q15 LTM GW Sampling - 1403345

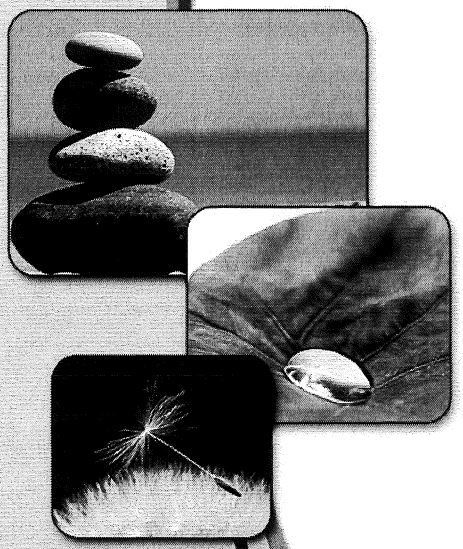
For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
2/25/2015 3:01:26 PM

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



LINKS

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LAB 3/31/15

Table of Contents

LAB 3/31/15

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

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)

LAB 3/31/15

CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109641-1

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 2/5/2015 9:18 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples GWE-2D-0215 (680-109641-1), GWE-1D-0215 (680-109641-3) and 1Q15 LTM Trip Blank #3 (680-109641-5) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/10/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 370276.

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

DISSOLVED GASES
Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/06/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 369841.

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

METALS (ICP)
Samples GWE-2D-F(0.2)-0215 (680-109641-2) and GWE-1D-F(0.2)-0215 (680-109641-4) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/10/2015 and analyzed on 02/11/2015.

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

METALS (ICP)
Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/10/2015 and analyzed on 02/11/2015.

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

ALKALINITY
Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/07/2015.

Job ID: 680-109641-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

CHLORIDE

Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples GWE-2D-0215 (680-109641-1)[20X] and GWE-1D-0215 (680-109641-3)[2X] 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.

NITRATE-NITRITE AS NITROGEN

Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/05/2015.

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

SULFATE

Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Samples GWE-2D-0215 (680-109641-1)[20X] and GWE-1D-0215 (680-109641-3)[10X] 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.

TOTAL ORGANIC CARBON

Samples GWE-2D-0215 (680-109641-1) and GWE-1D-0215 (680-109641-3) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

DISSOLVED ORGANIC CARBON (DOC)

Samples GWE-2D-F(0.2)-0215 (680-109641-2) and GWE-1D-F(0.2)-0215 (680-109641-4) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

TestAmerica Savannah
LAB 3/31/15

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-2D-0215 — Lab Sample ID: 680-109641-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	64		1.0		ug/L	1		8260B	Total/NA
Methane	19		0.58		ug/L	1		RSK-175	Total/NA
Iron	17		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.43		0.010		mg/L	1		6010C	Total Recoverable
Chloride	610		20		mg/L	20		325.2	Total/NA
Sulfate	580		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	3.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	29		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-2D-F(0.2)-0215 — Lab Sample ID: 680-109641-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	17		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.42		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-1D-0215 — Lab Sample ID: 680-109641-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	3.5		0.58		ug/L	1		RSK-175	Total/NA
Iron	18		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.64		0.010		mg/L	1		6010C	Total Recoverable
Chloride	72		2.0		mg/L	2		325.2	Total/NA
Sulfate	290		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	5.3		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	31		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-1D-F(0.2)-0215 — Lab Sample ID: 680-109641-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.62		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 1Q15 LTM Trip Blank #3 — Lab Sample ID: 680-109641-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-2D-0215
Date Collected: 02/04/15 10:55
Date Received: 02/05/15 09:18

Lab Sample ID: 680-109641-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 20:09	1
Chlorobenzene	64		1.0		ug/L			02/10/15 20:09	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 20:09	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 20:09	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 20:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*02/10/15 20:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*02/10/15 20:09*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*02/10/15 20:09*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*02/10/15 20:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 12:41	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 12:41	1
Methane	19		0.58		ug/L			02/06/15 12:41	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17		0.050		mg/L		02/10/15 13:15	02/11/15 17:20	1
Manganese	0.43		0.010		mg/L		02/10/15 13:15	02/11/15 17:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	610	D	20		mg/L			02/11/15 14:01	20
Nitrate as N	0.050	U	0.050		mg/L			02/05/15 12:41	1
Sulfate	580	D	100		mg/L			02/11/15 13:41	20
Total Organic Carbon	3.5		1.0		mg/L			02/24/15 14:17	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	330		5.0		mg/L			02/07/15 18:09	1
Carbon Dioxide, Free	29		5.0		mg/L			02/07/15 18:09	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-2D-F(0.2)-0215
Date Collected: 02/04/15 10:55
Date Received: 02/05/15 09:18

Lab Sample ID: 680-109641-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	17		0.050		mg/L		02/10/15 13:15	02/11/15 17:34	1
Manganese, Dissolved	0.42		0.010		mg/L		02/10/15 13:15	02/11/15 17:34	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.8		1.0		mg/L			02/24/15 18:57	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-1D-0215
Date Collected: 02/04/15 12:38
Date Received: 02/05/15 09:18

Lab Sample ID: 680-109641-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 19:46	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 19:46	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 19:46	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 19:46	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*02/10/15 19:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*02/10/15 19:46*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*02/10/15 19:46*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*02/10/15 19:46*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 12:54	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 12:54	1
Methane	3.5		0.58		ug/L			02/06/15 12:54	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	18		0.050		mg/L		02/10/15 13:15	02/11/15 17:39	1
Manganese	0.64		0.010		mg/L		02/10/15 13:15	02/11/15 17:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	72	D	2.0		mg/L			02/11/15 12:56	2
Nitrate as N	0.050	U	0.050		mg/L			02/05/15 12:43	1
Sulfate	290	D	50		mg/L			02/11/15 13:41	10
Total Organic Carbon	5.3		1.0		mg/L			02/24/15 14:22	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			02/07/15 18:17	1
Carbon Dioxide, Free	31		5.0		mg/L			02/07/15 18:17	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-1D-F(0.2)-0215
Date Collected: 02/04/15 12:38
Date Received: 02/05/15 09:18

Lab Sample ID: 680-109641-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	13		0.050		mg/L		02/10/15 13:15	02/11/15 17:43	1
Manganese, Dissolved	0.62		0.010		mg/L		02/10/15 13:15	02/11/15 17:43	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.4		1.0		mg/L			02/24/15 19:02	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: 1Q15 LTM Trip Blank #3
Date Collected: 02/04/15 00:00
Date Received: 02/05/15 09:18

Lab Sample ID: 680-109641-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 16:45	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:45	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:45	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:45	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*02/10/15 16:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*02/10/15 16:45*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*02/10/15 16:45*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*02/10/15 16:45*	*1*

TestAmerica Savannah
LAB 3/31/15

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (70-130)	12DCE (70-130)	DBFM (70-130)	BFB (70-130)
680-109641-1	GWE-2D-0215	97	112	108	101
680-109641-3	GWE-1D-0215	99	112	110	105
680-109641-5	1Q15 LTM Trip Blank #3	97	114	108	102
LCS 680-370276/4	Lab Control Sample	98	124	117	97
LCSD 680-370276/5	Lab Control Sample Dup	92	119	113	95
MB 680-370276/8	Method Blank	96	122	110	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

LAB 3/31/15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370276/8
Matrix: Water
Analysis Batch: 370276

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/10/15 12:06	1
Chlorobenzene	1.0	U	1.0		ug/L			02/10/15 12:06	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 12:06	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 12:06	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/10/15 12:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*02/10/15 12:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*122*		*70 - 130*		*02/10/15 12:06*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*02/10/15 12:06*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*02/10/15 12:06*	*1*

Lab Sample ID: LCS 680-370276/4
Matrix: Water
Analysis Batch: 370276

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.1		ug/L		106	73 - 131
Chlorobenzene	50.0	48.8		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120
1,3-Dichlorobenzene	50.0	48.2		ug/L		96	80 - 120
1,4-Dichlorobenzene	50.0	47.9		ug/L		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*124*		*70 - 130*
Dibromofluoromethane (Surr)	*117*		*70 - 130*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: LCSD 680-370276/5
Matrix: Water
Analysis Batch: 370276

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.4		ug/L		101	73 - 131	5	30
Chlorobenzene	50.0	45.0		ug/L		90	80 - 120	8	20
1,2-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120	3	20
1,3-Dichlorobenzene	50.0	47.2		ug/L		94	80 - 120	2	20
1,4-Dichlorobenzene	50.0	47.0		ug/L		94	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 130*
Dibromofluoromethane (Surr)	*113*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-369841/7
Matrix: Water
Analysis Batch: 369841

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/06/15 10:42	1
Ethylene	1.0	U	1.0		ug/L			02/06/15 10:42	1
Methane	0.58	U	0.58		ug/L			02/06/15 10:42	1

Lab Sample ID: LCS 680-369841/5
Matrix: Water
Analysis Batch: 369841

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	280		ug/L		97	75 - 125
Ethylene	269	262		ug/L		97	75 - 125
Methane	154	148		ug/L		96	75 - 125

Lab Sample ID: LCSD 680-369841/6
Matrix: Water
Analysis Batch: 369841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	284		ug/L		98	75 - 125	1	30
Ethylene	269	263		ug/L		98	75 - 125	0	30
Methane	154	151		ug/L		98	75 - 125	2	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-370350/1-A
Matrix: Water
Analysis Batch: 370667

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370350

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/10/15 13:15	02/11/15 16:48	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/10/15 13:15	02/11/15 16:48	1
Manganese	0.010	U	0.010		mg/L		02/10/15 13:15	02/11/15 16:48	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/10/15 13:15	02/11/15 16:48	1

Lab Sample ID: LCS 680-370350/2-A
Matrix: Water
Analysis Batch: 370667

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370350

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.93		mg/L		99	80 - 120
Iron, Dissolved	5.00	4.93		mg/L		99	80 - 120
Manganese	0.500	0.526		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.526		mg/L		105	80 - 120

LAB 3/31/15

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-370058/5
Matrix: Water
Analysis Batch: 370058

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/07/15 16:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/07/15 16:53	1

Lab Sample ID: LCS 680-370058/6
Matrix: Water
Analysis Batch: 370058

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	224		mg/L		90	80 - 120

Lab Sample ID: LCSD 680-370058/26
Matrix: Water
Analysis Batch: 370058

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	219		mg/L		87	80 - 120	3	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370556/23
Matrix: Water
Analysis Batch: 370556

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 12:39	1

Lab Sample ID: LCS 680-370556/13
Matrix: Water
Analysis Batch: 370556

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.8		mg/L		103	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-369724/13
Matrix: Water
Analysis Batch: 369724

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/05/15 12:22	1

Lab Sample ID: LCS 680-369724/16
Matrix: Water
Analysis Batch: 369724

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.564		mg/L		113	75 - 125
Nitrate Nitrite as N	1.00	1.06		mg/L		106	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-369724/16
Matrix: Water
Analysis Batch: 369724

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.500	0.500		mg/L		100	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370564/58
Matrix: Water
Analysis Batch: 370564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 14:00	1

Lab Sample ID: LCS 680-370564/4
Matrix: Water
Analysis Batch: 370564

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.5		mg/L		102	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/43
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 17:05	1

Lab Sample ID: LCS 160-175823/44
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.87		mg/L		99	90 - 110

Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/4
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 12:28	1

Lab Sample ID: LCS 160-175822/5
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.67		mg/L		97	90 - 110

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

GC/MS VOA

Analysis Batch: 370276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	8260B	
680-109641-3	GWE-1D-0215	Total/NA	Water	8260B	
680-109641-5	1Q15 LTM Trip Blank #3	Total/NA	Water	8260B	
LCS 680-370276/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-370276/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-370276/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 369841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	RSK-175	
680-109641-3	GWE-1D-0215	Total/NA	Water	RSK-175	
LCS 680-369841/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-369841/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-369841/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 370350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total Recoverable	Water	3005A	
680-109641-2	GWE-2D-F(0.2)-0215	Dissolved	Water	3005A	
680-109641-3	GWE-1D-0215	Total Recoverable	Water	3005A	
680-109641-4	GWE-1D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370350/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370350/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 370667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total Recoverable	Water	6010C	370350
680-109641-2	GWE-2D-F(0.2)-0215	Dissolved	Water	6010C	370350
680-109641-3	GWE-1D-0215	Total Recoverable	Water	6010C	370350
680-109641-4	GWE-1D-F(0.2)-0215	Dissolved	Water	6010C	370350
LCS 680-370350/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370350
MB 680-370350/1-A	Method Blank	Total Recoverable	Water	6010C	370350

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	415.1	
680-109641-3	GWE-1D-0215	Total/NA	Water	415.1	
LCS 160-175822/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-2	GWE-2D-F(0.2)-0215	Dissolved	Water	415.1	
680-109641-4	GWE-1D-F(0.2)-0215	Dissolved	Water	415.1	

General Chemistry (Continued)

Analysis Batch: 175823 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-175823/44	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/43	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 369724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	353.2	
680-109641-3	GWE-1D-0215	Total/NA	Water	353.2	
LCS 680-369724/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-369724/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 370058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	310.1	
680-109641-3	GWE-1D-0215	Total/NA	Water	310.1	
LCS 680-370058/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-370058/26	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-370058/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 370556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	325.2	
680-109641-3	GWE-1D-0215	Total/NA	Water	325.2	
LCS 680-370556/13	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370556/23	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109641-1	GWE-2D-0215	Total/NA	Water	375.4	
680-109641-3	GWE-1D-0215	Total/NA	Water	375.4	
LCS 680-370564/4	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370564/58	Method Blank	Total/NA	Water	375.4	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-2D-0215

Lab Sample ID: 680-109641-1
Matrix: Water

Date Collected: 02/04/15 10:55
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370276	02/10/15 20:09	MMT	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 12:41	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370667	02/11/15 17:20	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/07/15 18:09	LBH	TAL SAV
Total/NA	Analysis	325.2		20	370556	02/11/15 14:01	JME	TAL SAV
Total/NA	Analysis	353.2		1	369724	02/05/15 12:41	GRX	TAL SAV
Total/NA	Analysis	375.4		20	370564	02/11/15 13:41	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:17	JCB	TAL SL

Client Sample ID: GWE-2D-F(0.2)-0215

Lab Sample ID: 680-109641-2
Matrix: Water

Date Collected: 02/04/15 10:55
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370667	02/11/15 17:34	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 18:57	JCB	TAL SL

Client Sample ID: GWE-1D-0215

Lab Sample ID: 680-109641-3
Matrix: Water

Date Collected: 02/04/15 12:38
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370276	02/10/15 19:46	MMT	TAL SAV
Total/NA	Analysis	RSK-175		1	369841	02/06/15 12:54	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370667	02/11/15 17:39	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/07/15 18:17	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370556	02/11/15 12:56	JME	TAL SAV
Total/NA	Analysis	353.2		1	369724	02/05/15 12:43	GRX	TAL SAV
Total/NA	Analysis	375.4		10	370564	02/11/15 13:41	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:22	JCB	TAL SL

Client Sample ID: GWE-1D-F(0.2)-0215

Lab Sample ID: 680-109641-4
Matrix: Water

Date Collected: 02/04/15 12:38
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370667	02/11/15 17:43	BCB	TAL SAV

LAB 3/31/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Client Sample ID: GWE-1D-F(0.2)-0215

Lab Sample ID: 680-109641-4
Matrix: Water

Date Collected: 02/04/15 12:38
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	175823	02/24/15 19:02	JCB	TAL SL

Client Sample ID: 1Q15 LTM Trip Blank #3

Lab Sample ID: 680-109641-5
Matrix: Water

Date Collected: 02/04/15 00:00
Date Received: 02/05/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	370276	02/10/15 16:45	MMT	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/31/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 3/31/15

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109641-1
SDG: KPS138

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109641-1	GWE-2D-0215	Water	02/04/15 10:55	02/05/15 09:18
680-109641-2	GWE-2D-F(0.2)-0215	Water	02/04/15 10:55	02/05/15 09:18
680-109641-3	GWE-1D-0215	Water	02/04/15 12:38	02/05/15 09:18
680-109641-4	GWE-1D-F(0.2)-0215	Water	02/04/15 12:38	02/05/15 09:18
680-109641-5	1Q15 LTM Trip Blank #3	Water	02/04/15 00:00	02/05/15 09:18

LAB 3/31/15

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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/4/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
GWE-2D-0215	2/4/15	1055	G	W	14				3	1	1	1	3	2	3			
GWE-2D-F(0.2)-0215		1			4											1	3	
GWE-1D-0215		1238			14				3	1	1	1	3	2	3			
GWE-1D-F(0.2)-0215		1			4											1	3	
1Q15 LTM Trip Blank #3					2				2									

680-109641 Chain of Custody

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

	1	2	4	1	1	2	1	3	4	3				

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419316	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jo Burames	Golder	2/4/15	[signature]	TA SAV.	020515 0918
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 1.2CF 0.9C

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

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109641-1
SDG Number: KPS138

Login Number: 109641
List Number: 1
Creator: Banda, Christy S

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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 3/31/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109641-1
SDG Number: KPS138

Login Number: 109641
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/06/15 04:12 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	1.1
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?	False	
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	

LAB 3/31/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS139
Matrix: Water

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

Analytical Method: VOC (8260B), SVOC (8270D), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: BSA-MW-5D-0215, BSA-MW-5D-0215-MS, BSA-MW-5D-0215-MSD, BSA-MW-5D-F(0.2)-0215, BSA-MW-4D-0215, BSA-MW-4D-F(0.2)-0215, BSA-MW-2D-0215, BSA-MW-2D-F(0.2)-0215, CPA-MW-4D-0215, CPA-MW-4D-F(0.2)-0215, CPA-MW-3D-0215, CPA-MW-3D-0215-AD, CPA-MW-3D-F(0.2)-0215, CPA-MW-2D-0215, CPA-MW-2D-0215-AD, CPA-MW-2D-F(0.2)-0215, 1Q15 LTM Trip Blank #4

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

Comments:

VOC: Samples BSA-MW-5D-0215, BSA-MW-4D-0215, BSA-MW-2D-0215, CPA-MW-4D-0215, CPA-MW-3D-0215, CPA-MW-3D-0215-AD, CPA-MW-2D-0215, and CPA-MW-2D-0215-AD, required dilution prior to analysis, reporting limits were adjusted accordingly. Insufficient volume to perform MS/MSD associated with batch 3713166. MS/MSD recoveries were outside control limits in batch 371318.

SVOC: Sample BSA-MW-2D-0215 contained an allowable number of surrogate compounds outside limits. Surrogate recovery for CPA-MW-2D-0215-AD was outside control limits. Re-extraction and re-analysis was performed outside of holding time with acceptable results. Insufficient volume to perform MS/MSD associated with batch 371177. The RPD for the LCS/LCSD recovered outside control limits.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 370975 and batch 371304.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-5D-0215, BSA-MW-4D-0215, BSA-MW-2D-0215, CPA-MW-4D-0215, CPA-MW-3D-0215, and CPA-MW-2D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample BSA-MW-4D-0215 and CPA-MW-2D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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 1.5°C and 1.7°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. SVOC samples were re-extracted and re-analyzed ouside holding time with acceptable limits. Qualification required.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB/DFTPP meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blanks were not submitted with SDG KPS139.

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: MS/MSD recoveries for benzene and chlorobenzene failed recovery low for MS/MSD in batch 371318, associated with sample BSA-MW-5D-0215. Qualification not required.

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: Surrogate recoveries for CPA-MW-2D-0215-AD were outside control limits for 5 of the 6 surrogates. Sample was re-extracted and re-analyzed outside holding time. Qualification required.

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

Comments: Duplicate samples CPA-MW-3D-0215-AD and CPA-MW-2D-0215-AD were submitted with SDG KPS139. 2-Chlorophenol was detected in sample but not in duplicate. Qualification required.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	BSA-MW-5D, BSA-MW-4D, BSA-MW-2D, CPA-MW-4D, CPA-MW-3D, CPA-MW-3D-AD, CPA-MW-2D, and CPA-MW-2D-AD
Duplicate outside RPD	2-Chlorophenol	J	CPA-MW-2D and CPA-MW-2D-AD
Re-extracted and re-analyzed outside hold time	2-Chlorophenol and 1,2,4-Trichlorobenzene	J	CPA-MW-2D-AD

SDG KPS139

Sample Results from:

BSA-MW-2D
BSA-MW-4D
BSA-MW-5D
CPA-MW-2D
CPA-MW-3D
CPA-MW-4D

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: 680-109694-1
TestAmerica Sample Delivery Group: KPS139
Client Project/Site: 1Q15 LTM GW Sampling - 1403345
Revision: 1

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

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
4/7/2015 10:04:15 AM

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

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CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109694-1

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 2/6/2015 9:27 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.5° C and 1.7° C.

NOTE: Report revised 04/07/15 to correct case narrative.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9), CPA-MW-3D-0215-AD (680-109694-11), CPA-MW-2D-0215 (680-109694-12), CPA-MW-2D-0215-AD (680-109694-14) and 1Q15 LTM Trip Blank #4 (680-109694-15) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/18/2015.

Benzene and Chlorobenzene exceeded the recovery criteria low for the MS and MSD of sample BSA-MW-5D-0215 (680-109694-1) in batch 680-371318.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 371316.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 371318 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Refer to the QC report for details.

Samples BSA-MW-5D-0215 (680-109694-1)[2X], BSA-MW-4D-0215 (680-109694-3)[20X], BSA-MW-2D-0215 (680-109694-5)[1000X], CPA-MW-4D-0215 (680-109694-7)[2X], CPA-MW-3D-0215 (680-109694-9)[100X], CPA-MW-3D-0215-AD (680-109694-11)[100X], CPA-MW-2D-0215 (680-109694-12)[250X] and CPA-MW-2D-0215-AD (680-109694-14)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9), CPA-MW-3D-0215-AD (680-109694-11), CPA-MW-2D-0215 (680-109694-12) and CPA-MW-2D-0215-AD (680-109694-14) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/09/2015 and 02/17/2015 and analyzed on 02/13/2015, 02/14/2015 and 02/18/2015.

The following sample(s) contained an allowable number of surrogate compounds outside limits: BSA-MW-2D-0215 (680-109694-5). These results have been reported and qualified.

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Job ID: 680-109694-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 371177.

The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 371177 recovered outside control limits for the following analytes: 1,4 dioxane and 4 chloroaniline.

Surrogate recovery for the following sample(s) was outside control limits: CPA-MW-2D-0215-AD (680-109694-14). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

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

DISSOLVED GASES

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/11/2015, 02/16/2015 and 02/18/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 370975.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 371304.

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

METALS (ICP)

Samples BSA-MW-5D-F(0.2)-0215 (680-109694-2), BSA-MW-4D-F(0.2)-0215 (680-109694-4), BSA-MW-2D-F(0.2)-0215 (680-109694-6), CPA-MW-4D-F(0.2)-0215 (680-109694-8), CPA-MW-3D-F(0.2)-0215 (680-109694-10) and CPA-MW-2D-F(0.2)-0215 (680-109694-13) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/10/2015 and 02/11/2015 and analyzed on 02/11/2015 and 02/13/2015.

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

METALS (ICP)

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/10/2015 and 02/11/2015 and analyzed on 02/11/2015 and 02/13/2015.

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

ALKALINITY

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/07/2015 and 02/08/2015.

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

CHLORIDE

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples BSA-MW-5D-0215 (680-109694-1)[5X], BSA-MW-4D-0215 (680-109694-3)[2X], BSA-MW-2D-0215 (680-109694-5)[5X], CPA-MW-4D-0215 (680-109694-7)[5X], CPA-MW-3D-0215 (680-109694-9)[10X] and CPA-MW-2D-0215 (680-109694-12)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Job ID: 680-109694-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

NITRATE-NITRITE AS NITROGEN

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/06/2015.

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

SULFATE

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Samples BSA-MW-4D-0215 (680-109694-3)[5X] and CPA-MW-2D-0215 (680-109694-12)[2X] 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.

TOTAL ORGANIC CARBON

Samples BSA-MW-5D-0215 (680-109694-1), BSA-MW-4D-0215 (680-109694-3), BSA-MW-2D-0215 (680-109694-5), CPA-MW-4D-0215 (680-109694-7), CPA-MW-3D-0215 (680-109694-9) and CPA-MW-2D-0215 (680-109694-12) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

DISSOLVED ORGANIC CARBON (DOC)

Samples BSA-MW-5D-F(0.2)-0215 (680-109694-2), BSA-MW-4D-F(0.2)-0215 (680-109694-4), BSA-MW-2D-F(0.2)-0215 (680-109694-6), CPA-MW-4D-F(0.2)-0215 (680-109694-8), CPA-MW-3D-F(0.2)-0215 (680-109694-10) and CPA-MW-2D-F(0.2)-0215 (680-109694-13) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

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

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109694-1	BSA-MW-5D-0215	Water	02/05/15 10:25	02/06/15 09:27
680-109694-2	BSA-MW-5D-F(0.2)-0215	Water	02/05/15 10:25	02/06/15 09:27
680-109694-3	BSA-MW-4D-0215	Water	02/05/15 11:44	02/06/15 09:27
680-109694-4	BSA-MW-4D-F(0.2)-0215	Water	02/05/15 11:44	02/06/15 09:27
680-109694-5	BSA-MW-2D-0215	Water	02/05/15 13:25	02/06/15 09:27
680-109694-6	BSA-MW-2D-F(0.2)-0215	Water	02/05/15 13:25	02/06/15 09:27
680-109694-7	CPA-MW-4D-0215	Water	02/05/15 09:33	02/06/15 09:27
680-109694-8	CPA-MW-4D-F(0.2)-0215	Water	02/05/15 09:33	02/06/15 09:27
680-109694-9	CPA-MW-3D-0215	Water	02/05/15 12:45	02/06/15 09:27
680-109694-10	CPA-MW-3D-F(0.2)-0215	Water	02/05/15 12:45	02/06/15 09:27
680-109694-11	CPA-MW-3D-0215-AD	Water	02/05/15 12:45	02/06/15 09:27
680-109694-12	CPA-MW-2D-0215	Water	02/05/15 14:15	02/06/15 09:27
680-109694-13	CPA-MW-2D-F(0.2)-0215	Water	02/05/15 14:15	02/06/15 09:27
680-109694-14	CPA-MW-2D-0215-AD	Water	02/05/15 14:15	02/06/15 09:27
680-109694-15	1Q15 LTM Trip Blank #4	Water	02/05/15 00:00	02/06/15 09:27

LAB 4/7/15

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F1	MS and/or MSD Recovery exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
H	Sample was prepped or analyzed beyond the specified holding time
*	RPD of the LCS and LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

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

Metals

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

General Chemistry

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)

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-5D-0215 — Lab Sample ID: 680-109694-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	68		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	240		2.0		ug/L	2		8260B	Total/NA
Ethane	19		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	15000		390		ug/L	1		RSK-175	Total/NA
Iron	11		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.27		0.010		mg/L	1		6010C	Total Recoverable
Chloride	220		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	9.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	1200		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	63		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-5D-F(0.2)-0215 — Lab Sample ID: 680-109694-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.26		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	9.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-4D-0215 — Lab Sample ID: 680-109694-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	30		20		ug/L	20		8260B	Total/NA
Chlorobenzene	2000		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	70		20		ug/L	20		8260B	Total/NA
Ethane	3.0		1.1		ug/L	1		RSK-175	Total/NA
Methane	320		0.58		ug/L	1		RSK-175	Total/NA
Iron	6.7		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.56		0.010		mg/L	1		6010C	Total Recoverable
Chloride	91		2.0		mg/L	2		325.2	Total/NA
Sulfate	120		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	5.2		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	440		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	29		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-4D-F(0.2)-0215 — Lab Sample ID: 680-109694-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	6.6		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.57		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-2D-0215 — Lab Sample ID: 680-109694-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	64000		1000		ug/L	1000		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-2D-0215 (Continued) — Lab Sample ID: 680-109694-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethane	13		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	19000		390		ug/L	1		RSK-175	Total/NA
Iron	4.3		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.64		0.010		mg/L	1		6010C	Total Recoverable
Chloride	130		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	11		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	620		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	36		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-2D-F(0.2)-0215 — Lab Sample ID: 680-109694-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	4.1		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.63		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	7.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-4D-0215 — Lab Sample ID: 680-109694-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	230		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	4.9		2.0		ug/L	2		8260B	Total/NA
4-Chloroaniline	130		21		ug/L	1		8270D	Total/NA
Ethane	18		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	14000		390		ug/L	1		RSK-175	Total/NA
Iron	15		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.39		0.010		mg/L	1		6010C	Total Recoverable
Chloride	210		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	8.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	550		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	43		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-4D-F(0.2)-0215 — Lab Sample ID: 680-109694-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.38		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-0215 — Lab Sample ID: 680-109694-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6000		100		ug/L	100		8260B	Total/NA
Chlorobenzene	160		100		ug/L	100		8260B	Total/NA
4-Chloroaniline	28		21		ug/L	1		8270D	Total/NA
Ethane	26		1.1		ug/L	1		RSK-175	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-3D-0215 (Continued) — Lab Sample ID: 680-109694-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (TCD)	22000		390		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.76		0.010		mg/L	1		6010C	Total Recoverable
Chloride	320		10		mg/L	10		325.2	Total/NA
Total Organic Carbon	8.8		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	560		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	38		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-3D-F(0.2)-0215 — Lab Sample ID: 680-109694-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	12		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.75		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	9.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-0215-AD — Lab Sample ID: 680-109694-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5800		100		ug/L	100		8260B	Total/NA
Chlorobenzene	160		100		ug/L	100		8260B	Total/NA
4-Chloroaniline	28		22		ug/L	1		8270D	Total/NA

Client Sample ID: CPA-MW-2D-0215 — Lab Sample ID: 680-109694-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	31000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	260		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	300		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	8700		250		ug/L	250		8260B	Total/NA
2-Chlorophenol	35		11		ug/L	1		8270D	Total/NA
Ethane	3.8		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	890		390		ug/L	1		RSK-175	Total/NA
Iron	8.7		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.43		0.010		mg/L	1		6010C	Total Recoverable
Chloride	55		2.0		mg/L	2		325.2	Total/NA
Sulfate	56		10		mg/L	2		375.4	Total/NA
Total Organic Carbon	8.1		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	21		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-2D-F(0.2)-0215 — Lab Sample ID: 680-109694-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.45		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-2D-F(0.2)-0215 (Continued) — Lab Sample ID: 680-109694-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Organic Carbon	7.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-2D-0215-AD — Lab Sample ID: 680-109694-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	32000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	300		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	290		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	9700		250		ug/L	250		8260B	Total/NA

Client Sample ID: 1Q15 LTM Trip Blank #4 — Lab Sample ID: 680-109694-15

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-5D-0215
Date Collected: 02/05/15 10:25
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	68	D	2.0		ug/L			02/18/15 16:30	2
Chlorobenzene	240	D	2.0		ug/L			02/18/15 16:30	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			02/18/15 16:30	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			02/18/15 16:30	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			02/18/15 16:30	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*115*		*70 - 130*		*02/18/15 16:30*	*2*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 130*		*02/18/15 16:30*	*2*
Dibromofluoromethane (Surr)	*119*		*70 - 130*		*02/18/15 16:30*	*2*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*02/18/15 16:30*	*2*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/13/15 20:32	1
1,4-Dioxane	11	U	11		ug/L		02/09/15 16:25	02/13/15 20:32	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*53*		*32 - 114*	*02/09/15 16:25*	*02/13/15 20:32*	*1*
2-Fluorophenol	*39*		*26 - 107*	*02/09/15 16:25*	*02/13/15 20:32*	*1*
Nitrobenzene-d5	*52*		*30 - 117*	*02/09/15 16:25*	*02/13/15 20:32*	*1*
Phenol-d5	*42*		*25 - 109*	*02/09/15 16:25*	*02/13/15 20:32*	*1*
Terphenyl-d14	*60*		*10 - 132*	*02/09/15 16:25*	*02/13/15 20:32*	*1*
2,4,6-Tribromophenol	*56*		*34 - 140*	*02/09/15 16:25*	*02/13/15 20:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	19		1.1		ug/L			02/18/15 14:09	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 14:09	1
Methane (TCD)	15000		390		ug/L			02/16/15 13:47	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	11		0.050		mg/L		02/10/15 13:15	02/11/15 17:52	1
Manganese	0.27		0.010		mg/L		02/10/15 13:15	02/11/15 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220	D	5.0		mg/L			02/11/15 12:52	5
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:29	1
Sulfate	5.0	U	5.0		mg/L			02/11/15 12:01	1
Total Organic Carbon	9.0		1.0		mg/L			02/24/15 14:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	1200		5.0		mg/L			02/07/15 18:31	1
Carbon Dioxide, Free	63		5.0		mg/L			02/07/15 18:31	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-5D-F(0.2)-0215
Date Collected: 02/05/15 10:25
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	11		0.050		mg/L		02/10/15 13:15	02/11/15 17:57	1
Manganese, Dissolved	0.26		0.010		mg/L		02/10/15 13:15	02/11/15 17:57	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	9.1		1.0		mg/L			02/24/15 19:30	1

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Client Sample ID: BSA-MW-4D-0215

Lab Sample ID: 680-109694-3

Date Collected: 02/05/15 11:44
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	30	D	20		ug/L			02/18/15 11:01	20
Chlorobenzene	2000	D	20		ug/L			02/18/15 11:01	20
1,2-Dichlorobenzene	20	U	20		ug/L			02/18/15 11:01	20
1,3-Dichlorobenzene	20	U	20		ug/L			02/18/15 11:01	20
1,4-Dichlorobenzene	70	D	20		ug/L			02/18/15 11:01	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*02/18/15 11:01*	*20*
1,2-Dichloroethane-d4 (Surr)	*118*		*70 - 130*		*02/18/15 11:01*	*20*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*02/18/15 11:01*	*20*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*02/18/15 11:01*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	12	U	12		ug/L		02/09/15 16:25	02/13/15 20:57	1
1,4-Dioxane	12	U	12		ug/L		02/09/15 16:25	02/13/15 20:57	1
1,2,4-Trichlorobenzene	12	U	12		ug/L		02/09/15 16:25	02/13/15 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*60*		*32 - 114*	*02/09/15 16:25*	*02/13/15 20:57*	*1*
2-Fluorophenol	*42*		*26 - 107*	*02/09/15 16:25*	*02/13/15 20:57*	*1*
Nitrobenzene-d5	*58*		*30 - 117*	*02/09/15 16:25*	*02/13/15 20:57*	*1*
Phenol-d5	*49*		*25 - 109*	*02/09/15 16:25*	*02/13/15 20:57*	*1*
Terphenyl-d14	*83*		*10 - 132*	*02/09/15 16:25*	*02/13/15 20:57*	*1*
2,4,6-Tribromophenol	*61*		*34 - 140*	*02/09/15 16:25*	*02/13/15 20:57*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	3.0		1.1		ug/L			02/11/15 11:12	1
Ethylene	1.0	U	1.0		ug/L			02/11/15 11:12	1
Methane	320		0.58		ug/L			02/11/15 11:12	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	6.7		0.050		mg/L		02/10/15 13:15	02/11/15 18:02	1
Manganese	0.56		0.010		mg/L		02/10/15 13:15	02/11/15 18:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	91	D	2.0		mg/L			02/11/15 13:03	2
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:31	1
Sulfate	120	D	25		mg/L			02/11/15 13:11	5
Total Organic Carbon	5.2		1.0		mg/L			02/24/15 14:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	440		5.0		mg/L			02/08/15 11:53	1
Carbon Dioxide, Free	29		5.0		mg/L			02/08/15 11:53	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-4D-F(0.2)-0215
Date Collected: 02/05/15 11:44
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	6.6		0.050		mg/L		02/10/15 13:15	02/11/15 18:06	1
Manganese, Dissolved	0.57		0.010		mg/L		02/10/15 13:15	02/11/15 18:06	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.8		1.0		mg/L			02/24/15 19:59	1

8

Client Sample ID: BSA-MW-2D-0215

Lab Sample ID: 680-109694-5

Date Collected: 02/05/15 13:25
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	64000	D	1000		ug/L			02/18/15 11:24	1000
Chlorobenzene	1000	U	1000		ug/L			02/18/15 11:24	1000
1,2-Dichlorobenzene	1000	U	1000		ug/L			02/18/15 11:24	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			02/18/15 11:24	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			02/18/15 11:24	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*02/18/15 11:24*	*1000*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*02/18/15 11:24*	*1000*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*02/18/15 11:24*	*1000*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*02/18/15 11:24*	*1000*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/13/15 21:23	1
1,4-Dioxane	11	U	11		ug/L		02/09/15 16:25	02/13/15 21:23	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 21:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*40*		*32 - 114*	*02/09/15 16:25*	*02/13/15 21:23*	*1*
2-Fluorophenol	*23*	*X*	*26 - 107*	*02/09/15 16:25*	*02/13/15 21:23*	*1*
Nitrobenzene-d5	*32*		*30 - 117*	*02/09/15 16:25*	*02/13/15 21:23*	*1*
Phenol-d5	*28*		*25 - 109*	*02/09/15 16:25*	*02/13/15 21:23*	*1*
Terphenyl-d14	*59*		*10 - 132*	*02/09/15 16:25*	*02/13/15 21:23*	*1*
2,4,6-Tribromophenol	*54*		*34 - 140*	*02/09/15 16:25*	*02/13/15 21:23*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	13		1.1		ug/L			02/18/15 14:22	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 14:22	1
Methane (TCD)	19000		390		ug/L			02/16/15 14:05	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	4.3		0.050		mg/L		02/10/15 13:15	02/11/15 18:11	1
Manganese	0.64		0.010		mg/L		02/10/15 13:15	02/11/15 18:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130	D	5.0		mg/L			02/11/15 12:52	5
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:33	1
Sulfate	5.0	U	5.0		mg/L			02/11/15 12:05	1
Total Organic Carbon	11		1.0		mg/L			02/24/15 15:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	620		5.0		mg/L			02/08/15 12:04	1
Carbon Dioxide, Free	36		5.0		mg/L			02/08/15 12:04	1

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-2D-F(0.2)-0215
Date Collected: 02/05/15 13:25
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-6
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	4.1		0.050		mg/L		02/10/15 13:15	02/11/15 17:48	1
Manganese, Dissolved	0.63		0.010		mg/L		02/10/15 13:15	02/11/15 17:48	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.8		1.0		mg/L			02/24/15 20:04	1

8

LAB 4/7/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-4D-0215
Date Collected: 02/05/15 09:33
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.0	U	2.0		ug/L			02/18/15 16:51	2
Chlorobenzene	230	D	2.0		ug/L			02/18/15 16:51	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			02/18/15 16:51	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			02/18/15 16:51	2
1,4-Dichlorobenzene	4.9	D	2.0		ug/L			02/18/15 16:51	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*117*		*70 - 130*		*02/18/15 16:51*	*2*
1,2-Dichloroethane-d4 (Surr)	*123*		*70 - 130*		*02/18/15 16:51*	*2*
Dibromofluoromethane (Surr)	*121*		*70 - 130*		*02/18/15 16:51*	*2*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*02/18/15 16:51*	*2*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	130		21		ug/L		02/09/15 16:25	02/14/15 22:57	1
2-Chlorophenol	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:57	1
1,2,4-Trichlorobenzene	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*64*		*32 - 114*	*02/09/15 16:25*	*02/14/15 22:57*	*1*
2-Fluorophenol	*47*		*26 - 107*	*02/09/15 16:25*	*02/14/15 22:57*	*1*
Nitrobenzene-d5	*65*		*30 - 117*	*02/09/15 16:25*	*02/14/15 22:57*	*1*
Phenol-d5	*54*		*25 - 109*	*02/09/15 16:25*	*02/14/15 22:57*	*1*
Terphenyl-d14	*63*		*10 - 132*	*02/09/15 16:25*	*02/14/15 22:57*	*1*
2,4,6-Tribromophenol	*64*		*34 - 140*	*02/09/15 16:25*	*02/14/15 22:57*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	18		1.1		ug/L			02/18/15 14:35	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 14:35	1
Methane (TCD)	14000		390		ug/L			02/16/15 14:17	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	15		0.050		mg/L		02/11/15 13:40	02/13/15 01:46	1
Manganese	0.39		0.010		mg/L		02/11/15 13:40	02/13/15 01:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210	D	5.0		mg/L			02/11/15 12:52	5
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:34	1
Sulfate	5.0	U	5.0		mg/L			02/11/15 12:05	1
Total Organic Carbon	8.5		1.0		mg/L			02/24/15 15:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	550		5.0		mg/L			02/08/15 12:13	1
Carbon Dioxide, Free	43		5.0		mg/L			02/08/15 12:13	1

TestAmerica Savannah
LAB 4/7/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-4D-F(0.2)-0215
Date Collected: 02/05/15 09:33
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-8
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	14		0.050		mg/L		02/11/15 13:40	02/13/15 01:23	1
Manganese, Dissolved	0.38		0.010		mg/L		02/11/15 13:40	02/13/15 01:23	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.5		1.0		mg/L			02/24/15 20:09	1

8

LAB 4/7/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-3D-0215

Lab Sample ID: 680-109694-9

Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	6000	D	100		ug/L			02/18/15 11:46	100
Chlorobenzene	160	D	100		ug/L			02/18/15 11:46	100
1,2-Dichlorobenzene	100	U	100		ug/L			02/18/15 11:46	100
1,3-Dichlorobenzene	100	U	100		ug/L			02/18/15 11:46	100
1,4-Dichlorobenzene	100	U	100		ug/L			02/18/15 11:46	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*02/18/15 11:46*	*100*
1,2-Dichloroethane-d4 (Surr)	*120*		*70 - 130*		*02/18/15 11:46*	*100*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*02/18/15 11:46*	*100*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*02/18/15 11:46*	*100*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	28		21		ug/L		02/09/15 16:25	02/13/15 22:14	1
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/13/15 22:14	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*32 - 114*	*02/09/15 16:25*	*02/13/15 22:14*	*1*
2-Fluorophenol	*54*		*26 - 107*	*02/09/15 16:25*	*02/13/15 22:14*	*1*
Nitrobenzene-d5	*74*		*30 - 117*	*02/09/15 16:25*	*02/13/15 22:14*	*1*
Phenol-d5	*60*		*25 - 109*	*02/09/15 16:25*	*02/13/15 22:14*	*1*
Terphenyl-d14	*85*		*10 - 132*	*02/09/15 16:25*	*02/13/15 22:14*	*1*
2,4,6-Tribromophenol	*71*		*34 - 140*	*02/09/15 16:25*	*02/13/15 22:14*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	26		1.1		ug/L			02/18/15 14:50	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 14:50	1
Methane (TCD)	22000		390		ug/L			02/16/15 14:30	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	13		0.050		mg/L		02/11/15 13:40	02/13/15 01:51	1
Manganese	0.76		0.010		mg/L		02/11/15 13:40	02/13/15 01:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	320	D	10		mg/L			02/11/15 13:28	10
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:35	1
Sulfate	5.0	U	5.0		mg/L			02/11/15 12:06	1
Total Organic Carbon	8.8		1.0		mg/L			02/24/15 15:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	560		5.0		mg/L			02/08/15 12:24	1
Carbon Dioxide, Free	38		5.0		mg/L			02/08/15 12:24	1

TestAmerica Savannah

LAB 4/7/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-3D-F(0.2)-0215
Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-10
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	12		0.050		mg/L		02/11/15 13:40	02/13/15 01:55	1
Manganese, Dissolved	0.75		0.010		mg/L		02/11/15 13:40	02/13/15 01:55	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	9.4		1.0		mg/L			02/24/15 20:14	1

8

Client Sample ID: CPA-MW-3D-0215-AD

Lab Sample ID: 680-109694-11

Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5800	D	100		ug/L			02/18/15 12:09	100
Chlorobenzene	160	D	100		ug/L			02/18/15 12:09	100
1,2-Dichlorobenzene	100	U	100		ug/L			02/18/15 12:09	100
1,3-Dichlorobenzene	100	U	100		ug/L			02/18/15 12:09	100
1,4-Dichlorobenzene	100	U	100		ug/L			02/18/15 12:09	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*02/18/15 12:09*	*100*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*02/18/15 12:09*	*100*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*02/18/15 12:09*	*100*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*02/18/15 12:09*	*100*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	28		22		ug/L		02/09/15 16:25	02/13/15 22:39	1
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/13/15 22:39	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 22:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*32 - 114*	*02/09/15 16:25*	*02/13/15 22:39*	*1*
2-Fluorophenol	*46*		*26 - 107*	*02/09/15 16:25*	*02/13/15 22:39*	*1*
Nitrobenzene-d5	*68*		*30 - 117*	*02/09/15 16:25*	*02/13/15 22:39*	*1*
Phenol-d5	*53*		*25 - 109*	*02/09/15 16:25*	*02/13/15 22:39*	*1*
Terphenyl-d14	*87*		*10 - 132*	*02/09/15 16:25*	*02/13/15 22:39*	*1*
2,4,6-Tribromophenol	*72*		*34 - 140*	*02/09/15 16:25*	*02/13/15 22:39*	*1*

Client Sample ID: CPA-MW-2D-0215

Lab Sample ID: 680-109694-12

Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	250	U	250		ug/L			02/18/15 12:31	250
Chlorobenzene	31000	D	250		ug/L			02/18/15 12:31	250
1,2-Dichlorobenzene	260	D	250		ug/L			02/18/15 12:31	250
1,3-Dichlorobenzene	300	D	250		ug/L			02/18/15 12:31	250
1,4-Dichlorobenzene	8700	D	250		ug/L			02/18/15 12:31	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*70 - 130*		*02/18/15 12:31*	*250*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*02/18/15 12:31*	*250*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*02/18/15 12:31*	*250*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*02/18/15 12:31*	*250*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	35	J	11		ug/L		02/09/15 16:25	02/13/15 23:04	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 23:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*62*		*32 - 114*	*02/09/15 16:25*	*02/13/15 23:04*	*1*
2-Fluorophenol	*46*		*26 - 107*	*02/09/15 16:25*	*02/13/15 23:04*	*1*
Nitrobenzene-d5	*58*		*30 - 117*	*02/09/15 16:25*	*02/13/15 23:04*	*1*
Phenol-d5	*57*		*25 - 109*	*02/09/15 16:25*	*02/13/15 23:04*	*1*
Terphenyl-d14	*82*		*10 - 132*	*02/09/15 16:25*	*02/13/15 23:04*	*1*
2,4,6-Tribromophenol	*70*		*34 - 140*	*02/09/15 16:25*	*02/13/15 23:04*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	3.8		1.1		ug/L			02/18/15 15:18	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 15:18	1
Methane (TCD)	890		390		ug/L			02/16/15 14:43	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	8.7		0.050		mg/L		02/11/15 13:40	02/13/15 02:09	1
Manganese	0.43		0.010		mg/L		02/11/15 13:40	02/13/15 02:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	55	D	2.0		mg/L			02/11/15 13:03	2
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:36	1
Sulfate	56	D	10		mg/L			02/11/15 13:11	2
Total Organic Carbon	8.1		1.0		mg/L			02/24/15 15:16	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			02/08/15 12:32	1
Carbon Dioxide, Free	21		5.0		mg/L			02/08/15 12:32	1

LAB 4/7/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-2D-F(0.2)-0215
Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-13
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.8		0.050		mg/L		02/11/15 13:40	02/13/15 02:14	1
Manganese, Dissolved	0.45		0.010		mg/L		02/11/15 13:40	02/13/15 02:14	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.5		1.0		mg/L			02/24/15 20:24	1

LAB 4/7/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-2D-0215-AD

Lab Sample ID: 680-109694-14

Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	250	U	250		ug/L			02/18/15 12:54	250
Chlorobenzene	32000	D	250		ug/L			02/18/15 12:54	250
1,2-Dichlorobenzene	300	D	250		ug/L			02/18/15 12:54	250
1,3-Dichlorobenzene	290	D	250		ug/L			02/18/15 12:54	250
1,4-Dichlorobenzene	9700	D	250		ug/L			02/18/15 12:54	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*02/18/15 12:54*	*250*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 130*		*02/18/15 12:54*	*250*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*02/18/15 12:54*	*250*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*02/18/15 12:54*	*250*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U J	11		ug/L		02/09/15 16:25	02/13/15 23:30	1
1,2,4-Trichlorobenzene	11	U J	11		ug/L		02/09/15 16:25	02/13/15 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*21*	*X*	*32 - 114*	*02/09/15 16:25*	*02/13/15 23:30*	*1*
2-Fluorophenol	*10*	*X*	*26 - 107*	*02/09/15 16:25*	*02/13/15 23:30*	*1*
Nitrobenzene-d5	*14*	*X*	*30 - 117*	*02/09/15 16:25*	*02/13/15 23:30*	*1*
Phenol-d5	*10*	*X*	*25 - 109*	*02/09/15 16:25*	*02/13/15 23:30*	*1*
Terphenyl-d14	*73*		*10 - 132*	*02/09/15 16:25*	*02/13/15 23:30*	*1*
2,4,6-Tribromophenol	*30*	*X*	*34 - 140*	*02/09/15 16:25*	*02/13/15 23:30*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U H J	11		ug/L		02/17/15 15:36	02/18/15 21:43	1
1,2,4-Trichlorobenzene	11	U H J	11		ug/L		02/17/15 15:36	02/18/15 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*54*		*32 - 114*	*02/17/15 15:36*	*02/18/15 21:43*	*1*
2-Fluorophenol	*40*		*26 - 107*	*02/17/15 15:36*	*02/18/15 21:43*	*1*
Nitrobenzene-d5	*50*		*30 - 117*	*02/17/15 15:36*	*02/18/15 21:43*	*1*
Phenol-d5	*41*		*25 - 109*	*02/17/15 15:36*	*02/18/15 21:43*	*1*
Terphenyl-d14	*65*		*10 - 132*	*02/17/15 15:36*	*02/18/15 21:43*	*1*
2,4,6-Tribromophenol	*52*		*34 - 140*	*02/17/15 15:36*	*02/18/15 21:43*	*1*

LAB 4/7/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: 1Q15 LTM Trip Blank #4
Date Collected: 02/05/15 00:00
Date Received: 02/06/15 09:27

Lab Sample ID: 680-109694-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/18/15 09:53	1
Chlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*02/18/15 09:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*02/18/15 09:53*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*02/18/15 09:53*	*1*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*02/18/15 09:53*	*1*

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-109694-1	BSA-MW-5D-0215	115	115	119	107
680-109694-1 MS	BSA-MW-5D-0215	89	112	99	107
680-109694-1 MSD	BSA-MW-5D-0215	93	119	104	107
680-109694-3	BSA-MW-4D-0215	96	118	106	108
680-109694-5	BSA-MW-2D-0215	94	108	102	110
680-109694-7	CPA-MW-4D-0215	117	123	121	103
680-109694-9	CPA-MW-3D-0215	94	120	103	108
680-109694-11	CPA-MW-3D-0215-AD	92	114	103	104
680-109694-12	CPA-MW-2D-0215	94	109	102	107
680-109694-14	CPA-MW-2D-0215-AD	96	119	108	112
680-109694-15	1Q15 LTM Trip Blank #4	95	103	99	111
LCS 680-371316/4	Lab Control Sample	113	105	109	98
LCS 680-371318/4	Lab Control Sample	91	104	102	104
LCSD 680-371316/5	Lab Control Sample Dup	115	105	112	100
LCSD 680-371318/5	Lab Control Sample Dup	90	103	100	111
MB 680-371316/8	Method Blank	113	106	112	108
MB 680-371318/8	Method Blank	95	111	102	111

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(32-114)	(26-107)	(30-117)	(25-109)	(10-132)	(34-140)
680-109694-1	BSA-MW-5D-0215	53	39	52	42	60	56
680-109694-1 MS	BSA-MW-5D-0215	63	38	61	46	75	79
680-109694-1 MSD	BSA-MW-5D-0215	66	42	70	50	77	82
680-109694-3	BSA-MW-4D-0215	60	42	58	49	83	61
680-109694-5	BSA-MW-2D-0215	40	23 X	32	28	59	54
680-109694-7	CPA-MW-4D-0215	64	47	65	54	63	64
680-109694-9	CPA-MW-3D-0215	72	54	74	60	85	71
680-109694-11	CPA-MW-3D-0215-AD	71	46	68	53	87	72
680-109694-12	CPA-MW-2D-0215	62	46	58	57	82	70
680-109694-14	CPA-MW-2D-0215-AD	21 X	10 X	14 X	10 X	73	30 X
680-109694-14 - RE	CPA-MW-2D-0215-AD	54	40	50	41	65	52
LCS 680-370098/13-A	Lab Control Sample	67	43	62	50	87	76
LCS 680-371177/5-A	Lab Control Sample	72	59	72	64	80	78
LCSD 680-371177/6-A	Lab Control Sample Dup	55	28	50	25	68	61
MB 680-370098/12-A	Method Blank	70	42	57	43	101	68
MB 680-371177/4-A	Method Blank	54	41	51	45	91	54

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-371316/8
Matrix: Water
Analysis Batch: 371316

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/18/15 08:47	1
Chlorobenzene	1.0	U	1.0		ug/L			02/18/15 08:47	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 08:47	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 08:47	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 08:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*70 - 130*		*02/18/15 08:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*02/18/15 08:47*	*1*
Dibromofluoromethane (Surr)	*112*		*70 - 130*		*02/18/15 08:47*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*02/18/15 08:47*	*1*

Lab Sample ID: LCS 680-371316/4
Matrix: Water
Analysis Batch: 371316

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	51.7		ug/L		103	73 - 131
Chlorobenzene	50.0	51.4		ug/L		103	80 - 120
1,2-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	52.5		ug/L		105	80 - 120
1,4-Dichlorobenzene	50.0	51.2		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*113*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 680-371316/5
Matrix: Water
Analysis Batch: 371316

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	52.7		ug/L		105	73 - 131	2	30
Chlorobenzene	50.0	52.6		ug/L		105	80 - 120	2	20
1,2-Dichlorobenzene	50.0	53.2		ug/L		106	80 - 120	1	20
1,3-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 120	0	20
1,4-Dichlorobenzene	50.0	52.3		ug/L		105	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*115*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*
Dibromofluoromethane (Surr)	*112*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

LAB 4/7/15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-371318/8
Matrix: Water
Analysis Batch: 371318

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/18/15 09:16	1
Chlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 09:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*02/18/15 09:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*		*02/18/15 09:16*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*02/18/15 09:16*	*1*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*02/18/15 09:16*	*1*

Lab Sample ID: LCS 680-371318/4
Matrix: Water
Analysis Batch: 371318

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.2		ug/L		94	73 - 131
Chlorobenzene	50.0	50.3		ug/L		101	80 - 120
1,2-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120
1,3-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 680-371318/5
Matrix: Water
Analysis Batch: 371318

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	46.9		ug/L		94	73 - 131	1	30
Chlorobenzene	50.0	48.2		ug/L		96	80 - 120	4	20
1,2-Dichlorobenzene	50.0	48.0		ug/L		96	80 - 120	1	20
1,3-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120	1	20
1,4-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-109694-1 MS
Matrix: Water
Analysis Batch: 371318

Client Sample ID: BSA-MW-5D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	68		100	133	F1	ug/L		64	73 - 131
Chlorobenzene	240		100	284	F1	ug/L		46	80 - 120
1,2-Dichlorobenzene	2.0	U	100	95.4		ug/L		95	80 - 120
1,3-Dichlorobenzene	2.0	U	100	96.8		ug/L		97	80 - 120
1,4-Dichlorobenzene	2.0	U	100	98.7		ug/L		99	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 680-109694-1 MSD
Matrix: Water
Analysis Batch: 371318

Client Sample ID: BSA-MW-5D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	68		100	134	F1	ug/L		66	73 - 131	1	30
Chlorobenzene	240		100	281	F1	ug/L		43	80 - 120	1	20
1,2-Dichlorobenzene	2.0	U	100	98.7		ug/L		99	80 - 120	3	20
1,3-Dichlorobenzene	2.0	U	100	96.9		ug/L		97	80 - 120	0	20
1,4-Dichlorobenzene	2.0	U	100	97.4		ug/L		97	80 - 120	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370098/12-A
Matrix: Water
Analysis Batch: 371019

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	20	U	20		ug/L		02/09/15 16:25	02/14/15 22:34	1
2-Chlorophenol	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:34	1
1,4-Dioxane	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:34	1
1,2,4-Trichlorobenzene	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*32 - 114*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
2-Fluorophenol	*42*		*26 - 107*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Nitrobenzene-d5	*57*		*30 - 117*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Phenol-d5	*43*		*25 - 109*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Terphenyl-d14	*101*		*10 - 132*	*02/09/15 16:25*	*02/14/15 22:34*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-370098/12-A
Matrix: Water
Analysis Batch: 371019

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370098

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	68		34 - 140	02/09/15 16:25	02/14/15 22:34	1

Lab Sample ID: LCS 680-370098/13-A
Matrix: Water
Analysis Batch: 370908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	100	62.0		ug/L		62	10 - 112
2-Chlorophenol	100	52.1		ug/L		52	38 - 98
1,4-Dioxane	100	37.2		ug/L		37	16 - 79
1,2,4-Trichlorobenzene	100	44.6		ug/L		45	16 - 80

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	67		32 - 114
2-Fluorophenol	43		26 - 107
Nitrobenzene-d5	62		30 - 117
Phenol-d5	50		25 - 109
Terphenyl-d14	87		10 - 132
2,4,6-Tribromophenol	76		34 - 140

Lab Sample ID: 680-109694-1 MS
Matrix: Water
Analysis Batch: 370908

Client Sample ID: BSA-MW-5D-0215
Prep Type: Total/NA
Prep Batch: 370098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	22	U	105	67.0		ug/L		64	10 - 112
2-Chlorophenol	11	U	105	52.6		ug/L		48	38 - 98
1,4-Dioxane	11	U	105	34.4		ug/L		33	16 - 79
1,2,4-Trichlorobenzene	11	U	105	41.9		ug/L		40	16 - 80

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl	63		32 - 114
2-Fluorophenol	38		26 - 107
Nitrobenzene-d5	61		30 - 117
Phenol-d5	46		25 - 109
Terphenyl-d14	75		10 - 132
2,4,6-Tribromophenol	79		34 - 140

Lab Sample ID: 680-109694-1 MSD
Matrix: Water
Analysis Batch: 370908

Client Sample ID: BSA-MW-5D-0215
Prep Type: Total/NA
Prep Batch: 370098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloroaniline	22	U	105	73.7		ug/L		70	10 - 112	9	50
2-Chlorophenol	11	U	105	64.1		ug/L		59	38 - 98	20	50
1,4-Dioxane	11	U	105	40.0		ug/L		38	16 - 79	15	50
1,2,4-Trichlorobenzene	11	U	105	48.4		ug/L		46	16 - 80	14	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-109694-1 MSD
Matrix: Water
Analysis Batch: 370908

Client Sample ID: BSA-MW-5D-0215
Prep Type: Total/NA
Prep Batch: 370098

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	66		32 - 114
2-Fluorophenol	42		26 - 107
Nitrobenzene-d5	70		30 - 117
Phenol-d5	50		25 - 109
Terphenyl-d14	77		10 - 132
2,4,6-Tribromophenol	82		34 - 140

Lab Sample ID: MB 680-371177/4-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 371177

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chloroaniline	5.0	U	5.0		ug/L		02/17/15 15:36	02/18/15 20:08	1
2-Chlorophenol	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1
1,4-Dioxane	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1
1,2,4-Trichlorobenzene	2.5	U	2.5		ug/L		02/17/15 15:36	02/18/15 20:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	54		32 - 114	02/17/15 15:36	02/18/15 20:08	1
2-Fluorophenol	41		26 - 107	02/17/15 15:36	02/18/15 20:08	1
Nitrobenzene-d5	51		30 - 117	02/17/15 15:36	02/18/15 20:08	1
Phenol-d5	45		25 - 109	02/17/15 15:36	02/18/15 20:08	1
Terphenyl-d14	91		10 - 132	02/17/15 15:36	02/18/15 20:08	1
2,4,6-Tribromophenol	54		34 - 140	02/17/15 15:36	02/18/15 20:08	1

Lab Sample ID: LCS 680-371177/5-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 371177

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	25.0	17.2		ug/L		69	10 - 112
2-Chlorophenol	25.0	15.2		ug/L		61	38 - 98
1,4-Dioxane	25.0	13.0		ug/L		52	16 - 79
1,2,4-Trichlorobenzene	25.0	13.5		ug/L		54	16 - 80

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	72		32 - 114
2-Fluorophenol	59		26 - 107
Nitrobenzene-d5	72		30 - 117
Phenol-d5	64		25 - 109
Terphenyl-d14	80		10 - 132
2,4,6-Tribromophenol	78		34 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-371177/6-A
Matrix: Water
Analysis Batch: 371444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 371177

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chloroaniline	25.0	4.57	J *	ug/L		18	10 - 112	116	50
2-Chlorophenol	25.0	10.4		ug/L		42	38 - 98	37	50
1,4-Dioxane	25.0	5.26	*	ug/L		21	16 - 79	85	50
1,2,4-Trichlorobenzene	25.0	10.1		ug/L		41	16 - 80	29	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*55*		*32 - 114*
2-Fluorophenol	*28*		*26 - 107*
Nitrobenzene-d5	*50*		*30 - 117*
Phenol-d5	*25*		*25 - 109*
Terphenyl-d14	*68*		*10 - 132*
2,4,6-Tribromophenol	*61*		*34 - 140*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-370430/7
Matrix: Water
Analysis Batch: 370430

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/11/15 10:35	1
Ethylene	1.0	U	1.0		ug/L			02/11/15 10:35	1
Methane	0.58	U	0.58		ug/L			02/11/15 10:35	1

Lab Sample ID: LCS 680-370430/5
Matrix: Water
Analysis Batch: 370430

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	282		ug/L		98	75 - 125
Ethylene	269	262		ug/L		97	75 - 125
Methane	154	150		ug/L		98	75 - 125

Lab Sample ID: LCSD 680-370430/6
Matrix: Water
Analysis Batch: 370430

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	268		ug/L		93	75 - 125	5	30
Ethylene	269	234		ug/L		87	75 - 125	11	30
Methane	154	146		ug/L		95	75 - 125	3	30

Lab Sample ID: MB 680-370975/7
Matrix: Water
Analysis Batch: 370975

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	390	U	390		ug/L			02/16/15 10:32	1

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Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-370975/2
Matrix: Water
Analysis Batch: 370975

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	1840		ug/L		96	75 - 125

Lab Sample ID: LCSD 680-370975/32
Matrix: Water
Analysis Batch: 370975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	1780		ug/L		93	75 - 125	3	30

Lab Sample ID: MB 680-371304/7
Matrix: Water
Analysis Batch: 371304

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/18/15 10:52	1
Ethylene	1.0	U	1.0		ug/L			02/18/15 10:52	1
Methane	0.58	U	0.58		ug/L			02/18/15 10:52	1

Lab Sample ID: LCS 680-371304/5
Matrix: Water
Analysis Batch: 371304

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	294		ug/L		102	75 - 125
Ethylene	269	278		ug/L		103	75 - 125
Methane	154	156		ug/L		101	75 - 125

Lab Sample ID: LCSD 680-371304/32
Matrix: Water
Analysis Batch: 371304

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	264		ug/L		91	75 - 125	11	30
Ethylene	269	238		ug/L		88	75 - 125	16	30
Methane	154	142		ug/L		92	75 - 125	10	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-370350/1-A
Matrix: Water
Analysis Batch: 370667

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370350

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/10/15 13:15	02/11/15 16:48	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/10/15 13:15	02/11/15 16:48	1
Manganese	0.010	U	0.010		mg/L		02/10/15 13:15	02/11/15 16:48	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/10/15 13:15	02/11/15 16:48	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 680-370350/2-A
Matrix: Water
Analysis Batch: 370667

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370350

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.93		mg/L		99	80 - 120
Iron, Dissolved	5.00	4.93		mg/L		99	80 - 120
Manganese	0.500	0.526		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.526		mg/L		105	80 - 120

Lab Sample ID: MB 680-370514/1-A
Matrix: Water
Analysis Batch: 370847

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/11/15 13:40	02/13/15 01:14	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/11/15 13:40	02/13/15 01:14	1
Manganese	0.010	U	0.010		mg/L		02/11/15 13:40	02/13/15 01:14	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/11/15 13:40	02/13/15 01:14	1

Lab Sample ID: LCS 680-370514/2-A
Matrix: Water
Analysis Batch: 370847

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.06		mg/L		101	80 - 120
Iron, Dissolved	5.00	5.06		mg/L		101	80 - 120
Manganese	0.500	0.525		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.525		mg/L		105	80 - 120

Lab Sample ID: 680-109694-8 MS
Matrix: Water
Analysis Batch: 370847

Client Sample ID: CPA-MW-4D-F(0.2)-0215
Prep Type: Dissolved
Prep Batch: 370514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	14		5.00	19.0		mg/L		98	75 - 125
Iron, Dissolved	14		5.00	19.0		mg/L		98	75 - 125
Manganese	0.38		0.500	0.900		mg/L		104	75 - 125
Manganese, Dissolved	0.38		0.500	0.900		mg/L		104	75 - 125

Lab Sample ID: 680-109694-8 MSD
Matrix: Water
Analysis Batch: 370847

Client Sample ID: CPA-MW-4D-F(0.2)-0215
Prep Type: Dissolved
Prep Batch: 370514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	14		5.00	18.8		mg/L		95	75 - 125	1	20
Iron, Dissolved	14		5.00	18.8		mg/L		95	75 - 125	1	20
Manganese	0.38		0.500	0.895		mg/L		102	75 - 125	1	20
Manganese, Dissolved	0.38		0.500	0.895		mg/L		102	75 - 125	1	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-370058/5
Matrix: Water
Analysis Batch: 370058

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/07/15 16:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/07/15 16:53	1

Lab Sample ID: LCS 680-370058/6
Matrix: Water
Analysis Batch: 370058

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	224		mg/L		90	80 - 120

Lab Sample ID: LCSD 680-370058/26
Matrix: Water
Analysis Batch: 370058

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	219		mg/L		87	80 - 120	3	30

Lab Sample ID: 680-109694-12 DU
Matrix: Water
Analysis Batch: 370058

Client Sample ID: CPA-MW-2D-0215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	420		431		mg/L		2	30
Carbon Dioxide, Free	21		21.8		mg/L		5	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370556/23
Matrix: Water
Analysis Batch: 370556

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 12:39	1

Lab Sample ID: LCS 680-370556/13
Matrix: Water
Analysis Batch: 370556

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.8		mg/L		103	85 - 115

Lab Sample ID: MB 680-370558/5
Matrix: Water
Analysis Batch: 370558

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 11:53	1

Method: 325.2 - Chloride (Continued)

Lab Sample ID: LCS 680-370558/15
Matrix: Water
Analysis Batch: 370558

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.9		mg/L		104	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-369927/13
Matrix: Water
Analysis Batch: 369927

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/06/15 12:15	1

Lab Sample ID: LCS 680-369927/16
Matrix: Water
Analysis Batch: 369927

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.521		mg/L		104	75 - 125
Nitrate Nitrite as N	1.00	1.02		mg/L		102	90 - 110
Nitrite as N	0.500	0.496		mg/L		99	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370564/58
Matrix: Water
Analysis Batch: 370564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 14:00	1

Lab Sample ID: LCS 680-370564/4
Matrix: Water
Analysis Batch: 370564

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.5		mg/L		102	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/43
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 17:05	1

Method: 415.1 - DOC (Continued)

Lab Sample ID: LCS 160-175823/44
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.87		mg/L		99	90 - 110

Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/4
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 12:28	1

Lab Sample ID: LCS 160-175822/5
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.67		mg/L		97	90 - 110

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

GC/MS VOA

Analysis Batch: 371316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	8260B	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	8260B	
LCS 680-371316/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371316/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371316/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 371318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1 MS	BSA-MW-5D-0215	Total/NA	Water	8260B	
680-109694-1 MSD	BSA-MW-5D-0215	Total/NA	Water	8260B	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	8260B	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	8260B	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	8260B	
680-109694-11	CPA-MW-3D-0215-AD	Total/NA	Water	8260B	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	8260B	
680-109694-14	CPA-MW-2D-0215-AD	Total/NA	Water	8260B	
680-109694-15	1Q15 LTM Trip Blank #4	Total/NA	Water	8260B	
LCS 680-371318/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371318/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371318/8	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 370098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	3520C	
680-109694-1 MS	BSA-MW-5D-0215	Total/NA	Water	3520C	
680-109694-1 MSD	BSA-MW-5D-0215	Total/NA	Water	3520C	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	3520C	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	3520C	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	3520C	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	3520C	
680-109694-11	CPA-MW-3D-0215-AD	Total/NA	Water	3520C	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	3520C	
680-109694-14	CPA-MW-2D-0215-AD	Total/NA	Water	3520C	
LCS 680-370098/13-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-370098/12-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 370908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	8270D	370098
680-109694-1 MS	BSA-MW-5D-0215	Total/NA	Water	8270D	370098
680-109694-1 MSD	BSA-MW-5D-0215	Total/NA	Water	8270D	370098
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	8270D	370098
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	8270D	370098
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	8270D	370098
680-109694-11	CPA-MW-3D-0215-AD	Total/NA	Water	8270D	370098
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	8270D	370098
680-109694-14	CPA-MW-2D-0215-AD	Total/NA	Water	8270D	370098
LCS 680-370098/13-A	Lab Control Sample	Total/NA	Water	8270D	370098

LAB 4/7/15

GC/MS Semi VOA (Continued)

Analysis Batch: 371019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	8270D	370098
MB 680-370098/12-A	Method Blank	Total/NA	Water	8270D	370098

Prep Batch: 371177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-14 - RE	CPA-MW-2D-0215-AD	Total/NA	Water	3520C	
LCS 680-371177/5-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-371177/6-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 680-371177/4-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 371444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-14 - RE	CPA-MW-2D-0215-AD	Total/NA	Water	8270D	371177
LCS 680-371177/5-A	Lab Control Sample	Total/NA	Water	8270D	371177
LCSD 680-371177/6-A	Lab Control Sample Dup	Total/NA	Water	8270D	371177
MB 680-371177/4-A	Method Blank	Total/NA	Water	8270D	371177

GC VOA

Analysis Batch: 370430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	RSK-175	
LCS 680-370430/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-370430/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-370430/7	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 370975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	RSK-175	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	RSK-175	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	RSK-175	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	RSK-175	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	RSK-175	
LCS 680-370975/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-370975/32	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-370975/7	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 371304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	RSK-175	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	RSK-175	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	RSK-175	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	RSK-175	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	RSK-175	
LCS 680-371304/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-371304/32	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-371304/7	Method Blank	Total/NA	Water	RSK-175	

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Metals

Prep Batch: 370350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total Recoverable	Water	3005A	
680-109694-2	BSA-MW-5D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-3	BSA-MW-4D-0215	Total Recoverable	Water	3005A	
680-109694-4	BSA-MW-4D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-5	BSA-MW-2D-0215	Total Recoverable	Water	3005A	
680-109694-6	BSA-MW-2D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370350/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370350/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 370514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-7	CPA-MW-4D-0215	Total Recoverable	Water	3005A	
680-109694-8	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-8 MS	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-8 MSD	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-9	CPA-MW-3D-0215	Total Recoverable	Water	3005A	
680-109694-10	CPA-MW-3D-F(0.2)-0215	Dissolved	Water	3005A	
680-109694-12	CPA-MW-2D-0215	Total Recoverable	Water	3005A	
680-109694-13	CPA-MW-2D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370514/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370514/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 370667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total Recoverable	Water	6010C	370350
680-109694-2	BSA-MW-5D-F(0.2)-0215	Dissolved	Water	6010C	370350
680-109694-3	BSA-MW-4D-0215	Total Recoverable	Water	6010C	370350
680-109694-4	BSA-MW-4D-F(0.2)-0215	Dissolved	Water	6010C	370350
680-109694-5	BSA-MW-2D-0215	Total Recoverable	Water	6010C	370350
680-109694-6	BSA-MW-2D-F(0.2)-0215	Dissolved	Water	6010C	370350
LCS 680-370350/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370350
MB 680-370350/1-A	Method Blank	Total Recoverable	Water	6010C	370350

Analysis Batch: 370847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-7	CPA-MW-4D-0215	Total Recoverable	Water	6010C	370514
680-109694-8	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	6010C	370514
680-109694-8 MS	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	6010C	370514
680-109694-8 MSD	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	6010C	370514
680-109694-9	CPA-MW-3D-0215	Total Recoverable	Water	6010C	370514
680-109694-10	CPA-MW-3D-F(0.2)-0215	Dissolved	Water	6010C	370514
680-109694-12	CPA-MW-2D-0215	Total Recoverable	Water	6010C	370514
680-109694-13	CPA-MW-2D-F(0.2)-0215	Dissolved	Water	6010C	370514
LCS 680-370514/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370514
MB 680-370514/1-A	Method Blank	Total Recoverable	Water	6010C	370514

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	415.1	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	415.1	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	415.1	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	415.1	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	415.1	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	415.1	
LCS 160-175822/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-2	BSA-MW-5D-F(0.2)-0215	Dissolved	Water	415.1	
680-109694-4	BSA-MW-4D-F(0.2)-0215	Dissolved	Water	415.1	
680-109694-6	BSA-MW-2D-F(0.2)-0215	Dissolved	Water	415.1	
680-109694-8	CPA-MW-4D-F(0.2)-0215	Dissolved	Water	415.1	
680-109694-10	CPA-MW-3D-F(0.2)-0215	Dissolved	Water	415.1	
680-109694-13	CPA-MW-2D-F(0.2)-0215	Dissolved	Water	415.1	
LCS 160-175823/44	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/43	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 369927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	353.2	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	353.2	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	353.2	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	353.2	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	353.2	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	353.2	
LCS 680-369927/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-369927/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 370058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	310.1	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	310.1	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	310.1	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	310.1	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	310.1	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	310.1	
680-109694-12 DU	CPA-MW-2D-0215	Total/NA	Water	310.1	
LCS 680-370058/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-370058/26	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-370058/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 370556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	325.2	
LCS 680-370556/13	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370556/23	Method Blank	Total/NA	Water	325.2	

General Chemistry (Continued)

Analysis Batch: 370558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	325.2	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	325.2	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	325.2	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	325.2	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	325.2	
LCS 680-370558/15	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370558/5	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109694-1	BSA-MW-5D-0215	Total/NA	Water	375.4	
680-109694-3	BSA-MW-4D-0215	Total/NA	Water	375.4	
680-109694-5	BSA-MW-2D-0215	Total/NA	Water	375.4	
680-109694-7	CPA-MW-4D-0215	Total/NA	Water	375.4	
680-109694-9	CPA-MW-3D-0215	Total/NA	Water	375.4	
680-109694-12	CPA-MW-2D-0215	Total/NA	Water	375.4	
LCS 680-370564/4	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370564/58	Method Blank	Total/NA	Water	375.4	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-5D-0215

Lab Sample ID: 680-109694-1
Matrix: Water

Date Collected: 02/05/15 10:25
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	371316	02/18/15 16:30	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 20:32	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370975	02/16/15 13:47	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	371304	02/18/15 14:09	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370667	02/11/15 17:52	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/07/15 18:31	LBH	TAL SAV
Total/NA	Analysis	325.2		5	370556	02/11/15 12:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:29	GRX	TAL SAV
Total/NA	Analysis	375.4		1	370564	02/11/15 12:01	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:27	JCB	TAL SL

Client Sample ID: BSA-MW-5D-F(0.2)-0215

Lab Sample ID: 680-109694-2
Matrix: Water

Date Collected: 02/05/15 10:25
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370667	02/11/15 17:57	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 19:30	JCB	TAL SL

Client Sample ID: BSA-MW-4D-0215

Lab Sample ID: 680-109694-3
Matrix: Water

Date Collected: 02/05/15 11:44
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	371318	02/18/15 11:01	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 20:57	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370430	02/11/15 11:12	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370667	02/11/15 18:02	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/08/15 11:53	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370558	02/11/15 13:03	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:31	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370564	02/11/15 13:11	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 14:32	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: BSA-MW-4D-F(0.2)-0215

Lab Sample ID: 680-109694-4
Matrix: Water

Date Collected: 02/05/15 11:44
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370667	02/11/15 18:06	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 19:59	JCB	TAL SL

Client Sample ID: BSA-MW-2D-0215

Lab Sample ID: 680-109694-5
Matrix: Water

Date Collected: 02/05/15 13:25
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	371318	02/18/15 11:24	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 21:23	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370975	02/16/15 14:05	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	371304	02/18/15 14:22	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370667	02/11/15 18:11	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/08/15 12:04	LBH	TAL SAV
Total/NA	Analysis	325.2		5	370558	02/11/15 12:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:33	GRX	TAL SAV
Total/NA	Analysis	375.4		1	370564	02/11/15 12:05	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 15:00	JCB	TAL SL

Client Sample ID: BSA-MW-2D-F(0.2)-0215

Lab Sample ID: 680-109694-6
Matrix: Water

Date Collected: 02/05/15 13:25
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370350	02/10/15 13:15	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370667	02/11/15 17:48	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 20:04	JCB	TAL SL

Client Sample ID: CPA-MW-4D-0215

Lab Sample ID: 680-109694-7
Matrix: Water

Date Collected: 02/05/15 09:33
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	371316	02/18/15 16:51	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	371019	02/14/15 22:57	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370975	02/16/15 14:17	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	371304	02/18/15 14:35	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV

LAB 4/7/15

Client Sample ID: CPA-MW-4D-0215

Lab Sample ID: 680-109694-7
Matrix: Water
Date Collected: 02/05/15 09:33
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6010C		1	370847	02/13/15 01:46	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/08/15 12:13	LBH	TAL SAV
Total/NA	Analysis	325.2		5	370558	02/11/15 12:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:34	GRX	TAL SAV
Total/NA	Analysis	375.4		1	370564	02/11/15 12:05	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 15:05	JCB	TAL SL

Client Sample ID: CPA-MW-4D-F(0.2)-0215

Lab Sample ID: 680-109694-8
Matrix: Water
Date Collected: 02/05/15 09:33
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370847	02/13/15 01:23	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 20:09	JCB	TAL SL

Client Sample ID: CPA-MW-3D-0215

Lab Sample ID: 680-109694-9
Matrix: Water
Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	371318	02/18/15 11:46	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 22:14	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370975	02/16/15 14:30	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	371304	02/18/15 14:50	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370847	02/13/15 01:51	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/08/15 12:24	LBH	TAL SAV
Total/NA	Analysis	325.2		10	370558	02/11/15 13:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:35	GRX	TAL SAV
Total/NA	Analysis	375.4		1	370564	02/11/15 12:06	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 15:10	JCB	TAL SL

Client Sample ID: CPA-MW-3D-F(0.2)-0215

Lab Sample ID: 680-109694-10
Matrix: Water
Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370847	02/13/15 01:55	BCB	TAL SAV

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-3D-F(0.2)-0215

Lab Sample ID: 680-109694-10
Matrix: Water

Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	175823	02/24/15 20:14	JCB	TAL SL

Client Sample ID: CPA-MW-3D-0215-AD

Lab Sample ID: 680-109694-11
Matrix: Water

Date Collected: 02/05/15 12:45
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	371318	02/18/15 12:09	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 22:39	RAM	TAL SAV

Client Sample ID: CPA-MW-2D-0215

Lab Sample ID: 680-109694-12
Matrix: Water

Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	371318	02/18/15 12:31	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 23:04	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	370975	02/16/15 14:43	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	371304	02/18/15 15:18	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370847	02/13/15 02:09	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370058	02/08/15 12:32	LBH	TAL SAV
Total/NA	Analysis	325.2		2	370558	02/11/15 13:03	JME	TAL SAV
Total/NA	Analysis	353.2		1	369927	02/06/15 12:36	GRX	TAL SAV
Total/NA	Analysis	375.4		2	370564	02/11/15 13:11	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 15:16	JCB	TAL SL

Client Sample ID: CPA-MW-2D-F(0.2)-0215

Lab Sample ID: 680-109694-13
Matrix: Water

Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370847	02/13/15 02:14	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 20:24	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Client Sample ID: CPA-MW-2D-0215-AD

Lab Sample ID: 680-109694-14

Date Collected: 02/05/15 14:15
Date Received: 02/06/15 09:27

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	371318	02/18/15 12:54	MMT	TAL SAV
Total/NA	Prep	3520C	RE		371177	02/17/15 15:36	RBS	TAL SAV
Total/NA	Analysis	8270D	RE	1	371444	02/18/15 21:43	RAM	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 23:30	RAM	TAL SAV

Client Sample ID: 1Q15 LTM Trip Blank #4

Lab Sample ID: 680-109694-15

Date Collected: 02/05/15 00:00
Date Received: 02/06/15 09:27

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371318	02/18/15 09:53	MMT	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 4/7/15

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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-5D-0215	2/5/15	1025	G	W	16			2	3	1	1	1	3	2	3			
BSA-MW-5D-F(0.2)-0215					4	Y										1	3	
BSA-MW-5D-0215-MS					5			2	3									
BSA-MW-5D-0215-MSD					5			2	3									
BSA-MW-4D-0215		1144			16			2	3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-0215					4	Y										1	3	
BSA-MW-2D-0215		1325			16			2	3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)-0215					4	Y										1	3	
CPA-MW-4D-0215		0933			16			2	3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0215					4	Y										1	3	
CPA-MW-3D-0215		1245			16			2	3	1	1	1	3	2	3			
CPA-MW-3D-F(0.2)-0215					4	Y										1	3	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other								1	2	4	1	1	2	1,3	3	4	3	

680-109694 Chain of Custody

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes/(No)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419315 / 436228		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by: J. Bindner	Company: Golder	Date/Time: 2/5/15	Received by: [signature]	Company: TASAV.	Date/Time: 02-0615 0927
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: 680-109694	Company:	Date/Time: 1.8/2.0(CF) 1.5/1.7°C

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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:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM 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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 376.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-3D-0215-AD	2/5/15	1245	G	W	5			2	3									
CPA-MW-2D-0215	"	1415	"	"	16			2	3	1	1	1	3	2	3			
CPA-MW-2D-F(0.2)-0215	"	"	"	"	4	Y										1	3	
CPA-MW-2D-0215-AD	"	"	"	"	5			2	3									
1Q15 LTM Trip Blank #4	—	—	—	—	2				2									

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

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 419315/436228		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Golder	2/5/15	[signature]	TA SAV.	02-06-15 0927
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			680-109694	1.8/2.0 (CF)	1.5/1.7 c

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

LAB 2/7/15

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Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109694-1
SDG Number: KPS139

Login Number: 109694
List Number: 1
Creator: Banda, Christy S

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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 4/7/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109694-1
SDG Number: KPS139

Login Number: 109694
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/09/15 09:37 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	0.8
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?	False	
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	

LAB 4/7/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

LAB 4/7/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109694-1
SDG: KPS139

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 4/7/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
1Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-1Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS140
Matrix: Water

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

Analytical Method: VOC (8260B), SVOC (8270D), Dissolved Gases (RSK-175), Metals (6010C), Alkalinity (310.1), Chloride (325.2), Nitrogen, Nitrate-Nitrite (353.2), Sulfate (375.4), TOC (415.1), and DOC (415.1)

Sample Names: BSA-MW-1S-0215, BSA-MW-1S-0215-EB, BSA-MW-1S-F(0.2)-0215, CPA-MW-1D-0215, CPA-MW-1D-F(0.2)-0215, and 1Q15 LTM Trip Blank #5

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

Comments:

VOC: Samples BSA-MW-1S-0215, BSA-MW-1S-0215-EB and CPA-MW-5D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly. Insufficient volume to perform MS/MSD associated with batch 371472 and batch 371496.

SVOC: No deficiencies noted.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 371305.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-1S-0215 and CPA-MW-1D-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample BSA-MW-1S-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: Sample BSA-MW-1S-0215 required dilution prior to analysis, reporting limits were adjusted accordingly.

DOC: Sample BSA-MW-1S-F(0.2)-0215 required 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 0.7°C, 1.3°C and 1.5°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.

GC/MS Instrument Performance Check (IPC) and Internal Standards (IS)	YES	NO	NA
a) IPC analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
b) Does BFB/DFTPP meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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?	☒	☐	☐
c) Initial calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐
d) Continuing calibration verifications and blanks analyzed at the appropriate frequency and met the appropriate standards?	☒	☐	☐

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank BSA-MW-1S-0215-EB was submitted with SDG KPS140. VOCs were detected. Qualification not required based on 5 times rule.

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 samples were not submitted with SDG KPS140.

Additional Comments: None

Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, TOC, DOC, Chloride, and Sulfate	D	BSA-MW-1S, BSA-MW-1S-EB and CPA-MW-1D
Detected at reporting limit	Chlorobenzene	U	BSA-MW-1S-EB

SDG KPS140

Sample Results from:

BSA-MW-1S
CPA-MW-1D

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: 680-109732-1
TestAmerica Sample Delivery Group: KPS140
Client Project/Site: 1Q15 LTM 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:
2/25/2015 3:06:35 PM

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

CAB 4/2/15

Table of Contents

LAB 4/2/15

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Qualifiers

GC/MS VOA

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

GC/MS Semi VOA

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

GC VOA

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

Metals

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

General Chemistry

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)

CASE NARRATIVE

Client: Solutia Inc.

Project: 1Q15 LTM GW Sampling - 1403345

Report Number: 680-109732-1

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 2/7/2015 9:18 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.7° C, 1.3° C and 1.5° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples BSA-MW-1S-2015 (680-109732-1), BSA-MW-1S-0215-EB (680-109732-3), CPA-MW-1D-0215 (680-109732-4) and 1Q15 LTM Trip Blank #5 (680-109732-6) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 02/18/2015 and 02/19/2015.

Samples BSA-MW-1S-2015 (680-109732-1)[10000X], BSA-MW-1S-0215-EB (680-109732-3)[2X] and CPA-MW-1D-0215 (680-109732-4) [250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 371472.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 371496.

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

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)
Samples BSA-MW-1S-2015 (680-109732-1), BSA-MW-1S-0215-EB (680-109732-3) and CPA-MW-1D-0215 (680-109732-4) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 02/09/2015 and analyzed on 02/13/2015 and 02/14/2015.

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

DISSOLVED GASES
Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 02/19/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 371305.

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

METALS (ICP)
Samples BSA-MW-1S-F(0.2)-0215 (680-109732-2) and CPA-MW-1D-F(0.2)-0215 (680-109732-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/11/2015 and analyzed on 02/13/2015.

Job ID: 680-109732-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

METALS (ICP)

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/11/2015 and analyzed on 02/13/2015.

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

ALKALINITY

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/09/2015.

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

CHLORIDE

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 02/11/2015.

Samples BSA-MW-1S-2015 (680-109732-1)[5X] and CPA-MW-1D-0215 (680-109732-4)[2X] 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.

NITRATE-NITRITE AS NITROGEN

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 02/07/2015.

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

SULFATE

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 02/11/2015.

Sample BSA-MW-1S-2015 (680-109732-1)[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.

TOTAL ORGANIC CARBON

Samples BSA-MW-1S-2015 (680-109732-1) and CPA-MW-1D-0215 (680-109732-4) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

Sample BSA-MW-1S-2015 (680-109732-1)[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.

DISSOLVED ORGANIC CARBON (DOC)

Samples BSA-MW-1S-F(0.2)-0215 (680-109732-2) and CPA-MW-1D-F(0.2)-0215 (680-109732-5) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 02/24/2015.

Sample BSA-MW-1S-F(0.2)-0215 (680-109732-2)[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.

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: BSA-MW-1S-2015 — Lab Sample ID: 680-109732-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1000000		10000		ug/L	10000		8260B	Total/NA
Methane (TCD)	5300		390		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.99		0.010		mg/L	1		6010C	Total Recoverable
Chloride	110		5.0		mg/L	5		325.2	Total/NA
Sulfate	140		25		mg/L	5		375.4	Total/NA
Total Organic Carbon - DL	39		5.0		mg/L	5		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	850		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	50		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-1S-F(0.2)-0215 — Lab Sample ID: 680-109732-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.98		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon - DL	20		5.0		mg/L	5		415.1	Dissolved

Client Sample ID: BSA-MW-1S-0215-EB — Lab Sample ID: 680-109732-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	130		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	2.0		2.0		ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	2.3		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	3.5		2.0		ug/L	2		8260B	Total/NA

Client Sample ID: CPA-MW-1D-0215 — Lab Sample ID: 680-109732-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5600		250		ug/L	250		8260B	Total/NA
Chlorobenzene	19000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	12000		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	1100		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	11000		250		ug/L	250		8260B	Total/NA
1,2,4-Trichlorobenzene	380		12		ug/L	1		8270D	Total/NA
Ethane	12		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	10000		390		ug/L	1		RSK-175	Total/NA
Iron	0.095		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.029		0.010		mg/L	1		6010C	Total Recoverable
Chloride	91		2.0		mg/L	2		325.2	Total/NA
Total Organic Carbon	13		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	750		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-1D-F(0.2)-0215 — Lab Sample ID: 680-109732-5

This Detection Summary does not include radiochemical test results.

CAB 4/2/15

Detection Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: CPA-MW-1D-F(0.2)-0215 (Continued) — Lab Sample ID: 680-109732-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.071		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.029		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	11		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 1Q15 LTM Trip Blank #5 — Lab Sample ID: 680-109732-6

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 4/2/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: BSA-MW-1S-2015
Date Collected: 02/06/15 09:32
Date Received: 02/07/15 09:18

Lab Sample ID: 680-109732-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1000000	D	10000		ug/L			02/19/15 16:19	10000
Chlorobenzene	10000	U	10000		ug/L			02/19/15 16:19	10000
1,2-Dichlorobenzene	10000	U	10000		ug/L			02/19/15 16:19	10000
1,3-Dichlorobenzene	10000	U	10000		ug/L			02/19/15 16:19	10000
1,4-Dichlorobenzene	10000	U	10000		ug/L			02/19/15 16:19	10000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*70 - 130*		*02/19/15 16:19*	*10000*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*02/19/15 16:19*	*10000*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*02/19/15 16:19*	*10000*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*		*02/19/15 16:19*	*10000*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/13/15 23:55	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/13/15 23:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*65*		*32 - 114*	*02/09/15 16:25*	*02/13/15 23:55*	*1*
2-Fluorophenol	*47*		*26 - 107*	*02/09/15 16:25*	*02/13/15 23:55*	*1*
Nitrobenzene-d5	*59*		*30 - 117*	*02/09/15 16:25*	*02/13/15 23:55*	*1*
Phenol-d5	*48*		*25 - 109*	*02/09/15 16:25*	*02/13/15 23:55*	*1*
Terphenyl-d14	*69*		*10 - 132*	*02/09/15 16:25*	*02/13/15 23:55*	*1*
2,4,6-Tribromophenol	*78*		*34 - 140*	*02/09/15 16:25*	*02/13/15 23:55*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/19/15 15:57	1
Ethylene	1.0	U	1.0		ug/L			02/19/15 15:57	1
Methane (TCD)	5300		390		ug/L			02/19/15 15:57	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	12		0.050		mg/L		02/11/15 13:40	02/13/15 02:18	1
Manganese	0.99		0.010		mg/L		02/11/15 13:40	02/13/15 02:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110	D	5.0		mg/L			02/11/15 13:28	5
Nitrate as N	0.050	U	0.050		mg/L			02/07/15 13:41	1
Sulfate	140	D	25		mg/L			02/11/15 12:59	5

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	850		5.0		mg/L			02/09/15 17:16	1
Carbon Dioxide, Free	50		5.0		mg/L			02/09/15 17:16	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	39	D	5.0		mg/L			02/24/15 16:45	5

LAB 4/2/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: BSA-MW-1S-F(0.2)-0215
Date Collected: 02/06/15 09:32
Date Received: 02/07/15 09:18

Lab Sample ID: 680-109732-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	11		0.050		mg/L		02/11/15 13:40	02/13/15 02:23	1
Manganese, Dissolved	0.98		0.010		mg/L		02/11/15 13:40	02/13/15 02:23	1

General Chemistry - Dissolved - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	20	D	5.0		mg/L			02/24/15 21:03	5

LAB 4/2/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: BSA-MW-1S-0215-EB
Date Collected: 02/06/15 09:55
Date Received: 02/07/15 09:18

Lab Sample ID: 680-109732-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	130	D	2.0		ug/L			02/19/15 03:13	2
Chlorobenzene	2.0	U	2.0		ug/L			02/19/15 03:13	2
1,2-Dichlorobenzene	2.3	D	2.0		ug/L			02/19/15 03:13	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			02/19/15 03:13	2
1,4-Dichlorobenzene	3.5	D	2.0		ug/L			02/19/15 03:13	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*70 - 130*		*02/19/15 03:13*	*2*
1,2-Dichloroethane-d4 (Surr)	*118*		*70 - 130*		*02/19/15 03:13*	*2*
Dibromofluoromethane (Surr)	*121*		*70 - 130*		*02/19/15 03:13*	*2*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*02/19/15 03:13*	*2*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	11	U	11		ug/L		02/09/15 16:25	02/14/15 00:21	1
1,2,4-Trichlorobenzene	11	U	11		ug/L		02/09/15 16:25	02/14/15 00:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*65*		*32 - 114*	*02/09/15 16:25*	*02/14/15 00:21*	*1*
2-Fluorophenol	*49*		*26 - 107*	*02/09/15 16:25*	*02/14/15 00:21*	*1*
Nitrobenzene-d5	*67*		*30 - 117*	*02/09/15 16:25*	*02/14/15 00:21*	*1*
Phenol-d5	*55*		*25 - 109*	*02/09/15 16:25*	*02/14/15 00:21*	*1*
Terphenyl-d14	*86*		*10 - 132*	*02/09/15 16:25*	*02/14/15 00:21*	*1*
2,4,6-Tribromophenol	*60*		*34 - 140*	*02/09/15 16:25*	*02/14/15 00:21*	*1*

LAB 4/2/15

Client Sample ID: CPA-MW-1D-0215

Lab Sample ID: 680-109732-4

Date Collected: 02/06/15 08:46
Date Received: 02/07/15 09:18

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5600	D	250		ug/L			02/19/15 03:34	250
Chlorobenzene	19000	D	250		ug/L			02/19/15 03:34	250
1,2-Dichlorobenzene	12000	D	250		ug/L			02/19/15 03:34	250
1,3-Dichlorobenzene	1100	D	250		ug/L			02/19/15 03:34	250
1,4-Dichlorobenzene	11000	D	250		ug/L			02/19/15 03:34	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*70 - 130*		*02/19/15 03:34*	*250*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*		*02/19/15 03:34*	*250*
Dibromofluoromethane (Surr)	*117*		*70 - 130*		*02/19/15 03:34*	*250*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*02/19/15 03:34*	*250*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	12	U	12		ug/L		02/09/15 16:25	02/14/15 00:46	1
1,2,4-Trichlorobenzene	380		12		ug/L		02/09/15 16:25	02/14/15 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*60*		*32 - 114*	*02/09/15 16:25*	*02/14/15 00:46*	*1*
2-Fluorophenol	*55*		*26 - 107*	*02/09/15 16:25*	*02/14/15 00:46*	*1*
Nitrobenzene-d5	*63*		*30 - 117*	*02/09/15 16:25*	*02/14/15 00:46*	*1*
Phenol-d5	*64*		*25 - 109*	*02/09/15 16:25*	*02/14/15 00:46*	*1*
Terphenyl-d14	*62*		*10 - 132*	*02/09/15 16:25*	*02/14/15 00:46*	*1*
2,4,6-Tribromophenol	*72*		*34 - 140*	*02/09/15 16:25*	*02/14/15 00:46*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	12		1.1		ug/L			02/19/15 15:42	1
Ethylene	1.0	U	1.0		ug/L			02/19/15 15:42	1
Methane (TCD)	10000		390		ug/L			02/19/15 15:42	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.095		0.050		mg/L		02/11/15 13:40	02/13/15 02:27	1
Manganese	0.029		0.010		mg/L		02/11/15 13:40	02/13/15 02:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	91	D	2.0		mg/L			02/11/15 13:13	2
Nitrate as N	0.050	U	0.050		mg/L			02/07/15 13:42	1
Sulfate	5.0	U	5.0		mg/L			02/11/15 12:07	1
Total Organic Carbon	13		1.0		mg/L			02/24/15 15:56	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	750		5.0		mg/L			02/09/15 17:26	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/09/15 17:26	1

LAB 4/2/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: CPA-MW-1D-F(0.2)-0215
Date Collected: 02/06/15 08:46
Date Received: 02/07/15 09:18

Lab Sample ID: 680-109732-5
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.071		0.050		mg/L		02/11/15 13:40	02/13/15 02:32	1
Manganese, Dissolved	0.029		0.010		mg/L		02/11/15 13:40	02/13/15 02:32	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	11		1.0		mg/L			02/24/15 21:19	1

LAB 4/2/15

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: 1Q15 LTM Trip Blank #5
Date Collected: 02/06/15 00:00
Date Received: 02/07/15 09:18

Lab Sample ID: 680-109732-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/18/15 21:41	1
Chlorobenzene	1.0	U	1.0		ug/L			02/18/15 21:41	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 21:41	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 21:41	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*112*		*70 - 130*		*02/18/15 21:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*02/18/15 21:41*	*1*
Dibromofluoromethane (Surr)	*111*		*70 - 130*		*02/18/15 21:41*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*02/18/15 21:41*	*1*

Surrogate Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-109732-1	BSA-MW-1S-2015	108	101	110	85
680-109732-3	BSA-MW-1S-0215-EB	111	118	121	103
680-109732-4	CPA-MW-1D-0215	111	111	117	99
680-109732-6	1Q15 LTM Trip Blank #5	112	101	111	104
LCS 680-371472/4	Lab Control Sample	117	104	111	100
LCS 680-371496/3	Lab Control Sample	104	89	104	80
LCSD 680-371472/5	Lab Control Sample Dup	115	103	109	99
LCSD 680-371496/4	Lab Control Sample Dup	107	90	105	78
MB 680-371472/8	Method Blank	112	99	109	105
MB 680-371496/7	Method Blank	106	92	105	83

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(32-114)	(26-107)	(30-117)	(25-109)	(10-132)	(34-140)
680-109732-1	BSA-MW-1S-2015	65	47	59	48	69	78
680-109732-3	BSA-MW-1S-0215-EB	65	49	67	55	86	60
680-109732-4	CPA-MW-1D-0215	60	55	63	64	62	72
LCS 680-370098/13-A	Lab Control Sample	67	43	62	50	87	76
MB 680-370098/12-A	Method Blank	70	42	57	43	101	68

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

LAB 4/2/15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-371472/8
Matrix: Water
Analysis Batch: 371472

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/18/15 19:55	1
Chlorobenzene	1.0	U	1.0		ug/L			02/18/15 19:55	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 19:55	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 19:55	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/18/15 19:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*112*		*70 - 130*		*02/18/15 19:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*02/18/15 19:55*	*1*
Dibromofluoromethane (Surr)	*109*		*70 - 130*		*02/18/15 19:55*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*02/18/15 19:55*	*1*

Lab Sample ID: LCS 680-371472/4
Matrix: Water
Analysis Batch: 371472

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	52.8		ug/L		106	73 - 131
Chlorobenzene	50.0	52.5		ug/L		105	80 - 120
1,2-Dichlorobenzene	50.0	53.5		ug/L		107	80 - 120
1,3-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 120
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*117*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*111*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 680-371472/5
Matrix: Water
Analysis Batch: 371472

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.9		ug/L		104	73 - 131	2	30
Chlorobenzene	50.0	52.5		ug/L		105	80 - 120	0	20
1,2-Dichlorobenzene	50.0	53.2		ug/L		106	80 - 120	1	20
1,3-Dichlorobenzene	50.0	52.9		ug/L		106	80 - 120	1	20
1,4-Dichlorobenzene	50.0	51.2		ug/L		102	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*115*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*109*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

LAB/4/2/15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-371496/7
Matrix: Water
Analysis Batch: 371496

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			02/19/15 10:58	1
Chlorobenzene	1.0	U	1.0		ug/L			02/19/15 10:58	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			02/19/15 10:58	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			02/19/15 10:58	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			02/19/15 10:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*70 - 130*		*02/19/15 10:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*02/19/15 10:58*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*02/19/15 10:58*	*1*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*		*02/19/15 10:58*	*1*

Lab Sample ID: LCS 680-371496/3
Matrix: Water
Analysis Batch: 371496

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	48.2		ug/L		96	73 - 131
Chlorobenzene	50.0	54.5		ug/L		109	80 - 120
1,2-Dichlorobenzene	50.0	49.7		ug/L		99	80 - 120
1,3-Dichlorobenzene	50.0	49.1		ug/L		98	80 - 120
1,4-Dichlorobenzene	50.0	49.6		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*

Lab Sample ID: LCSD 680-371496/4
Matrix: Water
Analysis Batch: 371496

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	48.8		ug/L		98	73 - 131	1	30
Chlorobenzene	50.0	55.1		ug/L		110	80 - 120	1	20
1,2-Dichlorobenzene	50.0	49.7		ug/L		99	80 - 120	0	20
1,3-Dichlorobenzene	50.0	49.4		ug/L		99	80 - 120	0	20
1,4-Dichlorobenzene	50.0	50.1		ug/L		100	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
4-Bromofluorobenzene (Surr)	*78*		*70 - 130*

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Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-370098/12-A
Matrix: Water
Analysis Batch: 371019

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 370098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:34	1
1,2,4-Trichlorobenzene	10	U	10		ug/L		02/09/15 16:25	02/14/15 22:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*32 - 114*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
2-Fluorophenol	*42*		*26 - 107*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Nitrobenzene-d5	*57*		*30 - 117*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Phenol-d5	*43*		*25 - 109*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
Terphenyl-d14	*101*		*10 - 132*	*02/09/15 16:25*	*02/14/15 22:34*	*1*
2,4,6-Tribromophenol	*68*		*34 - 140*	*02/09/15 16:25*	*02/14/15 22:34*	*1*

Lab Sample ID: LCS 680-370098/13-A
Matrix: Water
Analysis Batch: 370908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 370098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Chloroaniline	100	62.0		ug/L		62	10 - 112
2-Chlorophenol	100	52.1		ug/L		52	38 - 98
1,4-Dioxane	100	37.2		ug/L		37	16 - 79
1,2,4-Trichlorobenzene	100	44.6		ug/L		45	16 - 80

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*67*		*32 - 114*
2-Fluorophenol	*43*		*26 - 107*
Nitrobenzene-d5	*62*		*30 - 117*
Phenol-d5	*50*		*25 - 109*
Terphenyl-d14	*87*		*10 - 132*
2,4,6-Tribromophenol	*76*		*34 - 140*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-371305/7
Matrix: Water
Analysis Batch: 371305

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			02/19/15 12:37	1
Ethylene	1.0	U	1.0		ug/L			02/19/15 12:37	1
Methane	0.58	U	0.58		ug/L			02/19/15 12:37	1
Methane (TCD)	390	U	390		ug/L			02/19/15 12:37	1

Lab Sample ID: LCS 680-371305/2
Matrix: Water
Analysis Batch: 371305

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	1540		ug/L		80	75 - 125

LAB 4/2/15

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-371305/5
Matrix: Water
Analysis Batch: 371305

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	239		ug/L		83	75 - 125
Ethylene	269	220		ug/L		82	75 - 125
Methane	154	119		ug/L		78	75 - 125

Lab Sample ID: LCSD 680-371305/25
Matrix: Water
Analysis Batch: 371305

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	1700		ug/L		89	75 - 125	10	30

Lab Sample ID: LCSD 680-371305/6
Matrix: Water
Analysis Batch: 371305

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	305		ug/L		106	75 - 125	24	30
Ethylene	269	286		ug/L		106	75 - 125	26	30
Methane	154	162		ug/L		105	75 - 125	30	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-370514/1-A
Matrix: Water
Analysis Batch: 370847

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 370514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		02/11/15 13:40	02/13/15 01:14	1
Iron, Dissolved	0.050	U	0.050		mg/L		02/11/15 13:40	02/13/15 01:14	1
Manganese	0.010	U	0.010		mg/L		02/11/15 13:40	02/13/15 01:14	1
Manganese, Dissolved	0.010	U	0.010		mg/L		02/11/15 13:40	02/13/15 01:14	1

Lab Sample ID: LCS 680-370514/2-A
Matrix: Water
Analysis Batch: 370847

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 370514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.06		mg/L		101	80 - 120
Iron, Dissolved	5.00	5.06		mg/L		101	80 - 120
Manganese	0.500	0.525		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.525		mg/L		105	80 - 120

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Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-370292/5
Matrix: Water
Analysis Batch: 370292

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			02/09/15 16:57	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			02/09/15 16:57	1

Lab Sample ID: LCS 680-370292/6
Matrix: Water
Analysis Batch: 370292

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	215		mg/L		86	80 - 120

Lab Sample ID: LCSD 680-370292/15
Matrix: Water
Analysis Batch: 370292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	246		mg/L		98	80 - 120	13	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-370558/5
Matrix: Water
Analysis Batch: 370558

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			02/11/15 11:53	1

Lab Sample ID: LCS 680-370558/15
Matrix: Water
Analysis Batch: 370558

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.9		mg/L		104	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-370023/13
Matrix: Water
Analysis Batch: 370023

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			02/07/15 13:32	1

Lab Sample ID: LCS 680-370023/16
Matrix: Water
Analysis Batch: 370023

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.527		mg/L		105	75 - 125
Nitrate Nitrite as N	1.00	1.02		mg/L		102	90 - 110

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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-370023/16
Matrix: Water
Analysis Batch: 370023

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.500	0.498		mg/L		100	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-370565/17
Matrix: Water
Analysis Batch: 370565

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			02/11/15 13:33	1

Lab Sample ID: LCS 680-370565/11
Matrix: Water
Analysis Batch: 370565

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.8		mg/L		99	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-175823/73
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			02/24/15 20:45	1

Lab Sample ID: LCS 160-175823/74
Matrix: Water
Analysis Batch: 175823

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	10.3		mg/L		103	90 - 110

Method: 415.1 - DOC - DL

Lab Sample ID: 680-109732-2 MS
Matrix: Water
Analysis Batch: 175823

Client Sample ID: BSA-MW-1S-F(0.2)-0215
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - DL	20		25.0	45.4		mg/L		102	82 - 132

Lab Sample ID: 680-109732-2 DU
Matrix: Water
Analysis Batch: 175823

Client Sample ID: BSA-MW-1S-F(0.2)-0215
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon - DL	20		19.9		mg/L		0.5	20

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Method: 415.1 - TOC

Lab Sample ID: MB 160-175822/32
Matrix: Water
Analysis Batch: 175822

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			02/24/15 15:26	1

Lab Sample ID: LCS 160-175822/33
Matrix: Water
Analysis Batch: 175822

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.97		mg/L		100	90 - 110

Method: 415.1 - TOC - DL

Lab Sample ID: 680-109732-1 MS
Matrix: Water
Analysis Batch: 175822

Client Sample ID: BSA-MW-1S-2015
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - DL	39		25.0	62.1		mg/L		92	76 - 120

Lab Sample ID: 680-109732-1 DU
Matrix: Water
Analysis Batch: 175822

Client Sample ID: BSA-MW-1S-2015
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - DL	39		38.3		mg/L		2	20

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GC/MS VOA

Analysis Batch: 371472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-3	BSA-MW-1S-0215-EB	Total/NA	Water	8260B	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	8260B	
680-109732-6	1Q15 LTM Trip Blank #5	Total/NA	Water	8260B	
LCS 680-371472/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371472/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371472/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 371496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	8260B	
LCS 680-371496/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-371496/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-371496/7	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 370098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	3520C	
680-109732-3	BSA-MW-1S-0215-EB	Total/NA	Water	3520C	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	3520C	
LCS 680-370098/13-A	Lab Control Sample	Total/NA	Water	3520C	
MB 680-370098/12-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 370908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	8270D	370098
680-109732-3	BSA-MW-1S-0215-EB	Total/NA	Water	8270D	370098
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	8270D	370098
LCS 680-370098/13-A	Lab Control Sample	Total/NA	Water	8270D	370098

Analysis Batch: 371019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-370098/12-A	Method Blank	Total/NA	Water	8270D	370098

GC VOA

Analysis Batch: 371305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	RSK-175	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	RSK-175	
LCS 680-371305/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-371305/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-371305/25	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-371305/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-371305/7	Method Blank	Total/NA	Water	RSK-175	

LAB 4/2/15

QC Association Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Metals

Prep Batch: 370514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total Recoverable	Water	3005A	
680-109732-2	BSA-MW-1S-F(0.2)-0215	Dissolved	Water	3005A	
680-109732-4	CPA-MW-1D-0215	Total Recoverable	Water	3005A	
680-109732-5	CPA-MW-1D-F(0.2)-0215	Dissolved	Water	3005A	
LCS 680-370514/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-370514/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 370847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total Recoverable	Water	6010C	370514
680-109732-2	BSA-MW-1S-F(0.2)-0215	Dissolved	Water	6010C	370514
680-109732-4	CPA-MW-1D-0215	Total Recoverable	Water	6010C	370514
680-109732-5	CPA-MW-1D-F(0.2)-0215	Dissolved	Water	6010C	370514
LCS 680-370514/2-A	Lab Control Sample	Total Recoverable	Water	6010C	370514
MB 680-370514/1-A	Method Blank	Total Recoverable	Water	6010C	370514

General Chemistry

Analysis Batch: 175822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1 - DL	BSA-MW-1S-2015	Total/NA	Water	415.1	
680-109732-1 DU - DL	BSA-MW-1S-2015	Total/NA	Water	415.1	
680-109732-1 MS - DL	BSA-MW-1S-2015	Total/NA	Water	415.1	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	415.1	
LCS 160-175822/33	Lab Control Sample	Total/NA	Water	415.1	
MB 160-175822/32	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 175823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-2 - DL	BSA-MW-1S-F(0.2)-0215	Dissolved	Water	415.1	
680-109732-2 DU - DL	BSA-MW-1S-F(0.2)-0215	Dissolved	Water	415.1	
680-109732-2 MS - DL	BSA-MW-1S-F(0.2)-0215	Dissolved	Water	415.1	
680-109732-5	CPA-MW-1D-F(0.2)-0215	Dissolved	Water	415.1	
LCS 160-175823/74	Lab Control Sample	Dissolved	Water	415.1	
MB 160-175823/73	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 370023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	353.2	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	353.2	
LCS 680-370023/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-370023/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 370292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	310.1	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	310.1	
LCS 680-370292/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-370292/15	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-370292/5	Method Blank	Total/NA	Water	310.1	

LAB 4/2/15

General Chemistry (Continued)

Analysis Batch: 370558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	325.2	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	325.2	
LCS 680-370558/15	Lab Control Sample	Total/NA	Water	325.2	
MB 680-370558/5	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 370565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-109732-1	BSA-MW-1S-2015	Total/NA	Water	375.4	
680-109732-4	CPA-MW-1D-0215	Total/NA	Water	375.4	
LCS 680-370565/11	Lab Control Sample	Total/NA	Water	375.4	
MB 680-370565/17	Method Blank	Total/NA	Water	375.4	

LAB 4/2/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: BSA-MW-1S-2015

Lab Sample ID: 680-109732-1
Matrix: Water

Date Collected: 02/06/15 09:32
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10000	371496	02/19/15 16:19	MMT	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/13/15 23:55	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	371305	02/19/15 15:57	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370847	02/13/15 02:18	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370292	02/09/15 17:16	LBH	TAL SAV
Total/NA	Analysis	325.2		5	370558	02/11/15 13:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	370023	02/07/15 13:41	GRX	TAL SAV
Total/NA	Analysis	375.4		5	370565	02/11/15 12:59	JME	TAL SAV
Total/NA	Analysis	415.1	DL	5	175822	02/24/15 16:45	JCB	TAL SL

Client Sample ID: BSA-MW-1S-F(0.2)-0215

Lab Sample ID: 680-109732-2
Matrix: Water

Date Collected: 02/06/15 09:32
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370847	02/13/15 02:23	BCB	TAL SAV
Dissolved	Analysis	415.1	DL	5	175823	02/24/15 21:03	JCB	TAL SL

Client Sample ID: BSA-MW-1S-0215-EB

Lab Sample ID: 680-109732-3
Matrix: Water

Date Collected: 02/06/15 09:55
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	371472	02/19/15 03:13	TF1	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/14/15 00:21	RAM	TAL SAV

Client Sample ID: CPA-MW-1D-0215

Lab Sample ID: 680-109732-4
Matrix: Water

Date Collected: 02/06/15 08:46
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	371472	02/19/15 03:34	TF1	TAL SAV
Total/NA	Prep	3520C			370098	02/09/15 16:25	RBS	TAL SAV
Total/NA	Analysis	8270D		1	370908	02/14/15 00:46	RAM	TAL SAV
Total/NA	Analysis	RSK-175		1	371305	02/19/15 15:42	AJMC	TAL SAV
Total Recoverable	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Total Recoverable	Analysis	6010C		1	370847	02/13/15 02:27	BCB	TAL SAV
Total/NA	Analysis	310.1		1	370292	02/09/15 17:26	LBH	TAL SAV

LAB 4/2/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Client Sample ID: CPA-MW-1D-0215

Lab Sample ID: 680-109732-4
Matrix: Water

Date Collected: 02/06/15 08:46
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	325.2		2	370558	02/11/15 13:13	JME	TAL SAV
Total/NA	Analysis	353.2		1	370023	02/07/15 13:42	GRX	TAL SAV
Total/NA	Analysis	375.4		1	370565	02/11/15 12:07	JME	TAL SAV
Total/NA	Analysis	415.1		1	175822	02/24/15 15:56	JCB	TAL SL

Client Sample ID: CPA-MW-1D-F(0.2)-0215

Lab Sample ID: 680-109732-5
Matrix: Water

Date Collected: 02/06/15 08:46
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			370514	02/11/15 13:40	CRW	TAL SAV
Dissolved	Analysis	6010C		1	370847	02/13/15 02:32	BCB	TAL SAV
Dissolved	Analysis	415.1		1	175823	02/24/15 21:19	JCB	TAL SL

Client Sample ID: 1Q15 LTM Trip Blank #5

Lab Sample ID: 680-109732-6
Matrix: Water

Date Collected: 02/06/15 00:00
Date Received: 02/07/15 09:18

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	371472	02/18/15 21:41	TF1	TAL SAV

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 4/2/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

* Certification renewal pending - certification considered valid.

LAB 4/2/15

Certification Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Laboratory: TestAmerica St. Louis (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-15
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	03-31-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-15 *
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-15 *
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 4/2/15

Method Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SL
415.1	DOC	MCAWW	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

LAB 4/2/15

Sample Summary

Client: Solutia Inc.
Project/Site: 1Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-109732-1
SDG: KPS140

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-109732-1	BSA-MW-1S-2015	Water	02/06/15 09:32	02/07/15 09:18
680-109732-2	BSA-MW-1S-F(0.2)-0215	Water	02/06/15 09:32	02/07/15 09:18
680-109732-3	BSA-MW-1S-0215-EB	Water	02/06/15 09:55	02/07/15 09:18
680-109732-4	CPA-MW-1D-0215	Water	02/06/15 08:46	02/07/15 09:18
680-109732-5	CPA-MW-1D-F(0.2)-0215	Water	02/06/15 08:46	02/07/15 09:18
680-109732-6	1Q15 LTM Trip Blank #5	Water	02/06/15 00:00	02/07/15 09:18

LAB 4/2/15

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:

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 2/6/15	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:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 1Q15 LTM GW Sampling-1403345	☐ 1 week			Job,/ SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
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)	SVOCs by 8270	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-15-0215	2/6/15	0932	G	W	16			2	3	1	1	1	3	2	3			
BSA-MW-15-F(0.2)-0215	"	"	"	"	4	Y										1	3	
BSA-MW-15-0215-EB	"	0955	"	"	5			2	3									
CPA-MW-[redacted]D-0215	"	0946	"	"	16			2	3	1	1	1	3	2	3			
CPA-MW-[redacted]D-F(0.2)-0215	"	"	"	"	4	Y										1	3	
1Q15 LTM TripBlank #5	—	—	—	—	2				2									

680-109732 Chain of Custody

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

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 ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
VOC headspace upon sampling: Yes (No)

1.8/1.6/1.0(CF)1.5/1.3/0.7°C

LAB 4/2/15

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 818638		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____		
Relinquished by: Jr Bindner	Company: Golder	Date/Time: 2/6/15	Received by: [signature]	Company: TAS	Date/Time: 02-07-15 0918
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

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109732-1
SDG Number: KPS140

Login Number: 109732
List Number: 1
Creator: Banda, Christy S

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.	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	

LAB 4/2/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-109732-1
SDG Number: KPS140

Login Number: 109732
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 02/10/15 10:24 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	2.8
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?	False	
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	

LAB 4/2/15

APPENDIX E
MICROBIAL INSIGHTS DATA PACKAGE

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Lori Bindner
Golder Associates Inc.
820 S. Main Street
Suite 100
St. Charles, MO 63301

Phone:

Fax:

Identifier: 083MA **Date Rec:** 01/30/2015 **Report Date:** 03/23/2015

Client Project #: 1403345 **Client Project Name:** W.G. Krummrich

Purchase Order #:

Analysis Requested: PLFA, Stable Isotope Probing, Standard Bio-Trap

Reviewed By:

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Golder Associates Inc.**
Project: W.G. Krummrich

MI Project Number: **083MA**
Date Received: 01/30/2015

Sample Information

Sample Name:	**BSA-MW-1S-0215**	**BSA-MW-2D-0215**	**BSA-MW-3D-0215**	**BSA-MW-4D-0215**	**BSA-MW-5D-0215**
Sample Date:	01/29/2015	01/29/2015	01/29/2015	01/29/2015	01/29/2015
Sample Matrix:	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ
Biomass Concentrations					
Total Biomass (cells/bead)	**2.69E+05**	**2.32E+05**	**8.58E+04**	**4.26E+04**	**9.51E+04**
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	**8.31**	**14.66**	**40.62**	**0.00**	**4.95**
Proteobacteria (Monos)	**68.38**	**63.43**	**26.71**	**52.27**	**70.80**
Anaerobic metal reducers (BrMonos)	**2.12**	**1.21**	**0.00**	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**1.27**	**5.98**	**3.26**	**0.00**	**1.40**
General (Nsats)	**19.94**	**13.76**	**29.40**	**47.73**	**22.86**
Eukaryotes (polyenoics)	**0.00**	**0.96**	**0.00**	**0.00**	**0.00**
Physiological Status (Proteobacteria only)					
Slowed Growth	**0.26**	**3.51**	**1.25**	**0.48**	**0.10**
Decreased Permeability	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Golder Associates Inc.**
Project: W.G. Krummrich

MI Project Number: **083MA**
Date Received: 01/30/2015

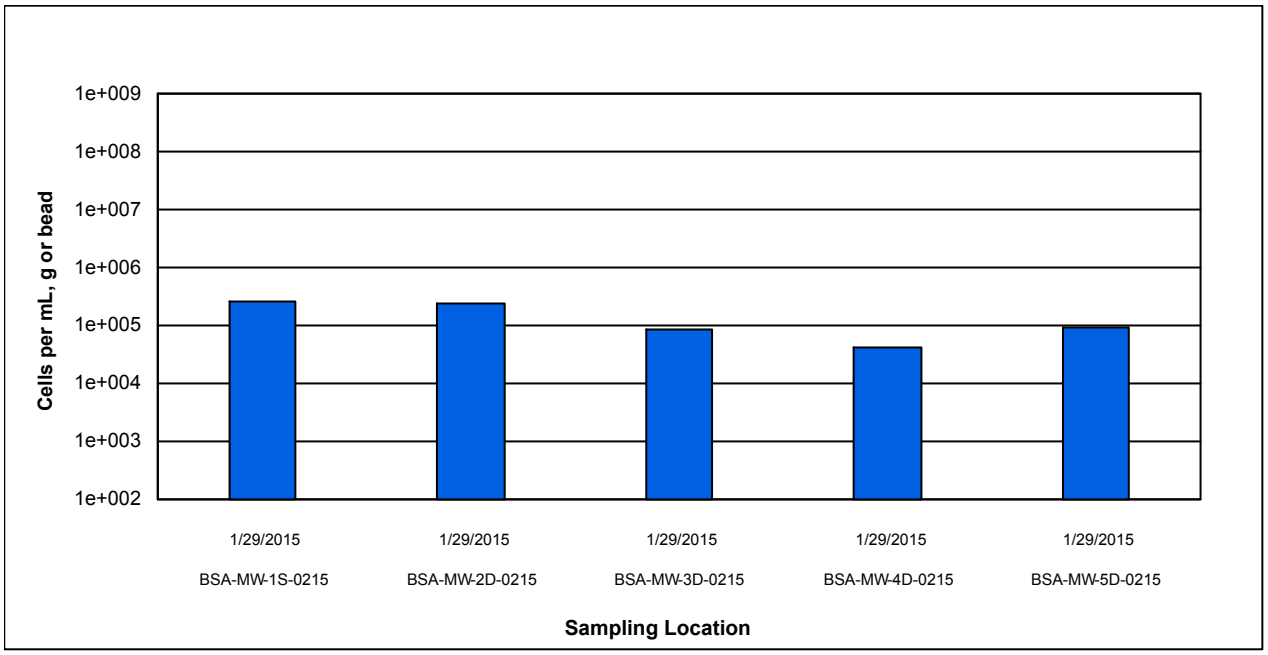

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

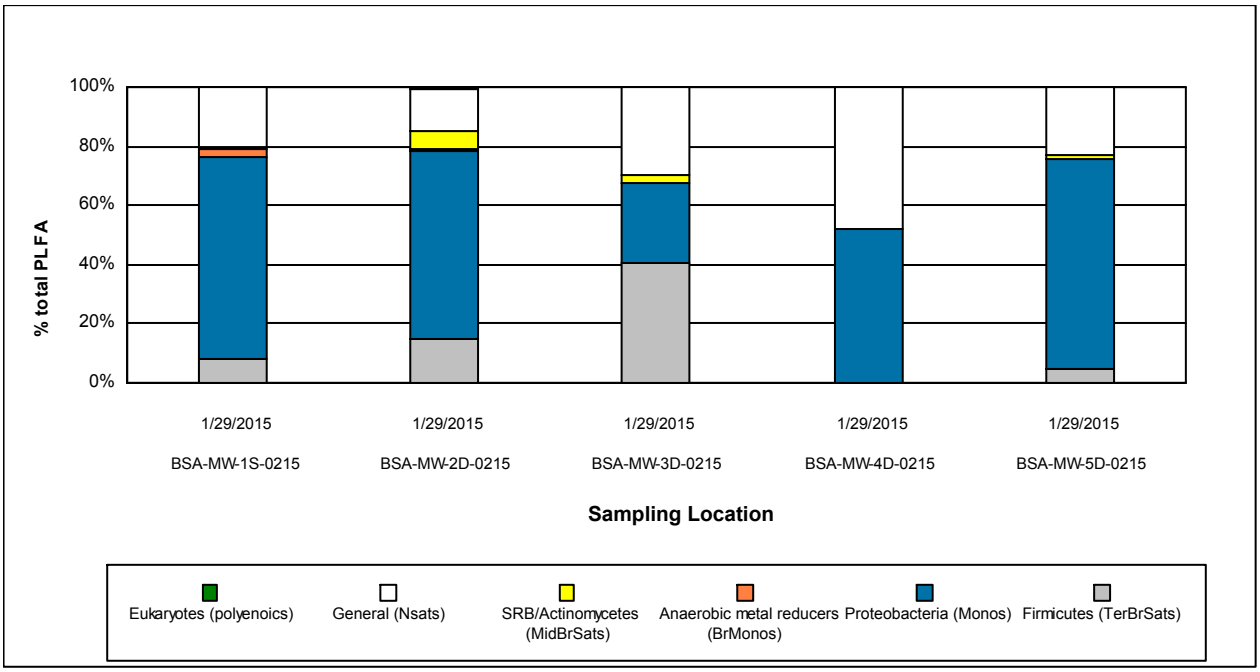

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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PLFA

Client: **Golder Associates Inc.**
Project: W.G. Krummrich

MI Project Number: **083MA**
Date Received: 01/30/2015

Sample Information

Sample Name:	**CPA-MW-1D-0215**	**CPA-MW-2D-0215**	**CPA-MW-3D-0215**	**CPA-MW-4D-0215**	**CPA-MW-5D-0215**
Sample Date:	01/29/2015	01/29/2015	01/29/2015	01/29/2015	01/29/2015
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ

Biomass Concentrations

Total Biomass (cells/bead)	**1.90E+05**	**8.30E+04**	**3.04E+04**	**7.04E+04**	**3.52E+04**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**4.36**	**15.61**	**0.00**	**9.15**	**10.11**
Proteobacteria (Monos)	**73.44**	**49.85**	**25.79**	**56.87**	**42.12**
Anaerobic metal reducers (BrMonos)	**0.58**	**3.79**	**0.00**	**0.68**	**0.00**
SRB/Actinomycetes (MidBrSats)	**1.32**	**3.32**	**0.00**	**1.75**	**7.06**
General (Nsats)	**19.23**	**24.80**	**21.57**	**31.55**	**40.70**
Eukaryotes (polyenoics)	**1.06**	**2.64**	**52.64**	**0.00**	**0.00**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.28**	**0.76**	**0.00**	**0.18**	**0.91**
Decreased Permeability	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

MICROBIAL INSIGHTS, INC.

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Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Golder Associates Inc.**
Project: W.G. Krummrich

MI Project Number: **083MA**
Date Received: 01/30/2015

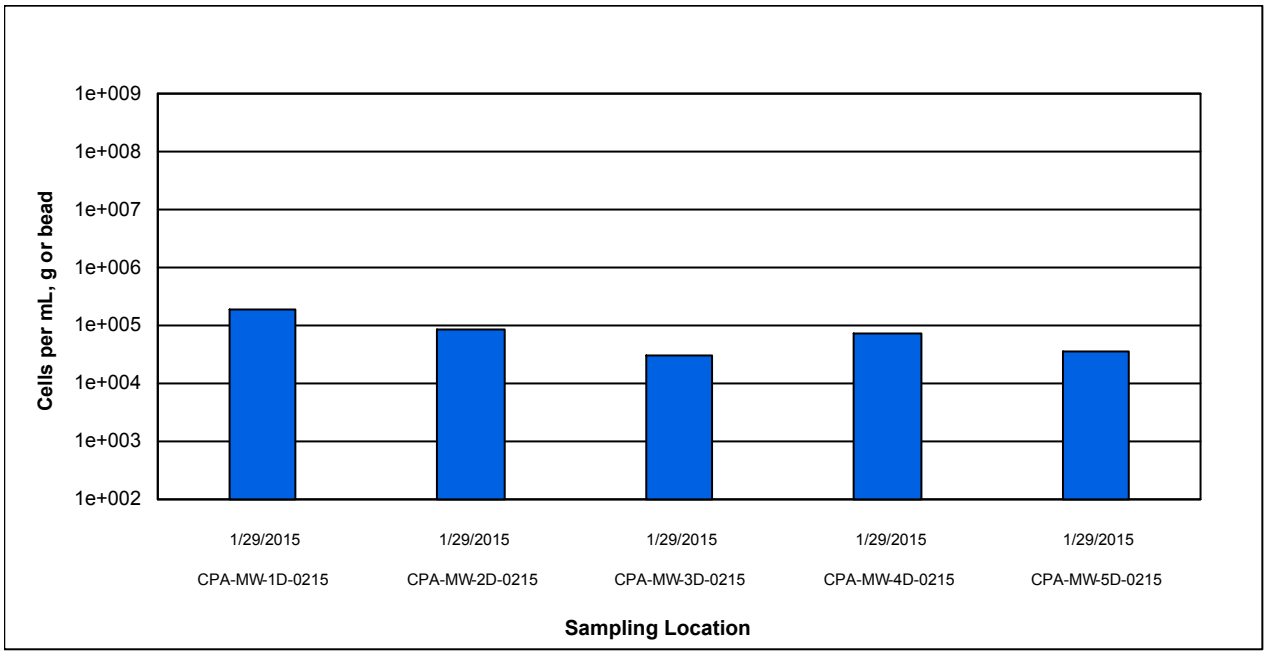

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

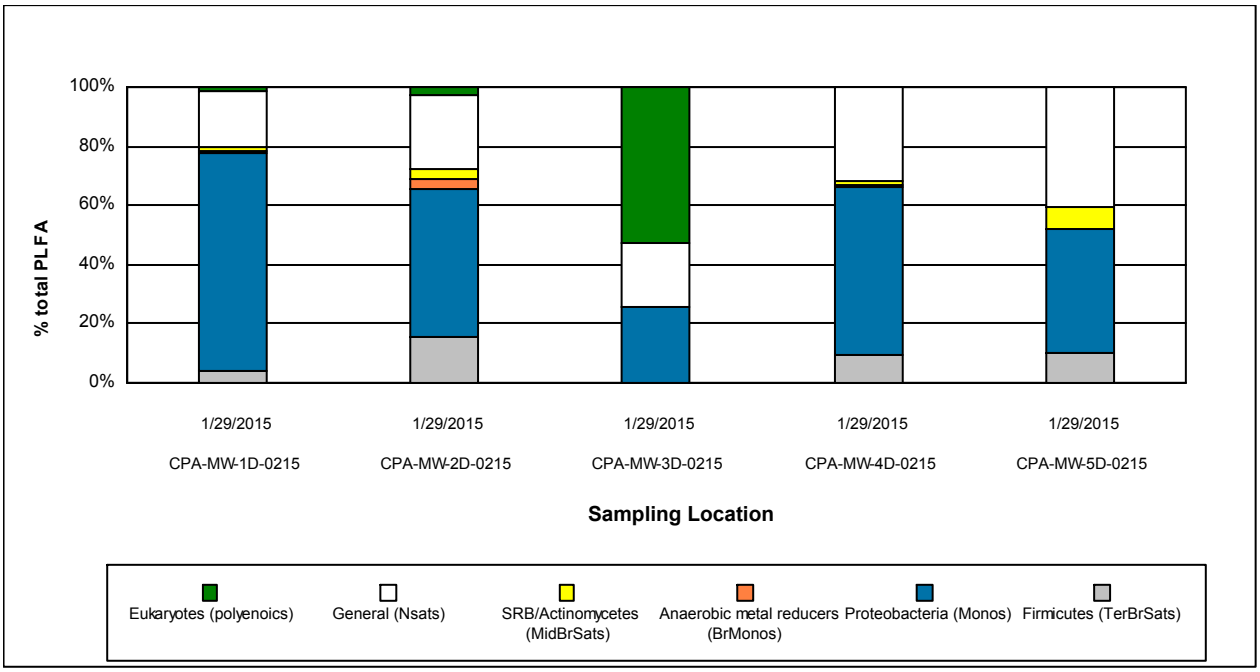

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

10515 Research Drive
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Identifier: 083MA **Date Rec:** 01/30/2015 **Report Date:** 03/23/2015

Client Project #: 1403345 **Client Project Name:** W.G. Krummrich

Purchase Order #:

Comments: Please note that the total biomass for samples BSA-MW-4D-0215, CPA-MW-3D-0215, and CPA-MW-5D-0215 fell between the detection limit and the reporting limit for PLFA analysis.

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Phospholipid Fatty Acid Analysis

Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the "skin") of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

What is the detection limit for PLFA?

Our limit of detection for PLFA analysis is ~150 picomoles of total PLFA and our limit of quantification is ~500 picomoles of total PLFA. Samples which contain PLFA amounts at or below 150 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~500 pmol are generally considered to contain too few fatty acids to discuss community composition.

How should I interpret the PLFA results?

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

Viable Biomass

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain 'fossil' lipids of dead cells.

How is biomass measured?

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

How is biomass calculated?

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmole of PLFA. This conversation factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

What does the concentration of biomass mean?

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

How do I know if a change in biomass is significant?

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.

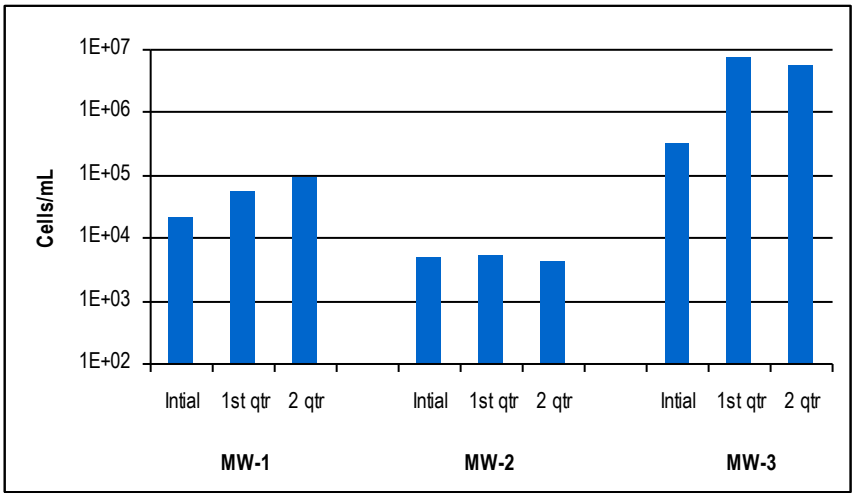

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

Conclusions from graph above:

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were ~10^4 cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1st quarter sampling events (from ~10^5 to ~10^6 cells/mL).

Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA "profile" reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

How is the community structure data presented?

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

How can community structure data be used to manage my site?

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a "fingerprint" of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

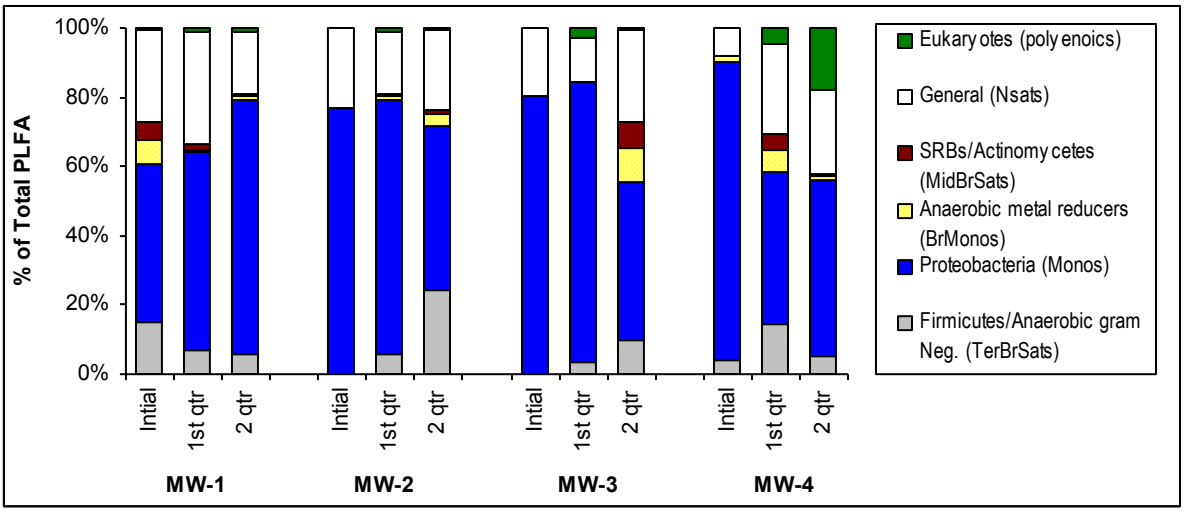

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **Increased Proteobacteria**

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobe and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

- **Increased Firmicutes/Anaerobic Gram negative bacteria**

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of H_2. Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available H_2, thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

Physiological status of Proteobacteria

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (trans/cis ratio) and for Slowed Growth (cy/cis ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

What does slowed growth or decreased permeability mean?

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the "health" of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, "healthy" growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

References

1. Amann, R. I., W. Ludwig, and K.-H. Schleifer. 1995. Phylogenetic identification and in situ detection of individual microbial cells without cultivation. Microbiological Reviews 59:143-169.
2. Cottrell, MT and David L. Kirchman. Appl Environ Microbiol. 2000 April; 66 (4): 16921697.
3. Gillis, M., V. Tran Van, R. Bardin, M. Goor, P. Hebbar, A. Willems, P. Segers, K. Kerstens, T. Heulin, and M. P. Fernadez. 1995. Polyphasic taxonomy in the genus Burkholderia leading to an amended description of the genus and proposition of Burkholderia vietnamiensis sp. nov. for N2-fixing isolates from rice in Vietnam. Int. J. Syst. Bacteriol. 45:274-289.
4. Dowling, N. J. E., F. Widdel, and D. C. White. 1986. Phospholipid ester-linked fatty acid biomarkers of acetate-oxidizing sulfate reducers and other sulfide forming bacteria. Journal of General Microbiology 132:1815-1825.
5. Edlund, A., P. D. Nichols, R. Roffey, and D. C. White. 1985. Extractable and lipopolysaccharide fatty acid and hydroxy acid profiles from Desulfovibrio species. Journal of Lipid Research 26:982-988.
6. Guckert, J. B., C. P. Antworth, P. D. Nichols, and D. C. White. 1985. Phospholipid ester-linked fatty acid profiles as reproducible assays for changes in prokaryotic community structure of estuarine sediments. FEMS Microbiol. Ecol. 31:147-158.
7. Guckert, J. B., M. A. Hood, and D. C. White. 1986. Phospholipid ester-linked fatty acid profile changes during nutrient deprivation of Vibrio cholerae: increases in the trans/cis ratio and proportions of cyclopropyl fatty acids. Appl. Environ. Microbiol. 52:794–801.
8. Hedrick, D.B., A Peacock, J.R. Stephen, S.J. Macnaughton, Julia Brüggemann, and David C. White. 2000. Measuring soil microbial community diversity using polar lipid fatty acid and denatured gradient gel electrophoresis data. J. Microbiol. Methods, 41, 235-248.
9. ITRC Internet Training on Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices, Apr 00.
10. Löffler, F. E., Q. Sun, et al. (2000). "16S rRNA gene-based detection of tetrachloroethene-dechlorinating Desulfuromonas and Dehalococcoides species." Appl Environ Microbiol 66(4): 1369-1374.
11. Maymo-Gatell X, Chien Y, Gossett JM, Zinder SH. 1997. Isolation of a bacterium that reductively dechlorinates tetrachloroethene to ethene. Science 276(5318):1568-71.
12. Muyzer, G., E. C. De Waal, and A. G. Uitterlinden. 1993. Profiling of complex microbial populations by denaturing gradient gel electrophoresis analysis of polymerase chain reaction-amplified genes coding for 16S rRNA. Applied and Environmental Microbiology 59:695-700.
13. Ribosomal Database Project (http://rdp.cme.msu.edu. National Center for Biotechnology Information. (http://www.ncbi.nlm.nih.gov/)
14. Overman, J., "Family Chlorobiaceae," in M. Dworkin et al., eds., The Prokaryotes: An Evolving Electronic Resource for the Microbiological Community, 3rd edition, release 3.7, November 2, 2001, Springer-Verlag, New York, www.prokaryotes.com.
15. Ringelberg, D. B., G. T. Townsend, K. A. DeWeerd, J. M. Sulita, and D. C. White. 1994. Detection of the anaerobic dechlorinating microorganism Desulfomonile tiedjei in environmental matrices by its signature lipopolysaccharide branch-long-chain hydroxy fatty acids. FEMS Microbiol. Ecol. 14:9-18.
16. Schlötelburg, C. 2001. Mikrobielle Diversität und Dynamik einer 1,2-Dichlorpropan dechlorierenden Mischkultur (Microbial Diversity and Dynamics in a 1,2-Dichloropropane Dechlorinating Mixed Culture). Dissertation, Humbolt University, Berlin, Germany. In German: http://edoc.hu-berlin.de/dissertationen/schloetelburg-cord-2001-12-07/PDF/Schloetelburg.pdf
17. Sharp, R., D. Cossar, and R. Williams. 1995. Physiology and metabolism of Thermus. Biotechnol. Handb. 9:67-91.
18. Stephen, J. R., Y.-J. Chang, Y. D. Gan, A. Peacock, S. Pfiffner, M. Barcelona, D. C. White, and S. J. Macnaughton. 1999. Microbial characterization of a JP-4 fuel-contaminated site using a combined lipid biomarker/polymerase chain reaction-denaturing gradient gel electrophoresis (PCR-DGGE) based approach. Environmental Microbiology 1:231-241.
19. Tighe, S.W., de Lajudie, P., Dipietro, K., Lindström, K., Nick, G. & Jarvis, B.D.W. (2000). Analysis of cellular fatty acids and phenotypic relationships of Agrobacterium, Bradyrhizobium, Mesorhizobium, Rhizobium and Sinorhizobium species using the Sherlock Microbial Identification System. Int J Syst Evol Microbiol 50, 787-801.
20. Tsitko, I.V. Gennadi M. Zaitsev, Anatoli G. Lobanok, and Mirja S. Salkinoja-Salonen. 1999. Applied and Environmental Microbiology 65(2) 853-855.
21. White, D. C., W. M. Davis, J. S. Nickels, J. D. King, and R. J. Bobbie. 1979. Determination of the sedimentary microbial biomass by extractable lipid phosphate. Oecologia 40:51-62.
22. White, D. C., H. C. Pinkart, and D. B. Ringelberg. 1997. Biomass measurements: Biochemical approaches, p. 91-101. In C. J. Hurst, G. R. Knudsen, M. J. McInerney, L. D. Stetzenbach, and M. V. Walter (ed.), Manual of Environmental Microbiology. ASM Press, Washington.
23. White, D. C., and D. B. Ringelberg. 1995. Utility of signature lipid biomarker analysis in determining in situ viable biomass, community structure, and nutritional / physiological status of the deep subsurface microbiota. In P. S. Amy and D. L. Halderman (ed.), The microbiology of the terrestrial subsurface. CRC Press, Boca Raton.
24. White, D. C., J. O. Stair, and D. B. Ringelberg. 1996. Quantitative comparisons of in situ microbial biodiversity by signature biomarker analysis. Journal of Industrial Microbiology 17:185-196.
25. Vandamme P, Pot B, Gillis M, de Vos P, Kersters K, Swings J. Polyphasic taxonomy, a consensus approach to bacterial systematics. Microbiol Rev 1996 Jun;60(2):407-38.

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SITE LOGIC Report

Stable Isotope Probing (SIP) Study

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Email: lbindner@golder.com

MI Identifier: 083MA

Report Date: March 23, 2015

Project: W.G. Krummrich; # 140-3345

Comments:

Executive Summary

A Stable Isotope Probing (SIP) study was performed to determine whether biodegradation of benzene and chlorobenzene is occurring under existing site conditions. Bio-Trap® samplers baited with ^{13}C labeled benzene and ^{13}C labeled chlorobenzene were deployed in monitoring wells BSA-MW-2D-0215 and CPA-MW-3D-0215, respectively. Following a 24-day deployment period, the Bio-Traps were recovered to quantify ^{13}C incorporation into biomass and dissolved inorganic carbon (DIC). A complete summary of the SIP results is provided in Table 1 and Figures 1 through 5. Tables 2 and 3 and Figures 6 through 9 contain summaries of PLFA analysis performed on standard Bio-Trap samplers deployed in BSA and CPA monitoring wells.

Stable Isotope Probing (SIP)

- Evidence for biodegradation of benzene in BSA-MW-2D-0215 and chlorobenzene in CPA-MW-3D-0215 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit in both samples.
- A moderate DIC $\delta^{13}C$ value was detected in well BSA-MW-2D-0215 (337.11‰), indicating benzene had been mineralized during the deployment period.
- A DIC $\delta^{13}C$ value near background level was detected in well CPA-MW-3D-0215 (-6.69‰), indicating little or no chlorobenzene had been mineralized during the deployment period.
- The total PLFA biomass concentration in well BSA-MW-2D-0215 (2.32E+05) was within the moderate range, while the total biomass in well CPA-MW-3D-0215 fell between the reporting limit and the method detection limit.
- The PLFA community structure in well BSA-MW-2D-0215 was primarily comprised of monoenoics, indicating Proteobacteria, terminally branched saturates, and normal saturates. The profile for BSA-MW-2D-0215 also had indicators of anaerobic metal reducers, actinomycetes, and eukaryotes.
- In well CPA-MW-3D-0215, eukaryotes were the primary group detected, followed by monoenoics and normal saturates.

PLFA Analysis - Standard Bio-Traps

- A moderate biomass concentration was detected in BSA-MW-1S-0215 (10^5 cells/bead), while a lower concentration was detected in BSA-MW-3D-0215 (10^4 cells/bead) and BSA-MW-5D-0215 (10^4 cells/bead). Total biomass in well BSA-MW-4D-0215 fell between the reporting limit and the method detection limit for the PLFA analysis.
    - Monoenoic fatty acids (indicators of Proteobacteria) were the most abundant group identified in the BSA wells, followed by normal saturates and terminally branched saturates.
- A moderate biomass concentration was detected in CPA-MW-1D-0215 (10^5 cells/bead). In wells CPA-MW-2D-0215 and CPA-MW-4D-0215 the total PLFA biomass concentrations fell within the lower range (10^4 cells/bead). Total biomass in wells CPA-MW-3D-0215 and CPA-MW-5D-0215 fell between the reporting limit and the method detection limit.
    - The microbial community structures indicated that monoenoic fatty acids were the most abundant group in the CPA wells followed by normal saturates and indicators of firmicutes.

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Overview of Approach

Stable Isotope Probing (SIP)

Stable isotope probing (SIP) is an innovative method to track the environmental fate of a "labeled" contaminant of concern to unambiguously demonstrate biodegradation. Two stable carbon isotopes exist in nature – carbon 12 (^{12}C) which accounts for 99% of carbon and carbon 13 (^{13}C) which is considerably less abundant (~1%). With the SIP method, the Bio-Trap® sampler is baited with a specially synthesized form of the contaminant containing ^{13}C labeled carbon. Since ^{13}C is rare, the labeled compound can be readily differentiated from the contaminants present at the site. Following deployment, the Bio-Trap® is recovered and three approaches are used to conclusively demonstrate biodegradation of the contaminant of concern.

- The loss of the labeled compound provides an estimate of the degradation rate (% loss of ^{13}C).
- Quantification of ^{13}C enriched phospholipid fatty acids (PLFA) indicates incorporation into microbial biomass.
- Quantification of ^{13}C enriched dissolved inorganic carbon (DIC) indicates contaminant mineralization.

Phospholipid Fatty Acids (PLFA)

PLFA are a primary component of the membrane of all living cells including bacteria. PLFA decomposes rapidly upon cell death (1, 2), so the total amount of PLFA present in a sample is indicative of the viable biomass. When combined with stable isotope probing (SIP), incorporation of ^{13}C into PLFA is a conclusive indicator of biodegradation.

Some organisms produce "signature" types of PLFA allowing quantification of important microbial functional groups (e.g. iron reducers, sulfate reducers, or fermenters). The relative proportions of the groups of PLFA provide a "fingerprint" of the microbial community. In addition, *Proteobacteria* modify specific PLFA during periods of slow growth or in response to environmental stress providing an index of their health and metabolic activity.

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Results

Table 1. Summary of the results obtained from the Bio-Trap® Units. Interpretation guidelines and definitions are found later in the document.

Sample Name	BSA-MW-2D-0215	CPA-MW-3D-0215
^{13}C Contaminant Loss (µg/bead)		
^{13}C Benzene Pre-deployment	157 ± 18	---
^{13}C Benzene Post-deployment	111 ± 11	---
^{13}C Chlorobenzene Pre-deployment	---	126 ± 7
^{13}C Chlorobenzene Post-deployment	---	119 ± 12
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bead)	2.32E+05	3.04E+04 (J)
^{13}C Enriched Biomass (Cells/bead)	ND	ND
Average PLFA Del (‰)	ND	ND
Maximum PLFA Del (‰)	ND	ND
^{13}C Mineralization		
DIC Del (‰)	337.11	-6.69
% 13C	1.47	1.10
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	14.7	0.0
Proteobacteria (Monos)	63.4	25.8
Anaerobic metal reducers (BrMonos)	1.2	0.0
Actinomycetes (MidBrSats)	6.0	0.0
General (Nsats)	13.8	21.6
Eukaryotes (Polyenoics)	1.0	52.6
Physiological Status (Proteobacteria only)		
Slowed Growth	3.51	0.00
Decreased Permeability	0.00	0.00

Legend:
ND = Not detected J = Estimated result below PQL but above LQL

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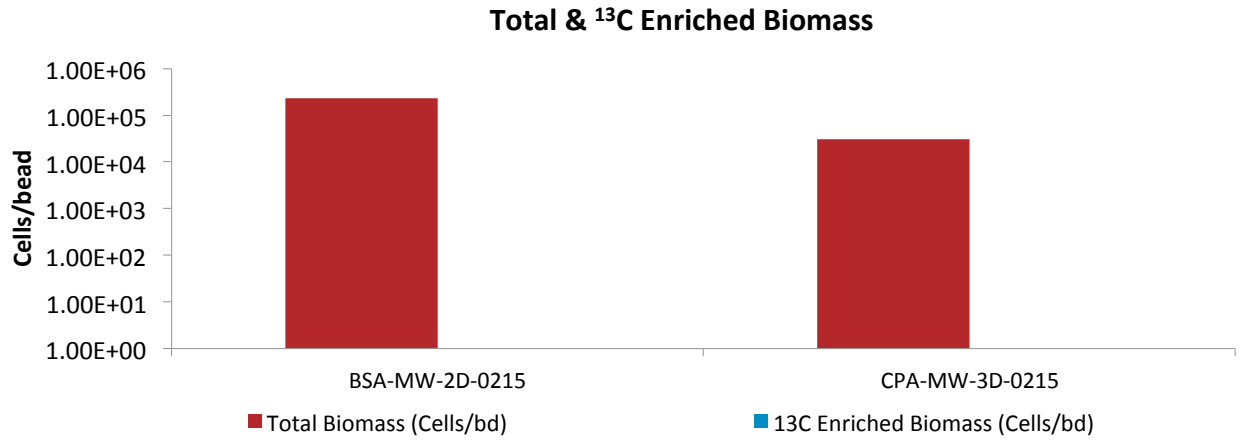

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

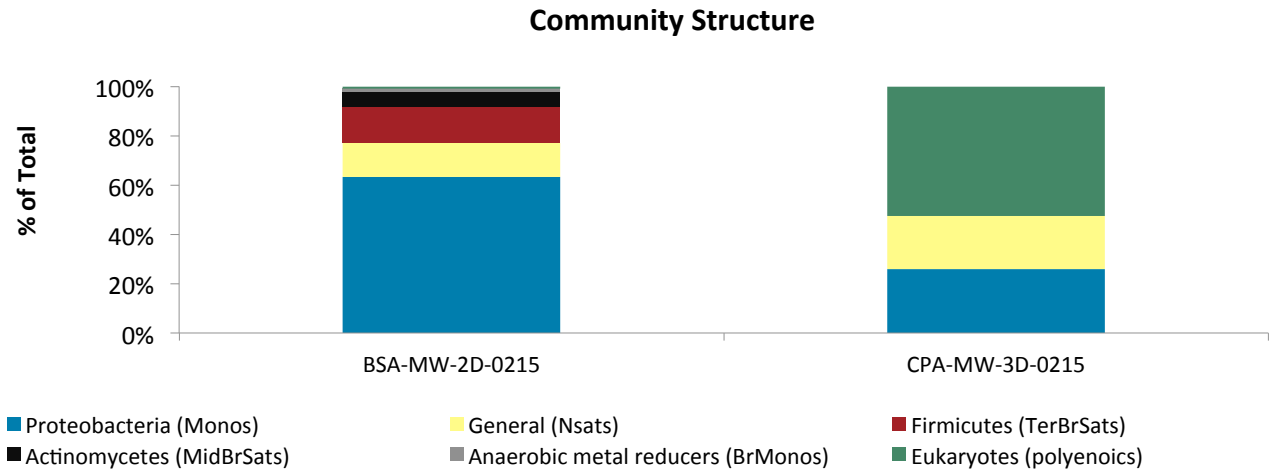

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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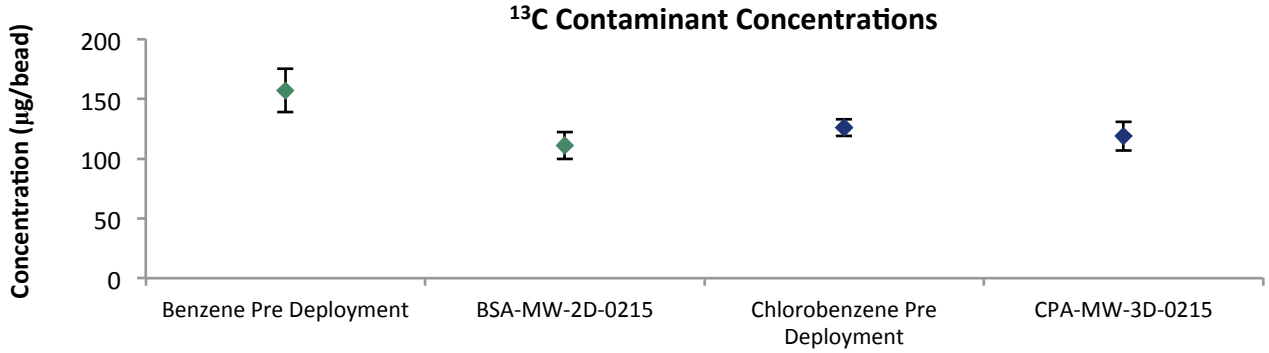

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

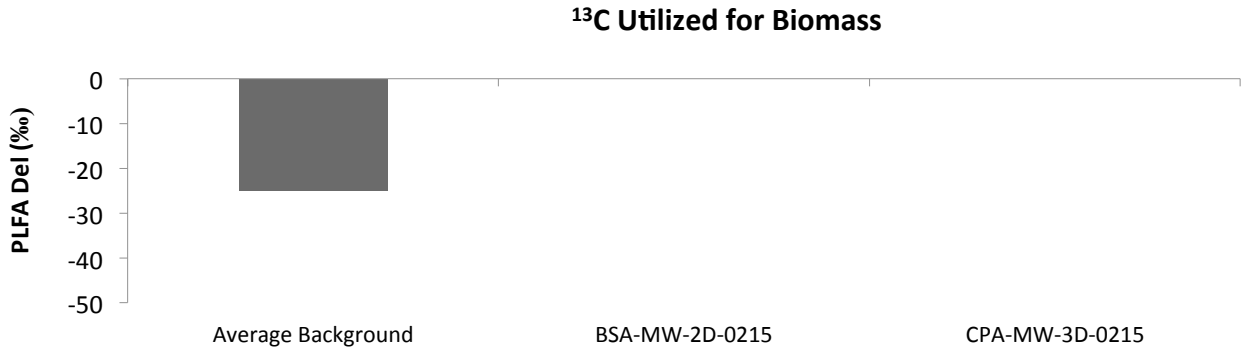

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

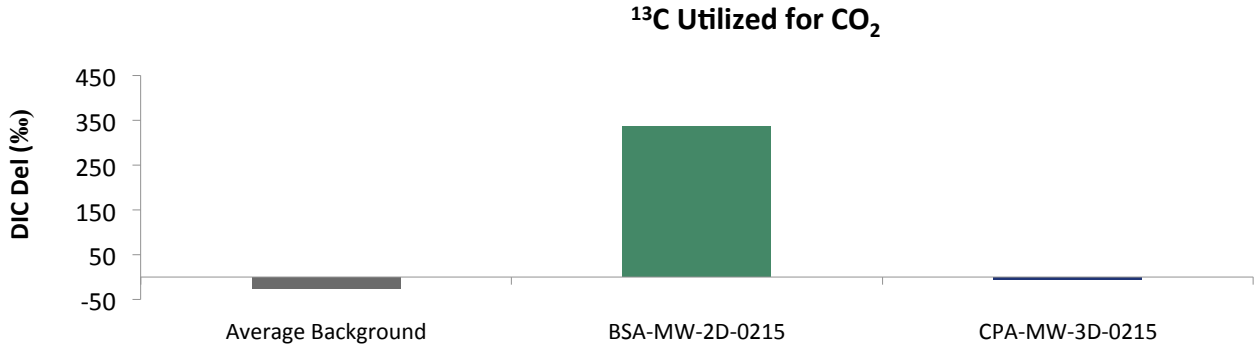

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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Table 2. Summary of the PLFA results for the benzene wells obtained from the Bio-Trap® Units.

Sample Name	BSA-MW-1S-0215	BSA-MW-2D-0215	BSA-MW-3D-0215	BSA-MW-4D-0215	BSA-MW-5D-0215
Biomass Concentration					
Total Biomass (Cells/bead)	2.69E+05	2.32E+05	8.58E+04	4.26E+04 (J)	9.51E+04
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	8.3	14.7	40.6	0.0	5.0
Proteobacteria (Monos)	68.4	63.4	26.7	52.3	70.8
Anaerobic metal reducers (BrMonos)	2.1	1.2	0.0	0.0	0.0
Actinomycetes (MidBrSats)	1.3	6.0	3.3	0.0	1.4
General (Nsats)	19.9	13.8	29.4	47.7	22.9
Eukaryotes (Polyenoics)	0.0	1.0	0.0	0.0	0.0
Physiological Status (Proteobacteria only)					
Slowed Growth	0.26	3.51	1.25	0.48	0.10
Decreased Permeability	0.00	0.00	0.00	0.00	0.00

Table 3. Summary of the PLFA results for the chlorobenzene wells obtained from the Bio-Trap® Units.

Sample Name	CPA-MW-1D-0215	CPA-MW-2D-0215	CPA-MW-3D-0215	CPA-MW-4D-0215	CPA-MW-5D-0215
Biomass Concentration					
Total Biomass (Cells/bead)	1.90E+05	8.30E+04	3.04E+04 (J)	7.04E+04	3.52E+04 (J)
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	4.4	15.6	0.0	9.2	10.1
Proteobacteria (Monos)	73.4	49.9	25.8	56.9	42.1
Anaerobic metal reducers (BrMonos)	0.6	3.8	0.0	0.7	0.0
Actinomycetes (MidBrSats)	1.3	3.3	0.0	1.8	7.1
General (Nsats)	19.2	24.8	21.6	31.6	40.7
Eukaryotes (Polyenoics)	1.1	2.6	52.6	0.0	0.0
Physiological Status (Proteobacteria only)					
Slowed Growth	0.28	0.76	0.00	0.18	0.91
Decreased Permeability	0.00	0.00	0.00	0.00	0.00

Legend:
ND = Not detected J = Estimated result below PQL but above LQL

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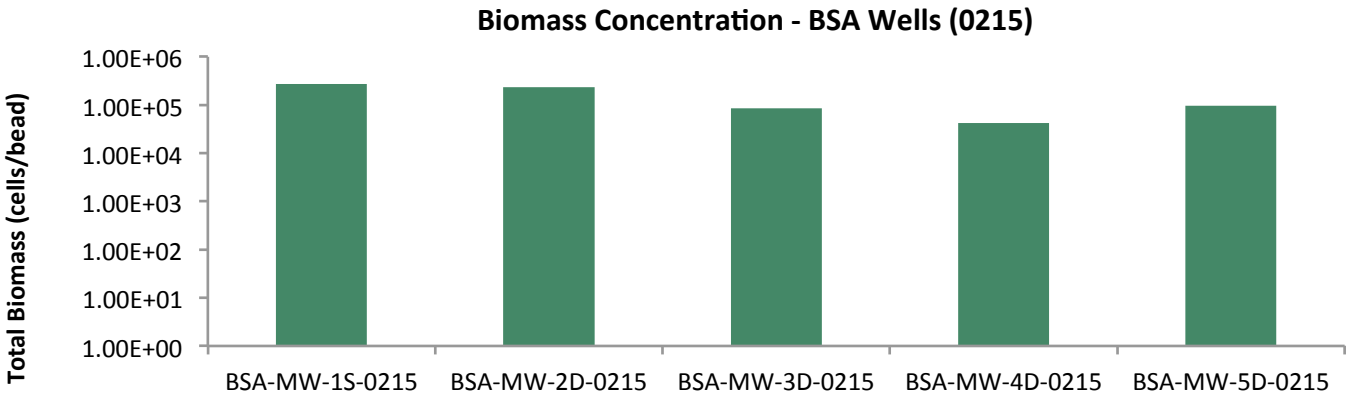

Figure 6. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

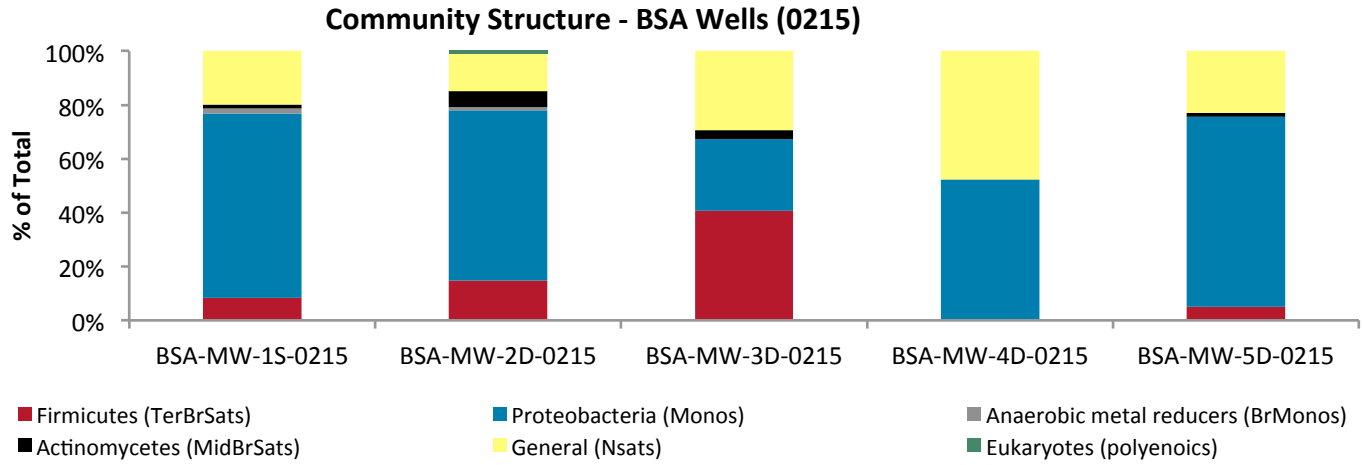

Figure 7. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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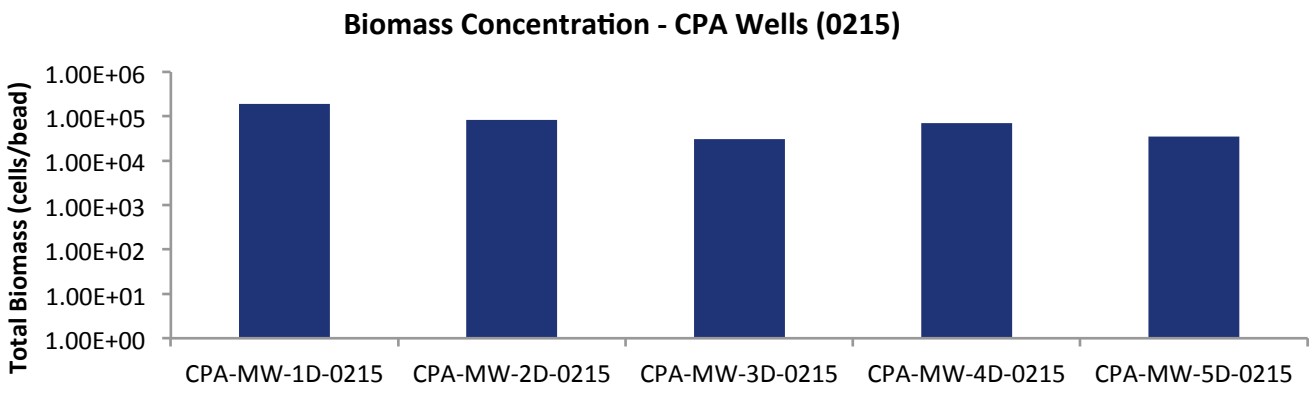

Figure 8. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

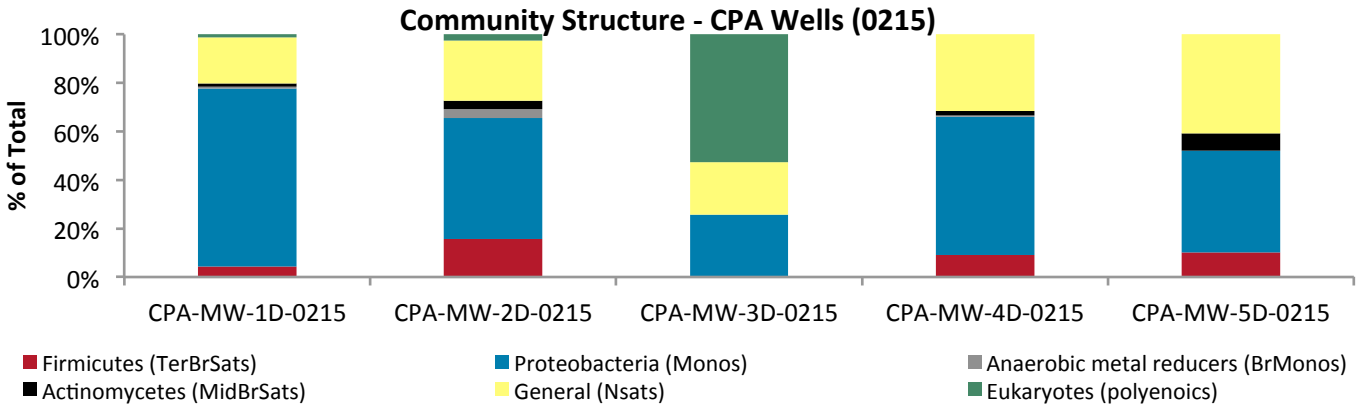

Figure 9. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include "fossil" lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	**Moderate**	**High**
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

PLFA Del (‰)		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC $\%^{13}C$ are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and $\%^{13}C$		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24%	>2.24%

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

References

1. White, D.C., W.M. Davis, J.S. Nickels, J.D. King, and R.J. Bobbie. 1979. Determination of the sedimentary microbial biomass by extractable lipid phosphate. Oecologia 40:51-62.
2. White, D.C. and D.B. Ringelberg. 1995. Utility of signature lipid biomarker analysis in determining in situ viable biomass. In P.S. Amy and D.L. Halderman (eds.) The microbiology of the terrestrial surface. CRC Press, Boca Raton.
3. Guckert, J.B., M.A. Hood, and D.C. White. 1986. Phospholipid ester-linked fatty acid profile changes during nutrient deprivation of *Vibrio chloerae*: increases in the trans/cis ratio and proportions of cyclopropyl fatty acids. Applied and Environmental Microbiology. 52:794-801.
4. Tsitko, I.V., G. M. Zaitsev, A. G. Lobanok, and M.S. Salkinoja-Salonen. 1999. Effect of aromatic compounds on cellular fatty acid composition of *Rhodococcus opacus*. Applied and Environmental Microbiology. 65:853-855.

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APPENDIX F
PM1M AND PM1D WELL INSTALLATION LETTER REPORT

February 3, 2015 Project No.: 1420093

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

RE: **INSTALLATION AND DEVELOPMENT OF NESTED GROUNDWATER MONITORING WELL PAIR PM1M AND PM1D**

Dear Mr. Rinaldi:

Golder Associates Inc. (Golder) is pleased to submit this letter report to Solutia Inc. (Solutia) summarizing recent drilling, well installation, development, and surveying activities performed approximately two miles north of the W. G. Krummrich Facility pursuant to a September 23, 2014, meeting among Solutia, the U.S. Environmental Protection Agency (USEPA), the U.S. Geological Survey (USGS), the Illinois Department of Transportation (IDOT), et al., and Solutia's September 29, 2014, letter to those parties.. Golder conducted drilling, installation, development, and surveying of two nested wells along the south side of Interstate 55 in East St. Louis, Illinois, between January 6, 2015 and January 22, 2015. The nested wells, designated PM1M and PM1D, are screened in the middle hydrogeologic unit (MHU) and the deep hydrogeologic unit (DHU), respectively. These wells will be sampled starting 1Q15 in conjunction with the quarterly Long-Term Groundwater Monitoring Program (LTM) for the W.G. Krummrich Facility. This letter summarizes the work performed during the drilling, installation, development, and surveying of nested wells PM1M and PM1D.

DRILLING, WELL INSTALLATION, DEVELOPMENT, AND SURVEYING

A nested groundwater monitoring well pair was installed in the IDOT right-of-way (to which access was granted by IDOT Permit No. 8-28940 dated December 1, 2014) along the south side of Interstate 55, approximately two miles north of the W.G. Krummrich Facility. Figure 1 shows the location of the new wells. Cascade Drilling, L.P. (Cascade) performed the drilling and well installation under the direct supervision of Golder. The new wells were drilled and installed using sonic drilling methods with a track-mounted 600C sonic drill rig.

Continuous soil samples were logged during drilling and the alluvial soils encountered generally consisted of silty and clayey soils overlying sand and gravel deposits. The lithology recorded on the field boring logs is similar to geologic descriptions for other MHU and DHU wells in the area. Soil samples were bagged and the headspace was screened for volatile organic compounds (VOC) using a photoionization detector, but samples did not exhibit VOC impact. Field boring logs were prepared for PM1M and PM1D and are included as Attachment A.

Monitoring well PM1M was constructed of two-inch diameter stainless steel type 304 riser pipe with a ten-foot long, wire-wrapped ten-slot (0.01-inch openings) stainless steel well screen. Monitoring well PM1D was constructed of two-inch diameter stainless steel type 304 riser pipe with a five-foot long, wire-wrapped ten-slot (0.01-inch openings) stainless steel well screen. The risers on each well extend to ground surface and were fitted with tight-fitting, unvented, locked caps.

PM1M was installed with the screened interval extending from approximately 51 to 61 feet below ground surface (ft BGS). PM1D was installed with the screened interval extending from approximately 101 to 106 ft BGS. See Table 1 below for additional well construction details and Attachment B for Golder's well construction logs and also "Water Well Construction Report" forms required by and submitted to the Illinois Department of Public Health (IDPH).

Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA
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Table 1: Well Construction Details

Well Identification	Northing	Easting	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen Depth (ft BGS)	Bottom of Screen Depth (ft BGS)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Total Depth (ft BGS)
PM1M	711838.03	2296672.04	~413	412.8	51.64	61.41	361.16	351.39	61.41
PM1D	711831.94	2296669.16	~413	412.78	101.42	106.45	311.36	306.33	106.45

Notes:
ft MSL – feet above mean sea level
ft BGS – feet below ground surface

The well screen filter packs were constructed using K&E #5 well sand and extend to a height of approximately two feet above the top of the screened intervals. The bentonite seal for each new well consisted of 3/8-inch Baroid Hole Plug chips extending three feet above the filter pack. A portland cement (type I/II) and quick gel mixture was placed above the bentonite seal to approximately 2.5 ft BGS. The borings were filled to ground surface with concrete for frost protection. The wells were completed using flush-mount protective covers mounted into concrete pads. See Attachment C for photographs of well installation and completions.

Zahner and Associates, Inc. provided professional land survey of the two new wells; see Attachment D. Monitoring well coordinates and elevations are shown in Table 1 above and listed on monitoring well construction logs in Attachment B.

Initial development of the wells was performed by Cascade using a Hurricane submersible pump to pump approximately 50 gallons of water from each well. Approximately 5 well volumes of groundwater was removed from each well during additional development by Golder using a combination of mechanical surging, bailing, and pumping. Surging and bailing was performed by lowering a stainless steel bailer on a rope to vigorously evacuate the well screen interval and also remove any sediment in the bottom of the well introduced during installation. After surging and bailing, a submersible Grundfos™ pump and clean, new, polyethylene discharge tubing were used to purge groundwater from each well during development. Development and purging of the wells was performed until field parameters (pH, conductivity and temperature) stabilized after purging at least three successive well volumes.

Soil cuttings and purge water were containerized in 55-gallon drums, labeled and staged for subsequent disposal by Solutia.

CLOSING

Golder appreciates the opportunity to continue to provide environmental and engineering consulting services to Solutia. Please contact us if you have any questions about the work or require additional information.

Sincerely,

GOLDER ASSOCIATES INC.

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

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

Lori A. Bindner
Geological Engineer

Attachments
Figure 1 – Well Locations
Attachment A – Field Boring Logs
Attachment B – Well Construction Logs/Forms (Golder and IDPH)
Attachment C – Photographs
Attachment D – Survey Results

FIGURE 1

WELL LOCATIONS

LEGEND

- LONG-TERM MONITORING WELL
- IDOT GROUNDWATER WELL
- RAILROAD TRACKS

0 250 500
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-01-27
PREPARED	LAB
DESIGN	LAB
REVIEW	MNH
APPROVED	MNH

PROJECT
INSTALLATION AND DEVELOPMENT OF NESTED GROUNDWATER MONITORING WELL PAIR PM1M AND PM1D

TITLE
WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
1420093	0001	0	1

Path: \\dfs\vol\common\Projects\140-Projects\1420093 - Solutia Well Installation - IL\Figures\ | File Name: 1420093 F0001.dwg

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

ATTACHMENT A

FIELD BORING

LOGS

Golder Associates

Field Boring Log

DEPTH HOLE 60	**PROJ. NO.** 1420093	**PROJECT** WCSK Well Installation		**BORING NO.** PMIM	
DEPTH SOIL DRILL 60	**GA INSP.** LAB	**DRILLING METHOD** Sonic 6-inch		**SHEET** 1 **OF** 3	
DEPTH ROCK CORE NA	**WEATHER** 7°F Mostly Sunny	**DRILLING COMPANY** Cascade Drilling		**SURFACE ELEV.** ~ 413 ft MSL	
ABANDONMENT NA		**DRILL RIG** 6000C	**DRILLER** Barden	**DATUM** Ground Surface	
DEPTHS 24.64 ft BGS / --- / 1/16/15 / —		**SAMPLER HAMMER TYPE** NA	**WT.** NA **DROP** NA	**STARTED** 1320 / 1/7/15	
WATER LEVEL / CAVE-IN / DATE-TIME / NOTE				TIME / DATE	
DEPTHS — / — / — / —		**HOLE LOCATION** E. St. Louis		**COMPLETED** 1415 / 1/7/15	
(DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE				TIME / DATE	

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
* —		
* —		
* —		
* NOTE SIZE		

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

ORDER OF DESCRIPTION

1) GROUP SYMBOL
2) SOIL GROUP NAME
3) PRIMARY COMPONENTS
4) SECONDARY COMPONENTS
5) MINOR COMPONENTS;
6) COLOR
7) WEATHERING
8) STRUCTURE
9) SENSITIVITY
10) CONTAMINATION
11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
15) DENSITY/CONSISTENCY

PLUS DESCRIPTION: CL/SI: PLASTICITY; SD: SIZE, GRADING; GL: SIZE, GRADING, SHAPE, ROCK TYPE

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	TYPE	HAMMER BLOWS PER 6 IN	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
1	(0-1.5) TOPSOIL (CL) SILTY CLAY, low plasticity, tr rootlets; grayish brown 5YR 3/2, cohesive w~PL, soft	NA	1	SC. Sonic	0.0	2/2		#1 (0-1.5) TOPSOIL (CL) SILTY CLAY, low plasticity, tr rootlets; grayish brown 5YR 3/2, cohesive, w~PL, soft
2	(1.5-2.0) FILL, asphalt, tr cobbles; dark brown to black							#1 (1.5-2) FILL dark brn to black, tr cobbles (asphalt)
	(2.0-3.0) FILL, rock	NA	2		0.0	0.5/1		#2 (2-3) FILL, large fill rock material
3	(3.0-7.0) (CL) SILTY CLAY, low plasticity; dusky yellowish brown 10YR 4/2, ALLUVIUM; cohesive, w>PL, soft.							#3 (3-7) ALLUVIUM (CL) SILTY CLAY, low plasticity; dusky yellowish brown 10YR 4/2, cohesive, w>PL, soft
4								
5		NA	3	SC. Sonic	0.0	3.5/4		
6								
7	(7.0-11.0) (ML) CLAYEY SILT, low plasticity, tr sand; dusky yellow brown 10YR 4/2, ALLUVIUM; cohesive, w~PL, soft.							#4 (7-11) ALLUVIUM (ML) CLAYEY SILT, low plasticity, tr sand; dusky yellow brown 10YR 4/2, cohesive, w~PL, soft.
8								
9								
10								
11	(11.0-17.0) (SP) SAND, fine, poorly graded; dusky yellow brown 10YR 4/2, ALLUVIUM; non-cohesive, moist, compact.		4	S.C. Sonic		8.5/10		#4 (11-16) ALLUVIUM (SP) SAND, fine, poorly graded; dusky yellow brown 10YR 4/2, non-cohesive, moist, compact.
12		NA			0.0			
13								
14								
15								#4 (16-17) SAA, f-m
16	Below 16 feet, f-m grained							
17	(17.0-21.0) (SP) SAND, fine, poorly graded; dusky yellow brown 10YR 4/2, ALLUVIUM; non-cohesive, moist, compact.				0.1			#5 (17-18) ALLUVIUM (SP) SAND, fine, poorly graded; dusky yellow brown 10YR 4/2, non-cohesive, moist, compact
18	Below 18.0 feet, olive brown 5Y 4/4, wet	▽						#5 (18-21) SAA, olive brown 5Y 4/4, wet
19			5	S.C. Sonic		9.5/10		
20		NA						
21	(21.0-28.0) (CL) SILTY CLAY, low plasticity, some sand; olive gray 5Y 4/1, ALLUVIUM; cohesive, w>PL, soft.							#5 (21-27) ALLUVIUM (CL) SILTY CLAY, low plasticity, some sand; olive gray 5Y 4/1, cohesive, w>PL, soft.
22								

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Field Boring Log

DEPTH HOLE 60 | PROJ. NO. 1420093 | PROJECT WGK Well Installation | BORING NO. PM1M

DEPTH SOIL DRILL 60 | GA INSP. CAB | DRILLING METHOD Sonic 6-inch | SHEET 2 OF 3

DEPTH ROCK CORE NA | WEATHER 70°F Mostly Sunny | DRILLING COMPANY Cascade Drilling | SURFACE ELEV. ~413 ft MSL

ABANDONMENT NA | DRILL RIG 600C | DRILLER Barden | DATUM Ground Surface

DEPTHS 24.64 ft BGS / — / 1/16/15 / — (WATER LEVEL / CAVE-IN / DATE-TIME / NOTE) | SAMPLER HAMMER TYPE NA | WT. NA | DROP NA | STARTED 1320 / 1/7/15 (TIME / DATE)

DEPTHS — / — / — / — (DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE | HOLE LOCATION | COMPLETED — / 1/7/15 (TIME / DATE)

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
* —		
* —		
*		

* NOTE SIZE

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

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5) MINOR COMPONENTS;

PLUS DESCRIPTION: CL/SI: PLASTICITY; SD: SIZE, GRADING; GL: SIZE, GRADING, SHAPE, ROCK TYPE

6) COLOR
7) WEATHERING
8) STRUCTURE
9) SENSITIVITY
10) CONTAMINATION
11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
15) DENSITY/CONSISTENCY

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	TYPE	HAMMER BID BLOWS PER 6 IN	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
23								
24								
25		NA	5	S.C. Sonic	0.0			
26								
27	Below 27.0 feet, olive gray 5Y 3/2.							#6 (27-28) SAA, olive gray 5Y 3/2
28	(28.0 - 60.0) (SP) SAND, f, poorly graded; olive gray 5Y 3/2, ALLUVIUM; non-cohesive, wet, compact.							#6 (28-35) ALLUVIUM (SP) SAND, f, poorly graded, olive gray 5Y 3/2, non-cohesive, wet, compact
29								
30								
31						8.5/10		
32		NA	6	S.C. Sonic	0.0			
33								
34								
35	Below 35.0 feet, olive gray 5Y 4/1.							#6 (35-37) SAA, olive gray 5Y 4/1
36								
37	Below 37.0 feet, olive brown 5Y 4/4							#7 (37-47) SAA, olive brown 5Y 4/4
38								
39								
40								
41		NA	7	S.C. Sonic	0.2	10/10		
42								
43								
44								

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Field Boring Log

DEPTH HOLE 60 | PROJ. NO. 1420093 | PROJECT Work Well Installation | BORING NO. PM1M

DEPTH SOIL DRILL 60 | GA INSP. LAB | DRILLING METHOD Sonic 6-inch | SHEET 3 OF 3

DEPTH ROCK CORE NA | WEATHER 7°F Mostly Sunny | DRILLING COMPANY Cascade Drilling | SURFACE ELEV. ~413 ft MSL

ABANDONMENT NA | DRILL RIG 600C | DRILLER Barden | DATUM Ground Surface

DEPTHS 24.64 ft BGS / — / 1/16/15 / — | SAMPLER HAMMER TYPE NA | WT. NA | DROP NA | STARTED 1320 / 1/7/15

(WATER LEVEL / CAVE-IN / DATE-TIME / NOTE) | TIME / DATE

DEPTHS — / — / — / — | HOLE LOCATION E. St. Louis | COMPLETED 1415 / 1/7/15

(DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE | TIME / DATE

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
*	___	___
*	___	___
*	___	___

* NOTE SIZE

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

ORDER OF DESCRIPTION

1) GROUP SYMBOL
2) SOIL GROUP NAME
3) PRIMARY COMPONENTS
4) SECONDARY COMPONENTS
5) MINOR COMPONENTS;
6) COLOR
7) WEATHERING
8) STRUCTURE
9) SENSITIVITY
10) CONTAMINATION
11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
15) DENSITY/CONSISTENCY

PLUS DESCRIPTION:
CL/SI: PLASTICITY
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GL: SIZE, GRADING, SHAPE, ROCK TYPE

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)		SAMPLES NO.	TYPE	HAMMER BLOWS PER 6 IN	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
45									
46		NA		7	S.C. Sonic				
47									#8 (47-54) SAA
48									
49									
50							8/10		
51		NA		8	S.C. Sonic				
52						0.0			
53									
54	Below 54.0 feet, some m-c sand, tr 5YR 5/6 coloring								#8 (54-57) w/some m-c sand, tr 5YR 5/6 coloring
55									
56									
57									#9 (57-60) SAA
58		NA		9	S.C. Sonic	0.0	2.5/3		
59									
	End of Borehole at 60 feet Below ground surface					End of Borhole			

Golder Associates

Golder Associates

Field Boring Log

DEPTH HOLE 107 | PROJ. NO. 1420093 | PROJECT WGK Well Installation | BORING NO. PMID

DEPTH SOIL DRILL 107 | GA INSP. LAB | DRILLING METHOD Sonic - 6 inch | SHEET 1 OF 5

DEPTH ROCK CORE NA | WEATHER 20's Mostly Sunny | DRILLING COMPANY Cascade Drilling | SURFACE ELEV. ~413 ft MSL

ABANDONMENT NA | DRILL RIG 600C | DRILLER Barden | DATUM Ground Surface

DEPTHS 24.72 ft BGS / — / 1/16/15 / — (WATER LEVEL / CAVE-IN / DATE-TIME / NOTE) | SAMPLER HAMMER TYPE NA | WT. NA | DROP NA | STARTED 1323 (TIME) / 1/16/15 (DATE)

DEPTHS — / — / — / — (DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE | HOLE LOCATION E. St. Louis | COMPLETED 1520 (TIME) / 1/16/15 (DATE)

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
* —	_____	
* —	_____	
* —	_____	
* NOTE SIZE		

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

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"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
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LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	TYPE	HAMMER BLOWS PER 6 IN	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
0	(0.0-1.0) TOPSOIL (CL) SILTY CLAY, low plasticity, tr rootlets; grayish brown 5YR 3/2; cohesive, w>PL, soft.	NA	1	S.C. sonic		2.5 / 2.5		#1 (0-1) TOPSOIL (CL) SILTY CLAY, low plasticity, tr rootlets; grayish brown 5YR 3/2, cohesive, w > PL, soft
1	(1.0-2.5) SAA, some red brick fragments, tr coarse gravel							(1-2.5) SAA, some red brick fragments, tr coarse gravel.
2								*Hand auger used to clear from 0-2.5 ft, auger refusal on brick fragments
3	(2.5-9.0) (CL) SILTY CLAY, low Plasticity; dusky yellowish brown 10YR 4/2, ALLUVIUM; cohesive, w>PL, soft.							#2 (2.5-7.0) ALLUVIUM (CL) SILTY CLAY, low plasticity; dusky yellowish brown 10YR 4/2, cohesive, w > PL, soft
4			2	S.C. sonic	0.0	4.0 / 4.5		
5		NA					5	
6								
7								
8								#3 (8.0-9.0) SAA
9	(9.0-16.0) (ML) CLAYEY SILT, low plasticity tr fine sand; dusky yellow brown 10YR 4/2, ALLUVIUM; cohesive, w~PL, soft.							#3 (9.0-16.0) ALLUVIUM (ML) ~~CLAYEY~~ SILT, low plasticity, tr fine sand; dusky yellow brown 10YR 4/2, cohesive, w~PL, soft
10							10	
11			3	S.C. sonic	0.0	8.5 / 10		
12		NA						
13								
14								
15								
16	(16.0-17.0) (SP) SAND, fine, poorly graded; dusky yellow brown 10YR 4/2, ALLUVIUM; non-cohesive, moist, soft.							#3 (16-17) ALLUVIUM (SP) SAND, fine, poorly graded dusky yellow brown 10YR 4/2, non-cohesive, moist, soft.
17	(17.0-24.5) (CL) SILTY CLAY, low Plasticity; olive gray 5Y 3/2, ALLUVIUM; cohesive, w>PL, soft.	▽			0.1			#4 (17-24.5) ALLUVIUM (CL) SILTY CLAY, low plasticity; olive gray 5Y 3/2, cohesive, w > PL, soft.
18								
19								
20		NA	4	S.C. sonic		9 / 10		
21								
22	(22.0-22.5) clay lense, high plasticity							#4 (22-22.5) clay lense

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Field Boring Log

DEPTH HOLE 107 | PROJ. NO. 1420093 | PROJECT WGK Well Installation | BORING NO. PMID

DEPTH SOIL DRILL 107 | GA INSP. LAB | DRILLING METHOD Sonic - 6 inch | SHEET 2 OF 5

DEPTH ROCK CORE NA | WEATHER 20's Mostly Sunny | DRILLING COMPANY Cascade Drilling | SURFACE ELEV. ~413 ft MSL

ABANDONMENT NA | DRILL RIG 600C | DRILLER Barden | DATUM Ground Surface

DEPTHS 24.72 ft BGS / — / 1/16/15 / — (WATER LEVEL / CAVE-IN / DATE-TIME / NOTE) | SAMPLER HAMMER TYPE NA | WT. NA | DROP NA | STARTED 1323 / 1/6/15 (TIME / DATE)

DEPTHS — / — / — / — (DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE | HOLE LOCATION E. St. Louis | COMPLETED 1323 / 1/6/15 (TIME / DATE)

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
*	—	—
*	—	—
*	—	—

* NOTE SIZE

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

ORDER OF DESCRIPTION

1) GROUP SYMBOL
2) SOIL GROUP NAME
3) PRIMARY COMPONENTS
4) SECONDARY COMPONENTS
5) MINOR COMPONENTS;

PLUS DESCRIPTION: CL/SI: PLASTICITY; SD: SIZE, GRADING; GL: SIZE, GRADING, SHAPE, ROCK TYPE

6) COLOR
7) WEATHERING
8) STRUCTURE
9) SENSITIVITY
10) CONTAMINATION
11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
15) DENSITY/CONSISTENCY

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	TYPE	HAMMER BLOWS PER 6 IN (PID)	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
23								
24	(24.8 - 63.5) (SP) SAND, fine; dusky yellow brown 10YR 4/2, ALLUVIUM; non-cohesive, wet, compact.	NA	4	S.C. Sonic	0.0			#4 (24.5 - 27) ALLUVIUM (SP) SAND, fine; dusky yellow brown 10 YR 4/2, non-cohesive, wet, compact.
25								
26								
27	below 27.0 feet, f-m grained, olive gray 5Y4/1							#5 (27 - 36) ALLUVIUM (SP) SAND, f-m; olive gray 5Y 4/1, non-cohesive, wet, compact
28								
29								
30								
31						9/10		
32		NA	5	S.C. Sonic	0.0			
33								
34								
35							35	
36	Below 36.0 feet, moderate olive brown 5Y4/4.							#5 (36 - 37) SAA - moderate olive brown 5Y 4/4
37	Below 37.0 feet, olive gray 5Y3/2							#6 (37 - 47) ALLUVIUM (SP) SAND, f-m; olive gray 5Y 3/2, non-cohesive, wet, compact
38								
39								
40						9.5/10		
41		NA	6	S.C. Sonic	0.2			
42								
43								
44								

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Field Boring Log

DEPTH HOLE 107	PROJ. NO. 1420093	PROJECT W6k Well Installation	BORING NO. PMID
DEPTH SOIL DRILL 107	GA INSP. LAB	DRILLING METHOD Sonic, 6-inch	SHEET 3 OF 5
DEPTH ROCK CORE NA	WEATHER 20's Mostly Sunny	DRILLING COMPANY Cascade Drilling	SURFACE ELEV. ~413 ft MSL
ABANDONMENT NA		DRILL RIG 6000C DRILLER Barden	DATUM Ground Surface
DEPTHS 24.72 ft BGS / — / 1/16/15 / —		SAMPLER HAMMER TYPE NA WT. NA DROP NA	STARTED 1323 / 1/16/15
WATER LEVEL / CAVE-IN / DATE-TIME / NOTE			TIME / DATE
DEPTHS — / — / — / —		HOLE LOCATION E. St. Louis	COMPLETED 1520 / 1/16/15
(DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE			TIME / DATE

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
* —		
* —		
* —		

* NOTE SIZE

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

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8) STRUCTURE
9) SENSITIVITY
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11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
15) DENSITY/CONSISTENCY

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
W > PL	CAN ROLL THREAD <2 mm

ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	SAMPLES TYPE	SAMPLES PID HAMMER BLOWS PER 6 IN	SAMPLES REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
45		NA	6	S.C. Sonic				
46								
47	Below 47.0 feet, m-c grained, some fines, tr gravel, tr river wood							#7 (47-57) ALLUVIUM (SP) SAND m-c, gap graded, some fines, trace gravel, trace river wood; olive gray 5Y 3/2, non-cohesive, wet, compact
48								
49								
50								
51		NA	7	S.C. Sonic	0.0			
52								
53								
54								
55								
56								
57	Below 57.0 feet, m-c grained, poorly graded, tr fines, tr gravel; olive gray 5Y 3/1,							#8 (57-63.5) ALLUVIUM (SP) SAND, m-c, poorly graded, tr fines, tr gravel; olive gray 5Y 3/7, non-cohesive, wet, compact
58								
59								
60								
61		NA	8	S.C. sonic	0.0			
62								
63	(63.5-65.0) weathered wood, odor							#8 (63.5-65) - weathered wood, organic, order
64								
65	(65.0-71.0) (SP) SAND, m-c poorly graded, tr fines, tr gravels, tr wood, olive gray 5Y 4/1, ALLUVIUM; non-cohesive, wet, compact.							#8 (65-67) ALLUVIUM (SP) SAND, m-c, poorly graded, tr fines, tr gravels, tr wood; olive gray 5Y 4/1, non-cohesive, wet, compact.
66								

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Field Boring Log

DEPTH HOLE 107	PROJ. NO. 1420093	PROJECT WGK Well Installation		BORING NO. PM1D	
DEPTH SOIL DRILL 107	GA INSP. LAB	DRILLING METHOD Sonic 6-inch		SHEET 4 OF 5	
DEPTH ROCK CORE NA	WEATHER 20's Mostly Sunny	DRILLING COMPANY Cascade Drilling		SURFACE ELEV. ~413 ftMSL	
ABANDONMENT NA		DRILL RIG 600 C	DRILLER	DATUM Ground Surface	
DEPTHS 24.72 ft BGS / — / 1/16/15 / —		SAMPLER HAMMER TYPE NA	WT. NA DROP NA	STARTED 1323 / 1/6/15	
(WATER LEVEL / CAVE-IN / DATE-TIME / NOTE)				(TIME / DATE)	
DEPTHS — / — / — / —		HOLE LOCATION E. St. Louis		COMPLETED 1520 / 1/6/15	
(DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE				(TIME / DATE)	

SAMPLE TYPES

A.S.	AUGER SAMPLE	
C.S.	CHUNK SAMPLE	
* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
S.C.	SOIL CORE	
* T.O.	THIN-WALLED, OPEN	
* T.P.	THIN-WALLED, PISTON	
W.S.	WASH SAMPLE	
*	___	___
*	___	___
*	___	___

* NOTE SIZE

ABBREVIATIONS

ANG	ANGULAR	GR	GRAY	R	RED
BL	BLACK	HE	HETEROGENEOUS	RES	RESIDUAL
BR	BROWN	HO	HOMOGENEOUS	RX	ROCK
C	COARSE	LYD	LAYERED	RND	ROUNDED
CIN	CAVE-IN	M	MEDIUM	SAT	SATURATED
CO	COHESIVE	MIC	MICACEOUS	SD	SAND
CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

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10) CONTAMINATION
11) MINEROLOGY
12) ORIGIN;
13) BEHAVIOR (CO/NC)
14) MOISTURE/WATER CONTENT
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PLUS DESCRIPTION:
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GL: SIZE, GRADING, SHAPE, ROCK TYPE

PROPORTIONS

"TRACE"	0 – 5%
"SOME"	5 – 12%
PREFIX "-Y"	12 – 35%
"AND"	35 – 50%

NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
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HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
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ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	TYPE	HAMMER BLOWS PER 6 IN	REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
67		NA	8	Sonic				#9 (67-71) ALLUVIUM (SP) SAND, m-c, poorly graded, tr fines, tr gravels; olive gray 5YR 4/1, non-cohesive, wet, compact
68								
69								
70								
71	(71.0-77.0) (GP) GRAVEL, fine, Poorly graded, some m-c fines, some cobbles; olive gray 5YR 4/1, ALLUVIUM; non-cohesive, wet, compact.	NA	9	S.C. sonic	0.0	7.5/10		#9 (71-77) ALLUVIUM (GP) GRAVEL, fine, poorly graded, some m-c fines, some cobbles; olive gray 5YR 4/1, non-cohesive, wet, compact.
72								
73								
74								
75								
76								
77	(77.0-86.0) (SP) SAND, fine, poorly graded; olive gray 5YR 4/1, ALLUVIUM; non-cohesive, wet, compact.							#10 (77-86) ALLUVIUM (SP) SAND, fine; olive gray 5YR 4/1, non-cohesive, wet, compact
78								
79								
80								
81						8/10		
82		NA	10	S.C. sonic	0.0			
83								
84								
85								
86	(86.0-87.0) (CL) SILTY CLAY, low plasticity; olive gray 5YR 4/1, ALLUVIUM; cohesive, w~PL, soft.							#10 (86-87) ALLUVIUM (CL) SILTY CLAY, low plasticity; olive gray 5YR 4/1, cohesive, w~PL, soft.
87	(87.0-97.0) (GP) GRAVEL, fine, poorly graded, some fines, trace cobbles; olive gray 5YR 4/1, ALLUVIUM; non-cohesive, wet, compact.	NA	11	S.C. sonic				#11 (87-97) ALLUVIUM, (GP) GRAVEL, fine, poorly graded, some fines, trace cobbles; olive gray 5YR 4/1, non-cohesive, wet, compact
88								

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Field Boring Log

DEPTH HOLE 107	**PROJ. NO.** 1420093	**PROJECT** WSGK Well Installation		**BORING NO.** PM1D	
DEPTH SOIL DRILL 107	**GA INSP.** LAB	**DRILLING METHOD** Sonic, 6-inch		**SHEET** 5 **OF** 5	
DEPTH ROCK CORE NA	**WEATHER** 20s Mostly Sunny	**DRILLING COMPANY** Cascade Drilling		**SURFACE ELEV.** ~413 ft MSL	
ABANDONMENT NA		**DRILL RIG** 600C	**DRILLER**	**DATUM** Ground Surface	
DEPTHS 24.72 ft BGS / — / 1/16/15 / —		**SAMPLER HAMMER TYPE** NA	**WT.** NA **DROP** NA	**STARTED** 1323 / 1/6/15	
WATER LEVEL / CAVE-IN / DATE-TIME / NOTE				TIME / DATE	
DEPTHS — / — / — / —		**HOLE LOCATION** E. St. Louis		**COMPLETED** 1520 / 1/6/15	
(DELAYED) WATER LEVEL / CAVE-IN / DATE-TIME / NOTE				TIME / DATE	

SAMPLE TYPES

A.S.	AUGER SAMPLE	
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* D.O.	DRIVE OPEN (SPT)	
D.S.	DENISON SAMPLE	
F.S.	FOIL SAMPLE	
P.S.	PITCHER SAMPLE	
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* T.P.	THIN-WALLED, PISTON	
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* —	_____	
* —	_____	
* —	_____	

* NOTE SIZE

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CL	CLAY	MOT	MOTTLED	SI	SILT
CLY	CLAYEY	MST	MOIST	SIY	SILTY
D	DRY	NC	NON-COHESIVE	SM	SOME
EL	ELONGATED	NP	NON-PLASTIC	TR	TRACE
F	FINE	OG	ORANGE	WL	WATER LEVEL
FL	FLAT	ORG	ORGANIC	WH	WEIGHT OF HAMMER
FRAG	FRAGMENTS	PP	POCKET PEN.	WR	WEIGHT OF RODS
GL	GRAVEL	PL	PLASTIC LIMIT	Y	YELLOW

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5) MINOR COMPONENTS;
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PROPORTIONS

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PREFIX "-Y"	12 – 35%
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NON-COHESIVE SOILS

RELATIVE DENSITY		BLOWS
VERY LOOSE	VLS	0 – 4
LOOSE	LS	4 – 10
COMPACT	CP	10 – 30
DENSE	DN	30 – 50
VERY DENSE	VDN	>50

MOISTURE CONDITION

DRY	SOIL FLOWS
MOIST	FEELS COOL
WET	WITH FREE WATER

COHESIVE SOILS

CONSISTENCY		PP(TSF)	FINGER PRESSURE
VERY SOFT	VS	<0.25	EXTRUDES
SOFT	S	0.25 - 0.5	MOLDS EASILY
FIRM	FM	0.5 – 1	MOLDS
STIFF	ST	1 – 2	THUMB INDENTS
VERY STIFF	VST	2 – 4	THUMBNAIL INDENTS
HARD	H	>4	RESISTS THUMBNAIL

WATER CONTENT - W

W < PL	CANNOT ROLL 4 mm THREAD
W ~ PL	CAN ROLL THREAD 2 – 4 mm
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ELEV. / DEPTH	LITHOLOGY	SPT N / PP (TSF)	SAMPLES NO.	SAMPLES TYPE	SAMPLES HAMMER BLOWS PER 6 IN / PID	SAMPLES REC / ATT	DEPTH	SAMPLE DESCRIPTION AND DRILLING NOTES
89								
90								
91			11	S.C. Sonic		8/10		
92		NA						
93					0.0			
94								
95								
96								
97	(97.0-99.0) (SP) SAND, f-m, poorly graded, tr gravel, tr cobbles; olive gray 5Y 3/2, ALLUVIUM; non-cohesive, wet, compact.							#12 (97-99) ALLUVIUM (SP) SAND, f-m, poorly graded, tr gravel, tr cobbles; olive gray 5Y 3/2, non-cohesive, wet, compact
98								
99	(99.0-100.0) (GP) GRAVEL, f, poorly graded, trace cobbles; olive gray 5Y 3/2, ALLUVIUM; non-cohesive, wet, compact.							#12 (99-100) ALLUVIUM (GP) GRAVEL, f, poorly graded, trace cobbles, non-cohesive, wet, compact
100								
101	(100.0 - 107.0) (SP) SAND, f-m, poorly graded, tr gravel, tr cobbles; olive gray 5Y 3/2, ALLUVIUM; non-cohesive, wet, compact.	NA	12	S.C. Sonic	0.0	7/10		#12 (100-107) ALLUVIUM (SP) SAND, f-m, poorly graded, tr gravel, tr cobbles; Olive gray 5Y 3/2, non-cohesive, wet, compact
102								
103								
104								
105								
106								
107	End of Borehole at 107.0 feet Below ground surface.							#12 (107) End of Borehole

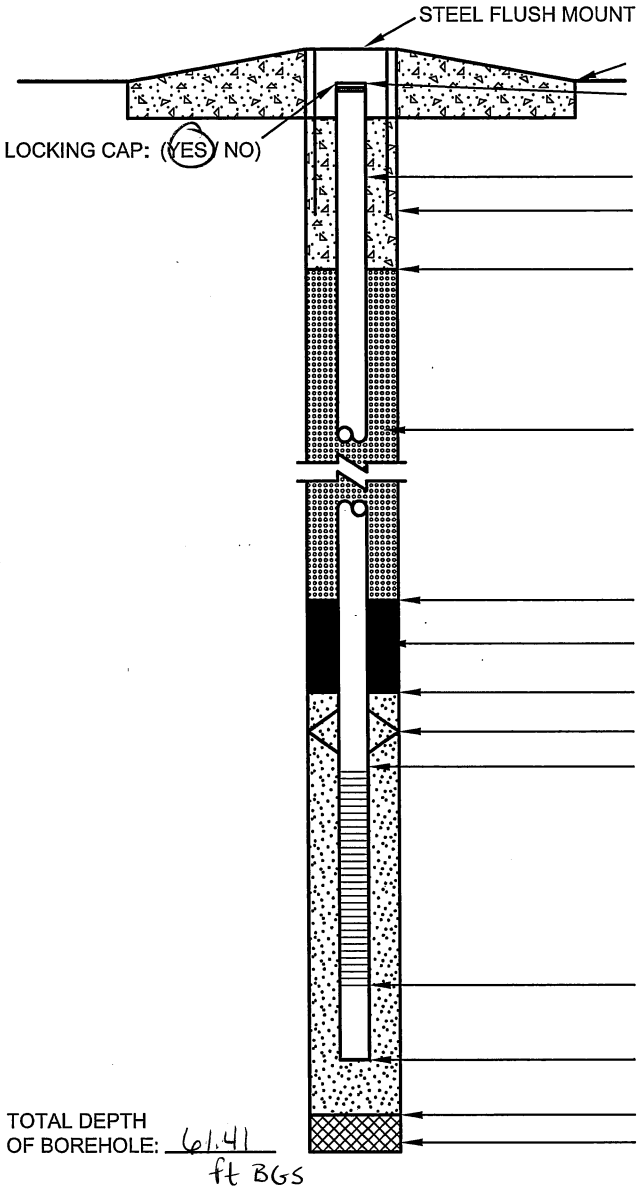
Golder Associates

ATTACHMENT B

WELL CONSTRUCTION LOGS/FORMS (GOLDER AND IDPH)

FLUSH-MOUNT MONITORING WELL CONSTRUCTION LOG PMIM

PROJECT NAME: WGK - Well Installation		PROJECT NUMBER: 1420093
SITE NAME: WGK - LTM		LOCATION: PMIM
CLIENT: Solutia Inc.		SURFACE ELEVATION: ~ 413 ft MSL
GEOLOGIST: L. Bindner	NORTHING: 711838.03	EASTING: 2296672.04
DRILLER: Barden	STATIC WATER LEVEL: 24.64 ft BGS	COMPLETION DATE: 1/8/15
DRILLING COMPANY: Cascade Drilling		DRILLING METHODS: Sonic



GROUND SURFACE ELEVATION: ~ 413 ft MSL

TOP OF CASING ELEVATION: 412.80 ft MSL

DIAMETER OF RISER PIPE (in.): 2-in SS Type 304

DIAMETER OF BOREHOLE (in.): 6-in

CONCRETE SEAL DEPTH (ft. bgs): approx. 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: 8x94 lb bags Portland Cement Type I/II and 1x50 lb bag Quickgel

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 46.64

TYPE AND AMOUNT OF BENTONITE SEAL: 1x50 lb bag bentonite chips 3/8"

TOP OF SAND PACK DEPTH (ft. bgs): 49.64

CENTRALIZER (yes (no)) - TYPE: —

TOP OF SCREEN DEPTH (ft. bgs): 51.64

TYPE OF SCREEN: SS Type 304

SCREEN SLOT SIZE (in.): 0.010 (Ten Slot)

SIZE OF SAND PACK: passes NSF B100 specs K+E #5

AMOUNT OF SAND: 6 x 50 lb bags

BOTTOM OF SCREEN DEPTH (ft. bgs): 61.41

BOTTOM OF WELL DEPTH (ft. bgs): 61.41

BOTTOM OF FILTER PACK (ft. bgs): 61.41

TYPE AND AMOUNT OF BACKFILL: None

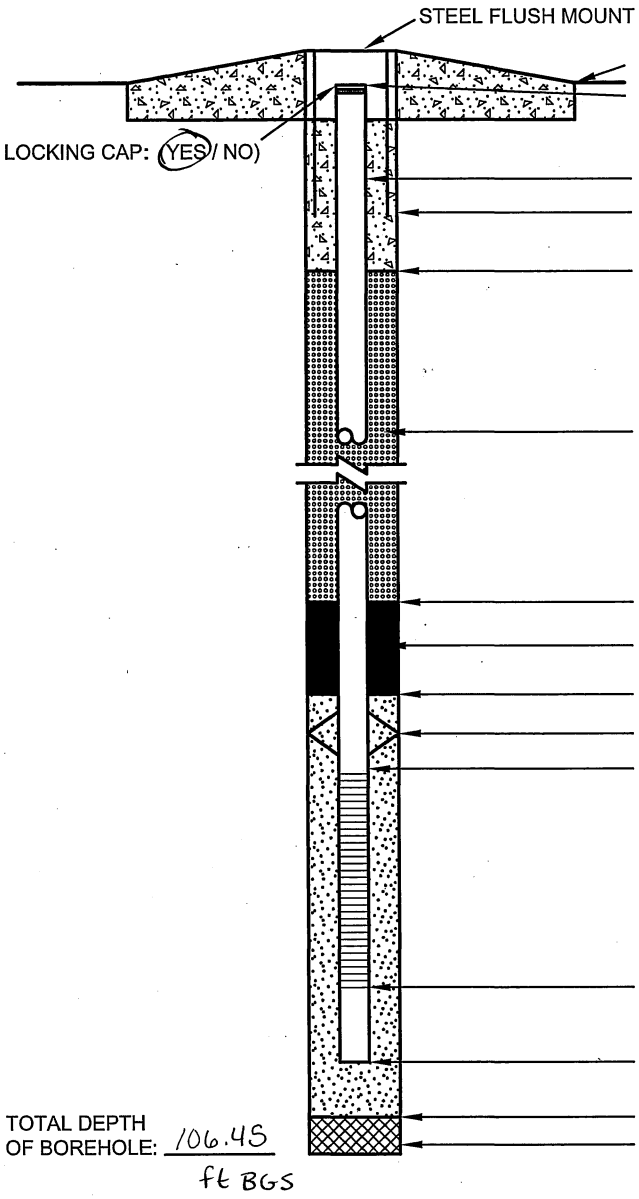
ADDITIONAL NOTES: Screen length = 9 ft. 9 1/4 inches = 9.77083 ft.
Riser length = 10 ft. 1/4 inches

Golder Associates

PREPARED BY: LAB

FLUSH-MOUNT MONITORING WELL CONSTRUCTION LOG PMID

PROJECT NAME: WGK-Well Installation		PROJECT NUMBER: 1420093
SITE NAME: WGK-LTM		LOCATION: PMID
CLIENT: Solutia Inc.		SURFACE ELEVATION: ~413 ft MSL
GEOLOGIST: L. Bindner	NORTHING: 711831.94	EASTING: 2296669.16
DRILLER: Barden	STATIC WATER LEVEL: 24.72 ft BGS	COMPLETION DATE: 1/8/14
DRILLING COMPANY: Cascade Drilling		DRILLING METHODS: Sonic



STEEL FLUSH MOUNT WELL PROTECTER

LOCKING CAP: (YES) / NO)

GROUND SURFACE ELEVATION: ~413 ft MSL

TOP OF CASING ELEVATION: 412.78 ft MSL

DIAMETER OF RISER PIPE (in.): 2-in SS Type 304

DIAMETER OF BOREHOLE (in.): 6-in

CONCRETE SEAL DEPTH (ft. bgs): approx 2.5

TYPE AND AMOUNT OF ANNULAR SEAL: 9x94lbs Portland Cement Type I/II and ~3/4 bag Quick Gel

TOP OF BENTONITE SEAL DEPTH (ft. bgs): 96.42

TYPE AND AMOUNT OF BENTONITE SEAL: 1x50lb bag bentonite Chips 3/8"

TOP OF SAND PACK DEPTH (ft. bgs): 99.42

CENTRALIZER (yes / (no)) - TYPE: —

TOP OF SCREEN DEPTH (ft. bgs): 101.42

TYPE OF SCREEN: SS Type 304

SCREEN SLOT SIZE (in.): 0.010 (Ten Slot)

SIZE OF SAND PACK: passes NSF B100 specs H+E #5

AMOUNT OF SAND: 3x50lb bags

BOTTOM OF SCREEN DEPTH (ft. bgs): 106.45

BOTTOM OF WELL DEPTH (ft. bgs): 106.45

BOTTOM OF FILTER PACK (ft. bgs): 106.45

TYPE AND AMOUNT OF BACKFILL: —

TOTAL DEPTH OF BOREHOLE: 106.45 ft BGS

ADDITIONAL NOTES: Screen length = 5ft, 1/4 inches = 5.0283 ft.
Riser = 10ft, 1/4 inches

Golder Associates

PREPARED BY: LAB

State of Illinois
Department of Public Health

WATER WELL CONSTRUCTION REPORT

Complete within 30 days of well completion and send to the appropriate Health Department

Print Form

1. Type of Well

a. Driven Well: Casing Diameter (in.) _____ Depth (ft.) _____

b. Bored Well: Casing Diameter (in.) _____ Buried Slab? _____

c. Drilled Well: PVC Casing Formation Packer set at depth of (ft.) 61.41

d. Drilled Well: Steel Casing Mechanically Driven _____

e. Hole Diameter (in.) 6" to (ft.) 61.41 ; (in.) ___ to (ft.) ___ ; (in.) ___ to (ft.) ___

f.

Type of Grout	# of bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
CEMENT/ BENTONITE	8 X 94LB. PORT		46.64'	2.5'	
	1 X 50LB. GEL				

g. Well Finished within Unconsolidated Materials

h.

Kind of Gravel/Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
SAND / PASSES NSF. B100	NO. 1 K&E	61.41	49.64

2. Well Use: Monitoring Well Disinfected? No

3. Date Well Completed: Jan 8, 2015 Driller's Estimated Well Yield (gpm): _____

4. Date Permanent Pump Installed: _____ Set at depth (ft.): _____

5. Pump Capacity (gpm): _____

6. Pitless Adapter Model and Manufacturer: _____ Attachment to Casing: _____

7. Well Cap Type & Manufacturer: 8" Round SEMCO Flushmount

8. Pressure Tank: Working Cycle (gals.): _____ Captive Air? _____ 9. Pump System Disinfected: _____

10. Name of Pump Company: _____

11. Pump Installer: _____ License # _____

12. _____ Date _____

Licensed Pump Installation Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 West Jefferson Street
Springfield, IL 62761

IL 482-0126

IMPORTANCE NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is Mandatory. This form has been approved by the Forms Management Center.

13. Property Owner: IDOT . Illinois Dept. of Trans Well # PMIM

14. Driller: Todd Schmalfieldt (Chris Barden) License # 092-008879

15. Name of Drilling Company : CASCADE DRILLING 16. Permit Number: _____

Date Issued: _____ 17. Date Drilling Started: Jan 8, 2015

18. Well Site Address: EMPTY LOT ON THE NE CORNER OF BOND AND BARACK OBAMA AVE.

19. Township Name: EAST ST. LOUIS Land I.D. # _____

20. Subdivision Name: _____ Lot # _____

21. Location: a. County St. Clair b. Site Elevation _____ ft. (above msl)

c. Township: 2N Range: 10W Section: 14

d. NW Quarter of the NE Quarter of the SE Quarter

e. GPS: Lat: Degrees 38 Minutes 37' Seconds 17.8693"

Lon: Degrees -090 Minutes 09' Seconds 58.9401"

Survey use only

22. Casing and Liner Information

Diameter (in.)	Material, Joint Type	From (ft.)	To (ft.)
2	STAINLESS STEEL (304) FLUSH JOINT	51.64	41.05

23. Is the well screened? Yes If yes

Diameter (in.)	Length (ft.)	Slot Size (in.)	From (ft.)	To (ft.)
2 INCH S.S.	10'	010	61.41	51.41

24. Water from _____ at a depth of (ft.) _____ To. (ft.) _____

a. static wate level (ft.) below casing 24.64 which is (in.) above ground _____

b. pumping level is (ft.) _____ pumping (gpm) _____ for (hours) _____

25.

Earth Materials Passed Through	From (ft.)	To (ft.)
Topsoil and Fill	0	2
Silty Sandy Clay Brown	2	17
Fine Brown Sand	17	21
Silty Gray Clay	21	28
Poorly Graded Olive Gray and Brown Sand (Wet)	28	61.4

(Attach 2nd page, if necessary) (If DRY HOLE, fill out log & indicate how hole was sealed)

Todd A Schmalfieldt 1-28-15 License # 092-008879

Licensed Water Well Contractor Signature

State of Illinois
Department of Public Health

WATER WELL CONSTRUCTION REPORT

Complete within 30 days of well completion and send to the appropriate Health Department

Print Form

1. Type of Well

a. Driven Well: Casing Diameter (in.) _____ Depth (ft.) _____

b. Bored Well: Casing Diameter (in.) _____ Buried Slab? _____

c. Drilled Well: PVC Casing Formation Packer set at depth of (ft.) 106.45

d. Drilled Well: Steel Casing Mechanically Driven _____

e. Hole Diameter (in.) 6" to (ft.) 106.5 ; (in.) ___ to (ft.) _____ ; (in.) ___ to (ft.) _____

f.

Type of Grout	# of bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
CEMENT/ BENTONITE	9 X 94LB. PORT		96.42	2.5'	
	1 X 50LB. GEL				

g. Well Finished within Unconsolidated Materials

h.

Kind of Gravel/Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
SAND / PASSES NSF, B100	NO. 1 K&E	106.45	99.42

2. Well Use: Monitoring Well Disinfected? No

3. Date Well Completed: Jan 8, 2015 Driller's Estimated Well Yield (gpm): _____

4. Date Permanent Pump Installed: _____ Set at depth (ft.): _____

5. Pump Capacity (gpm): _____

6. Pitless Adapter Model and Manufacturer: _____ Attachment to Casing: _____

7. Well Cap Type & Manufacturer: 8" Round SEMCO Flushmount

8. Pressure Tank: Working Cycle (gals.): _____ Captive Air? _____ 9. Pump System Disinfected: _____

10. Name of Pump Company: _____

11. Pump Installer: _____ License # _____

12. _____ Date _____

Licensed Pump Installation Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 West Jefferson Street
Springfield, IL 62761

IL 482-0126

IMPORTANCE NOTICE: This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is Mandatory. This form has been approved by the Forms Management Center.

13. Property Owner: IDOT IL. Dept of Trans. Well # PMID

14. Driller: Todd Schmalfieldt (Chris Barden) License # 092-008879

15. Name of Drilling Company : CASCADE DRILLING 16. Permit Number: _____

Date Issued: _____ 17. Date Drilling Started: Jan 7, 2015

18. Well Site Address: EMPTY LOT ON THE NE CORNER OF BOND AND BARACK OBAMA AVE.

19. Township Name: EAST ST. LOUIS Land I.D. # _____

20. Subdivision Name: _____ Lot # _____

21. Location: a. County St. Clair b. Site Elevation _____ ft. (above msl)

c. Township: 2N Range: 10W Section: 14

d. NW Quarter of the NE Quarter of the SE Quarter

e. GPS: Lat: Degrees 38 Minutes 37' Seconds 17.82"

Lon: Degrees -090 Minutes 09' Seconds 58.91"

Survey use only

22. Casing and Liner Information

Diameter (in.)	Material, Joint Type	From (ft.)	To (ft.)
2	STAINLESS STEEL (304) FLUSH JOINT	51.64	05

23. Is the well screened? Yes If yes

Diameter (in.)	Length (ft.)	Slot Size (in.)	From (ft.)	To (ft.)
2 INCH S.S.	5'	010	106.45	101.42

24. Water from _____ at a depth of (ft.) _____ To. (ft.) _____

a. static wate level (ft.) below casing 24.72 which is (in.) above ground _____

b. pumping level is (ft.) _____ pumping (gpm) _____ for (hours) _____

25.

Earth Materials Passed Through	From (ft.)	To (ft.)
Topsoil and Fill	0	2
Silty Sandy Clay Brown	2	17
Fine Brown Sand	17	21
Silty Gray Clay	21	28
Poorly Graded Olive Gray and Brown Sand (Wet)	28	86
Silty Clay Low Plasticity, Olive Gray (See Log)	86	87

(Attach 2nd page, if necessary) (If DRY HOLE, fill out log & indicate how hole was sealed)

Todd A Schmalfieldt 1-28-15 License # 092-008879

Licensed Water Well Contractor Signature

ATTACHMENT C

PHOTOGRAPHS

Photograph 1 – Cascade sonic drill rig installing groundwater monitoring well PM1D.

Photograph 2 – View looking south from the north of completed flush mount wells PM1M and PM1D. Well PM1M is the closest well in view. The highway pictured in the upper left is Interstate 64/40 and Interstate 55.

Photograph 3 – Flush mount completion of the PM wells. (PM1M is pictured)

Photograph 4 – Flush mount well completion of the PM wells with lockable well cap.

ATTACHMENT D

SURVEY RESULTS

ZAHNER
AND ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS

200 Zahner Place
Perryville, Missouri 63775

(573) 547-1771
Fax (573) 547-1452

1-800-773-1771
zahner@zahnerinc.com

January 28, 2015

Lori Bindner
Golder Associates, Inc.
820 S Main St, Suite 100
St. Charles, MO 63301

Dear Ms. Bindner:

The coordinates and elevations for the Sauget, Illinois Plant well locations are as follows:

Monitoring Wells – Sauget, Illinois				
ID	Northing	Easting	Top of Casing Elevation	Top of Concrete Elevation
PM1M	711838.03	2296672.04	412.80	413.07
PM1D	711831.94	2296669.16	412.78	413.41

Horizontal Datum: State Plane Coordinates NAD83 (2011) Illinois West Zone
Vertical Datum: NAVD88
Date of Survey: 1-22-2015

Sincerely,

Michael D. Zahner, P.L.S.
Zahner & Associates, Inc.

STATE OF ILLINOIS
MICHAEL
D. ZAHNER
NUMBER
035-003238
REGISTERED LAND SURVEYOR

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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Golder Associates