Solutia Inc.
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November 13, 2017

Ms. Carolyn Bury - LU-16J
U.S. EPA Region 5
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

Re: Long-Term Monitoring Program
3rd Quarter 2017 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Long-Term Monitoring Program 3rd Quarter 2017 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. Results from sampling of supplemental piezometers GWE-1D, 2D, and 3D and supplemental wells GWE-5D, ESL-MW-A and D1, and PM1D are also included in this report.

Per EPA's February 9, 2016, response to Solutia's December 23, 2015, submittal:

- sampling of supplemental piezometers GWE-5S and 5M and supplemental wells ESL-MW-C1and PM1M has been discontinued; and
- the sampling frequency for supplemental piezometer GWE-1D and supplemental well ESL-MW-A has been reduced to the first and third quarters.

On May 2, 2017, Solutia submitted a "Periodic Technical Review" recommending changes to this groundwater monitoring program, along with similar Reviews for the other programs. Solutia will continue each program unchanged, but I'd like to talk with you about getting US EPA's response to our recommendations before implementation of 4th quarter 2017 monitoring, currently postponed from ~ November 1 to ~ December 1 (similar to the 3rd quarter 2017 postponement from ~ August 1 to ~ September 1).

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
3rd Quarter 2017 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

GROUNDWATER MONITORING REPORT

3rd QUARTER 2017 DATA REPORT
LONG-TERM MONITORING PROGRAM
SOLUTIA INC., W.G. KRUMMRICH PLANT
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

November 2017 **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 3rd Quarter 2017 (3Q17) Long-Term Monitoring Program (LTMP) groundwater sampling activities at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) plant (Site) in Sauget, Illinois. The plant is located at 500 Monsanto Avenue, Sauget, Illinois as shown on Figure 1.

The 3Q17 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 additional monitoring wells and piezometers (supplemental wells) approximately 1.0 to 1.5 miles north of the Site. In response to Solutia's December 23, 2015, request, on February 9, 2016, the USEPA reduced the number of supplemental wells from eleven (11) to seven (7) for the first and third quarter sampling events and to five (5) for the second and fourth quarter sampling events.

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

Seventeen (17) monitoring wells and piezometers are sampled during the 3Q17 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-D1
		GWE-1D
		GWE-2D
		GWE-3D
		GWE-5D
		PM1D

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 3Q17 LTMP sampling event, surface water and sediment samples were not collected.

2.0 FIELD ACTIVITIES

Golder conducted 3Q17 sampling events between September 4 and September 7, 2017. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 3Q17 event, Golder performed a synoptic round of water level measurements at 76 monitoring wells and piezometers on August 31 and September 1, 2017. 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 3Q17 sampling event, NAPL was not detected in any of the monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 3Q17 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 3Q17 LTMP event were purged and sampled using low-flow sampling techniques, low-density polyethylene tubing (LDPE) and a submersible or peristaltic pump (GWE-1D, GWE-2D and GWE-3D). 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 were analyzed using USEPA SW-846 Method 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- 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

Two (2) analytical duplicates (AD), two (2) equipment blanks (EB) and one (1) matrix spike/matrix spike duplicate (MS/MSD) pairs were collected during the 3Q17 LTMP sampling event. Laboratory provided trip blanks were included in each cooler containing samples for VOC analysis, for a total of four (4) 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.: September (3rd quarter), 2017 (0917)
- **"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 or Canton, Ohio.

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 SIPs, provided by Microbial Insights, Inc. in Rockford, Tennessee, were deployed on June 28, 2017 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 analysis. 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 August 31, 2017, 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 upon 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. Results were submitted in four (4) sample delivery groups (SDGs) as follows:

Sample Delivery Group (SDG)	Sample Identification
KPS196	PM1D-0917
	ESL-MW-D1-0917
	ESL-MW-A-0917
	GWE-5D-0917
	3Q17 LTM Trip Blank #1
KPS197	GWE-3D-0917
	GWE-2D-0917
	GWE-1D-0917
	CPA-MW-5D-0917
	3Q17 LTM Trip Blank #2
KPS199	BSA-MW-5D-0917
	BSA-MW-4D-0917
	BSA-MW-3D-0917
	BSA-MW-3D-0917-EB
	CPA-MW-4D-0917
	CPA-MW-3D-0917
	CPA-MW-3D-0917-AD
	3Q17 LTM Trip Blank #3
KPS198	CPA-MW-2D-0917
	CPA-MW-2D-0917-AD
	CPA-MW-1D-0917
	BSA-MW-2D-0917
	BSA-MW-1S-0917
	BSA-MW-1S-0917-EB
	3Q17 LTM Trip Blank #4

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 was deemed usable. The completeness for the data set was 100%. Qualifications are included in Appendix C.

4.0 OBSERVATIONS

Groundwater analytical data for VOCs and MNA parameters are discussed below and presented in Table 2 and 3, respectively. The groundwater analytical laboratory results including data validation reports are included in Appendix D.

4.1 Benzene

Benzene was detected in five (5) of the seventeen (17) monitoring wells and piezometers at concentrations ranging from 16 µg/L (GWE-5D) to 470,000 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 470,000 µg/L.
- Downgradient of Former Benzene Storage Area: Benzene was detected in two (2) of four (4) wells downgradient of the former Benzene Storage Area with concentrations ranging from 22 µg/L (BSA-MW-4D) to 21,000 µg/L (BSA-MW-2D) in the DHU north of the GMCS.
- Former Chlorobenzene Process Area: Benzene was detected in the former Chlorobenzene Process Area source area well (CPA-MW-1D) at a concentration of 9,300 µg/L.
- Downgradient of Former Chlorobenzene Process Area: Benzene was not detected in the wells downgradient of the former Chlorobenzene Process Area.
- North of the Site: Benzene was detected in one (1) of five (5) wells and piezometers north of the Site with a concentration of 16 µg/L (GWE-5D).

4.2 Chlorobenzenes (Total)

Total chlorobenzenes (i.e., sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene) were detected in thirteen (13) of the seventeen (17) wells at concentrations ranging from 25 µg/L (PM1D) to 45,400 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 110 µg/L (BSA-MW-5D) to 2,426 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 45,400 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 151.9 µg/L (CPA-MW-4D) to 29,900 / 29,940 µg/L (CPA-MW-2D and AD). Total chlorobenzenes were detected at a concentration of 1,700 µg/L (CPA-MW-5D) north of the GMCS.
- North of the Site: Total chlorobenzenes were detected in five (5) of seven (7) wells and piezometers north of the Site with concentrations ranging from 25 µg/L (PM1D) to 1,510 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, BSA-MW-5D, and CPA-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: 1,4-Dioxane was detected in BSA-MW-2D and BSA-MW-4D at concentrations of 17 µg/L and 13 µg/L respectively, downgradient of the former Benzene Storage Area. 2-Chlorophenol was detected in BSA-MW-4D at a concentration of 16 µg/L, downgradient of the former Benzene Storage Area. 1,2,4-trichlorobenzene was 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 600 µg/L.
- Downgradient of Former Chlorobenzene Process Area: 4-Chloroaniline was detected in CPA-MW-4D at a concentration of 140 µg/L, downgradient of the former Chlorobenzene Process Area. 2-Chlorophenol was detected in CPA-MW-2D / CPA-MW-2D-AD and CPA-MW-5D at 36 / 39 µg/L and 21 µg/L respectively, downgradient of the former Chlorobenzene Process Area. 1,2,4-Trichlorobenzene was not detected downgradient of the former Chlorobenzene Process Area, and 1,4-Dioxane was not detected in CPA-MW-5D.

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:

- "The detection of ^{13}C-enriched biomass and DIC confirmed that benzene biodegradation had occurred at BSA-MW-2D-0917 during the deployment period".
- "The detection of ^{13}C-enriched biomass and DIC confirmed that chlorobenzene biodegradation had occurred at CPA-MW-3D-0917 during the deployment period".
- Dissolved inorganic carbon (DIC) data for BSA-MW-2D-0917 indicate that "substantial benzene mineralization occurred during the deployment period."
- DIC data for CPA-MW-3D-0917 indicate that "some chlorobenzene mineralization occurred during the deployment period."
- 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.

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

for
Mark N. Haddock, R.G., P.E.
Principal, 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

FORMER CHLOROBENZENE PROCESS AREA

STERLING STEEL

SITE H

SITE L

SITE M

DEAD CREEK

SITE I

CERRO FLOW PRODUCTS

SITE G

CONTAINMENT CELL

W.G. KRUMMRICH FACILITY

QUEENY AVE

ROUTE 3

AFTON CHEMICAL

MONSANTO AVENUE

MIDWEST RUBBER

BIG RIVER ZINC

ROUTE 3

CENTER ETHANOL COMPANY, LLC.

FORMER BENZENE STORAGE AREA

LOT F

SITE O

SITE P

AMEREN

PCHEM POTW

AMERICAN BOTTOMS POTW

CLAYTON CHEMICAL

SITE S

VEOLIA INCINERATION

IDOT DEWATERING WELL SYSTEM

WATCO

SITE R

SITE Q

BARRIER WALL

GROUNDWATER PUMPING WELLS

MISSISSIPPI RIVER

LEGEND

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

0 500 1000
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-09-01
PREPARED	TJG
DESIGN	TJG
REVIEW	SJD
APPROVED	AWD

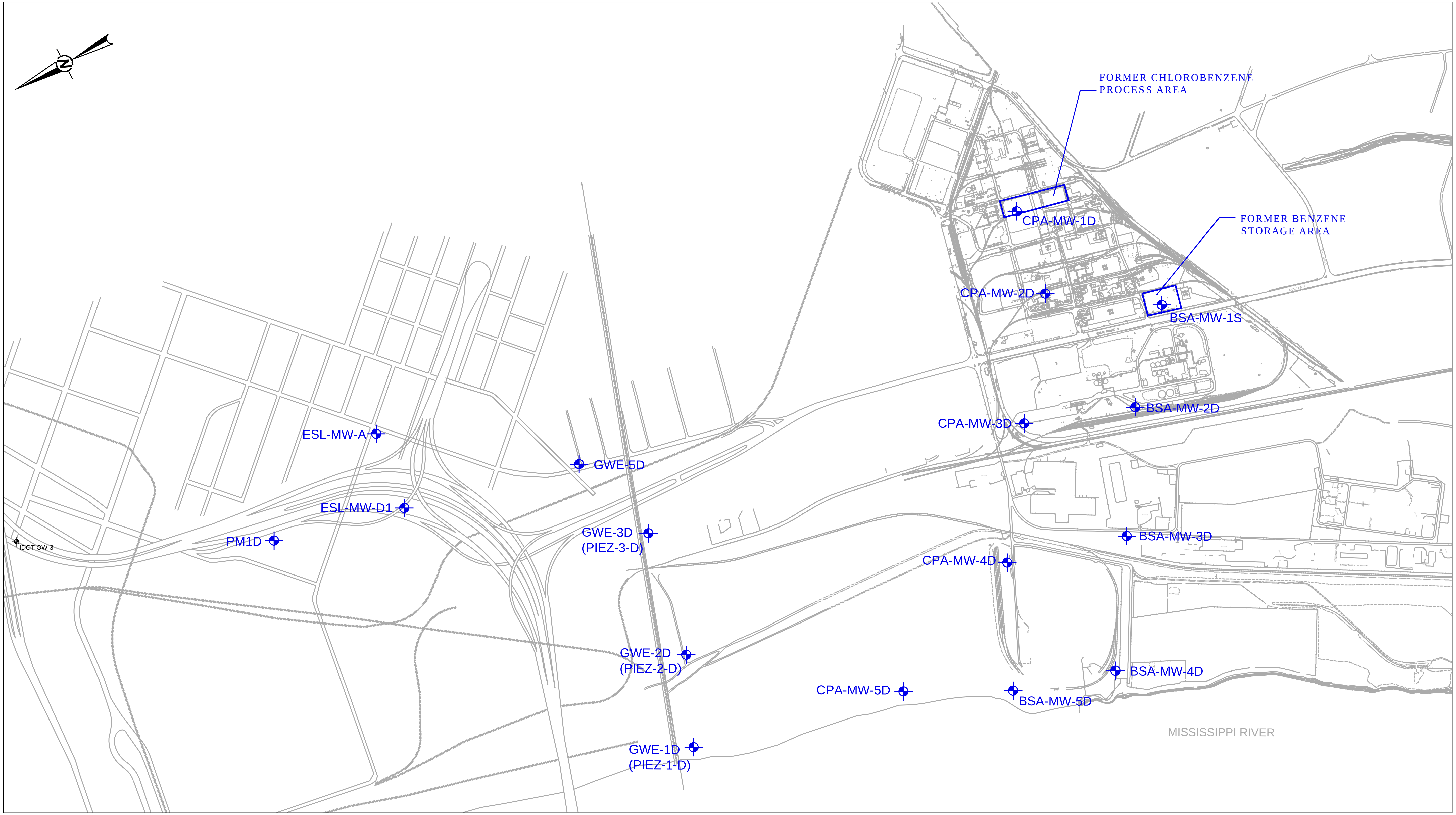
PROJECT
LONG-TERM MONITORING PROGRAM
3RD QUARTER 2017 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0053	0	1

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

Path: \\golusa\common\Projects\140 Projects\140-3345 - Solutia GW Sampling WGK Plant - IL\Figures\3Q17 Figures\ | File Name: 1403345_LTMP FIG1.dwg



LEGEND

LONG-TERM MONITORING WELL LOCATION

NOTES

1. REFER TO TABLE 1 FOR MONITORING WELL CONSTRUCTION INFORMATION.
2. "D", "M", OR "S" IN THE WELL IDENTIFICATION DESIGNATES DEEP HYDROGEOLOGIC UNIT (DHU), MIDDLE HYDROGEOLOGIC UNIT (MHU), OR SHALLOW HYDROGEOLOGIC UNIT (SHU), RESPECTIVELY.

0 500 1000
SCALE FEET

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

CONSULTANT

Golder Associates

YYYY-MM-DD	2017-10-04
PREPARED	TJG
DESIGN	TJG
REVIEW	SJD
APPROVED	AWD

PROJECT
LONG-TERM MONITORING PROGRAM
3RD QUARTER 2017 DATA REPORT

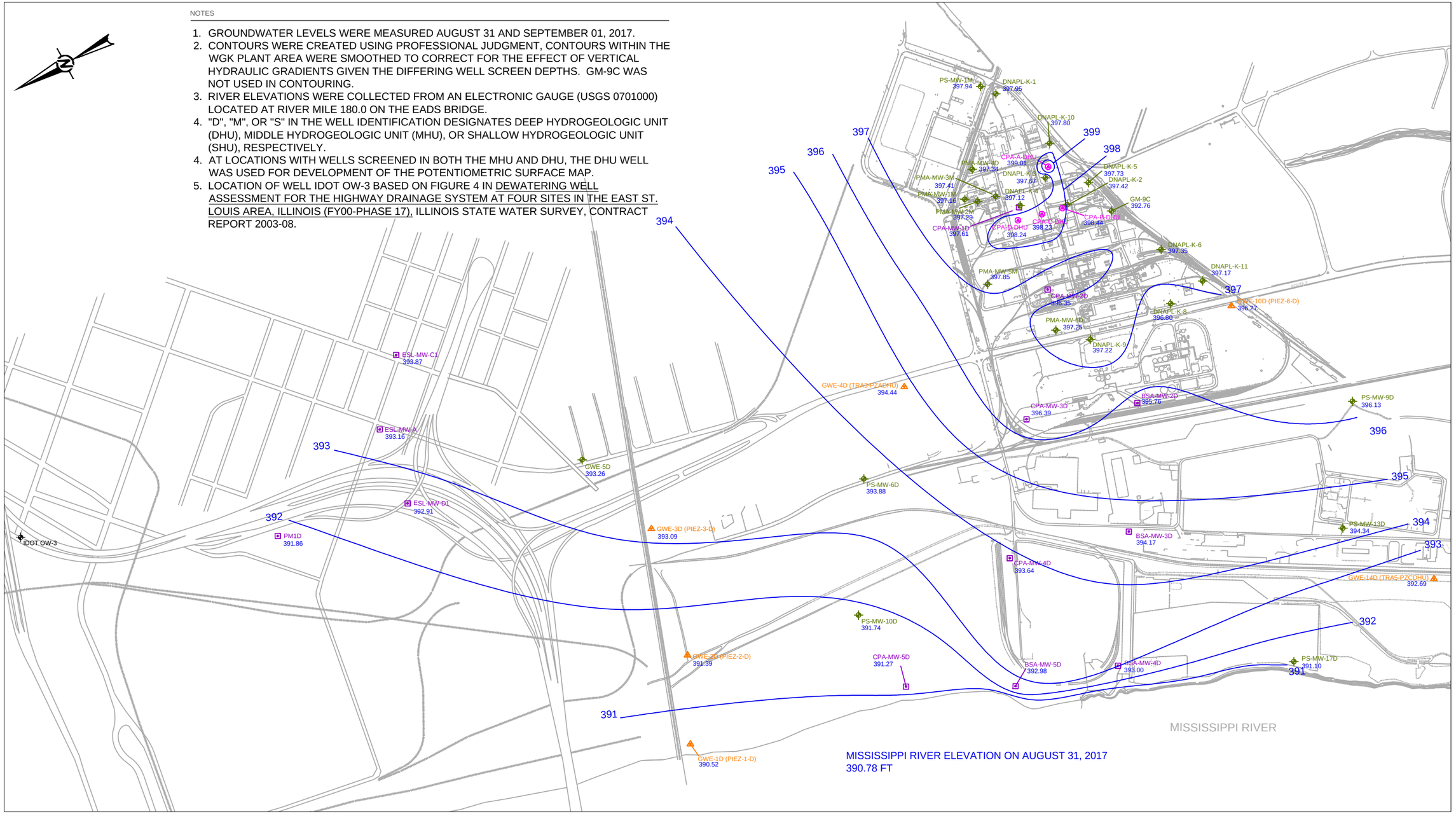
TITLE
LONG-TERM MONITORING PROGRAM WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0053	0	2

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

NOTES

1. GROUNDWATER LEVELS WERE MEASURED AUGUST 31 AND SEPTEMBER 01, 2017.
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. GM-9C 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. "D", "M", OR "S" IN THE WELL IDENTIFICATION DESIGNATES DEEP HYDROGEOLOGIC UNIT (DHU), MIDDLE HYDROGEOLOGIC UNIT (MHU), OR SHALLOW HYDROGEOLOGIC UNIT (SHU), RESPECTIVELY.
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 AUGUST 31, 2017
390.78 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
- 390 APPROXIMATE GROUNDWATER ELEVATION CONTOUR (FT NAVD)

SCALE: 0 500 1000 FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-10-04
PREPARED	TJG
DESIGN	TJG
REVIEW	SJD
APPROVED	AWD

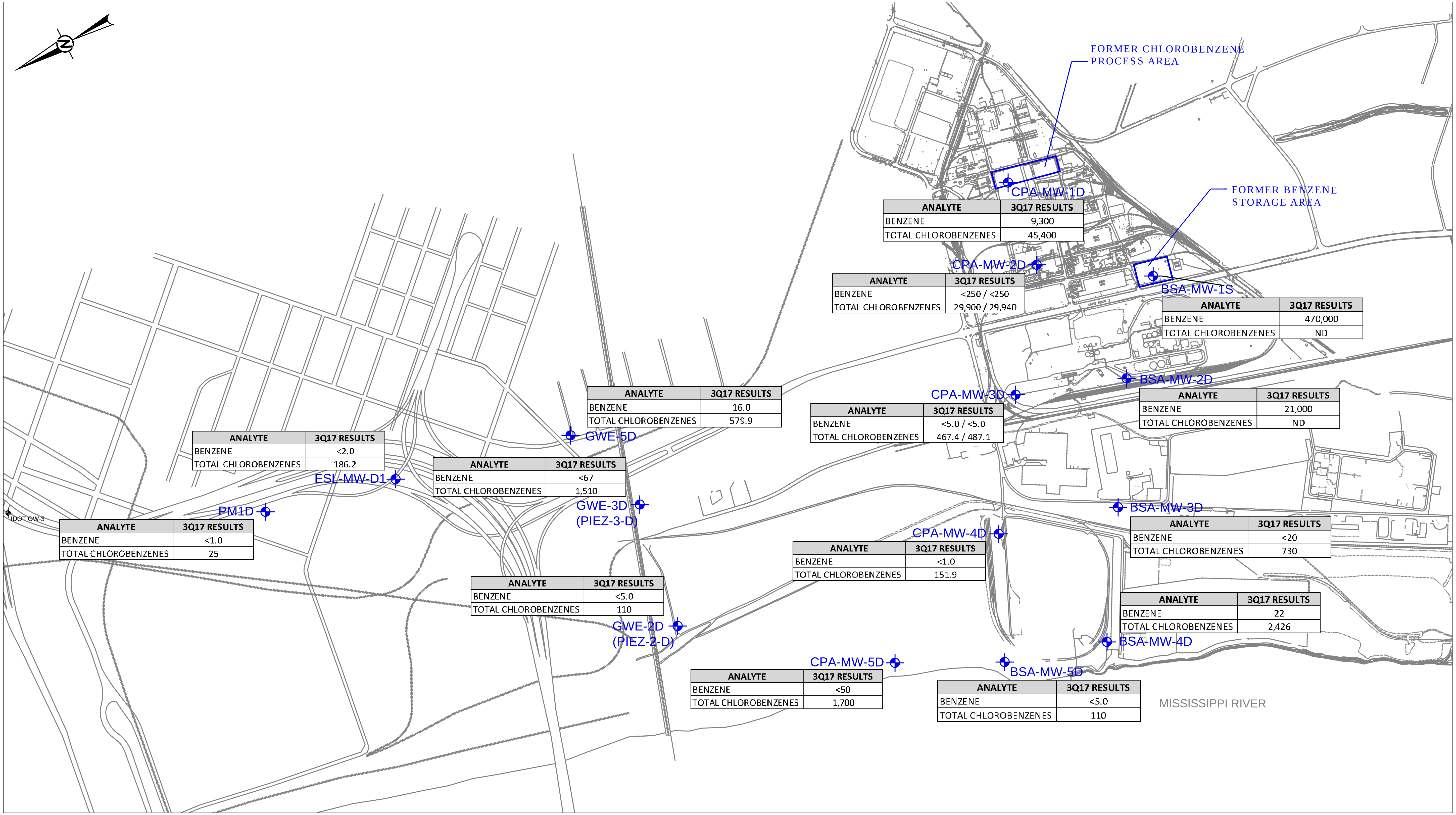
PROJECT
LONG-TERM MONITORING PROGRAM
3RD QUARTER 2017 DATA REPORT

TITLE
POTENTIOMETRIC SURFACE MAP
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0053	0	3

Path: \\ebus\common\Projects\140 Projects\140345 - Solutia GW Sampling WGK Plant - IL\Figures\3Q17 Figures\ | File Name: 140345_LTMP_F003.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B
1 in
0



ANALYTE	3Q17 RESULTS
BENZENE	9,300
TOTAL CHLOROBENZENES	45,400

ANALYTE	3Q17 RESULTS
BENZENE	<250 / <250
TOTAL CHLOROBENZENES	29,900 / 29,940

ANALYTE	3Q17 RESULTS
BENZENE	470,000
TOTAL CHLOROBENZENES	ND

ANALYTE	3Q17 RESULTS
BENZENE	21,000
TOTAL CHLOROBENZENES	ND

ANALYTE	3Q17 RESULTS
BENZENE	16.0
TOTAL CHLOROBENZENES	579.9

ANALYTE	3Q17 RESULTS
BENZENE	<5.0 / <5.0
TOTAL CHLOROBENZENES	467.4 / 487.1

ANALYTE	3Q17 RESULTS
BENZENE	<2.0
TOTAL CHLOROBENZENES	186.2

ANALYTE	3Q17 RESULTS
BENZENE	<67
TOTAL CHLOROBENZENES	1,510

ANALYTE	3Q17 RESULTS
BENZENE	<20
TOTAL CHLOROBENZENES	730

ANALYTE	3Q17 RESULTS
BENZENE	<1.0
TOTAL CHLOROBENZENES	25

ANALYTE	3Q17 RESULTS
BENZENE	<1.0
TOTAL CHLOROBENZENES	151.9

ANALYTE	3Q17 RESULTS
BENZENE	<5.0
TOTAL CHLOROBENZENES	110

ANALYTE	3Q17 RESULTS
BENZENE	22
TOTAL CHLOROBENZENES	2,426

ANALYTE	3Q17 RESULTS
BENZENE	<50
TOTAL CHLOROBENZENES	1,700

ANALYTE	3Q17 RESULTS
BENZENE	<5.0
TOTAL CHLOROBENZENES	110

LEGEND

LONG-TERM MONITORING WELL LOCATION

0 500 1000
SCALE FEET

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, NS - NOT SAMPLED
4. MULTIPLE SAMPLE RESULTS INDICATE DUPLICATE SAMPLES.
5. "D", "M", OR "S" IN THE WELL IDENTIFICATION DESIGNATES DEEP HYDROGEOLOGIC UNIT (DHU), MIDDLE HYDROGEOLOGIC UNIT (MHU), OR SHALLOW HYDROGEOLOGIC UNIT (SHU), RESPECTIVELY.

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-10-04
PREPARED	TJG
DESIGN	TJG
REVIEW	BCW
APPROVED	AWD

PROJECT
LONG-TERM MONITORING PROGRAM
3RD QUARTER 2017 DATA REPORT

TITLE
BENZENE AND TOTAL CHLOROBENZENES RESULTS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0053	0	4

TABLES

Table 1
Monitoring Well Gauging Information
3Q17 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Plant
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						3Q17 - August 31 and September 01, 2017			
	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	15.37	NP	27.34	396.94
GWE-5S	408.47	408.05	17.91	27.91	390.56	380.56	14.62	NP	27.86	393.43
MHU 380-350 ft NAVD 88										
GWE-5M	408.59	408.20	48.10	58.10	360.49	350.49	14.81	NP	58.18	393.39
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	12.92	NP	59.63	397.16
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	14.64	NP	61.32	397.29
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	14.69	NP	61.54	397.41
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	13.12	NP	57.02	397.85
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	14.65	NP	46.01	397.94
PM1M	413.07	412.80	51.64	61.41	361.43	351.66	20.97	NP	30.46	391.83
DHU 350 ft NAVD 88 - Bedrock										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	19.37	NP	76.98	395.76
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	21.57	NP	114.74	394.17
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	31.69	NP	123.12	393.00
BSA-MW-5D	420.80	420.49	115.85	120.82	304.95	299.95	27.51	NP	120.87	392.98
CPA-A-DHU	413.95	416.24	108.00	113.30	305.95	300.65	17.23	NP	115.24	399.01
CPA-B-DHU	409.12	408.68	101.00	106.50	308.12	302.62	10.24	NP	105.53	398.44
CPA-C-DHU	408.92	408.57	101.00	106.00	307.92	302.92	10.34	NP	105.46	398.23
CPA-D-DHU	409.63	412.20	101.00	105.90	308.63	303.73	13.96	NP	108.25	398.24
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	14.62	NP	74.68	397.61
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	11.85	NP	104.61	396.35
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	14.28	NP	112.72	396.39
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	27.56	NP	120.93	393.64
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	21.88	NP	114.71	391.27
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	17.61	NP	123.03	397.95
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	10.30	NP	112.36	397.42
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	18.24	NP	123.23	397.67
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	15.41	NP	118.27	397.12
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	14.18	NP	116.45	397.73
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	12.74	NP	116.84	397.35
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	14.58	NP	117.53	396.80
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	8.75	NP	111.12	397.22
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	15.45	NP	120.11	397.80
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	14.61	NP	120.25	397.17
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	18.45	NP	108.16	392.76
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	25.08	NP	126.95	390.52
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	25.75	NP	136.62	391.39
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	24.57	NP	114.86	393.09
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	11.30	NP	78.74	394.44
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	15.12	NP	105.12	393.26
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	16.60	NP	114.76	396.27
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	30.21	NP	96.98	392.69
ESL-MW-A	412.93	412.59	105.50	110.50	307.43	302.43	19.43	NP	109.87	393.16
ESL-MW-C1	410.09	409.79	104.00	109.00	306.09	301.09	15.92	NP	108.63	393.87
ESL-MW-D1	416.38	416.04	114.00	119.00	302.38	297.38	23.13	NP	119.24	392.91
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	13.54	NP	73.28	397.34
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	10.07	NP	101.19	397.25
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	12.75	NP	109.77	393.88
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	7.39	NP	105.21	396.13
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	20.44	NP	111.36	391.74
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	11.19	NP	110.60	394.34
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	32.16	NP	133.88	391.10
SA2-MW-1D	403.79	406.03	105.01	115.01	301.02	291.02	20.44	NP	102.27	385.59
PM1D	413.41	412.78	101.42	106.45	311.99	306.96	20.92	NP	106.61	391.86

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: TJG 09/01/2017
Checked By: SJD 09/01/2017
Reviewed By: AWD 10/31/2017

Table 2
Groundwater Analytical Results
3Q17 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Plant
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-0917	9/8/2017	**470,000 JD**	<5,000	<5,000	<5,000	<5,000	NA	<9.5	NA	<9.5
BSA-MW-2D-0917	9/8/2017	**21,000 D**	<500	<500	<500	<500	NA	<9.7	**17**	<9.7
BSA-MW-3D-0917	9/7/2017	<20	**590 D**	<20	<20	**140 D**	NA	<10	<10	<10
BSA-MW-4D-0917	9/7/2017	**22 D**	**2,300 D**	**29 D**	<20	**97 D**	NA	**16**	**13**	<9.9
BSA-MW-5D-0917	9/7/2017	<5.0	**110 D**	<5.0	<5.0	<5.0	NA	<9.8	<9.8	<9.8
Chlorobenzene Process Area										
CPA-MW-1D-0917	9/8/2017	**9,300 D**	**21,000 D**	**12,000 D**	**1,400 D**	**11,000 D**	NA	<9.6	NA	**600 D**
CPA-MW-2D-0917	9/8/2017	<250	**29,000 D**	<250	<250	**900 D**	NA	**36**	NA	<9.7
CPA-MW-2D-0917-AD	9/8/2017	<250	**29,000 D**	<250	<250	**940 D**	NA	**39**	NA	<9.6
CPA-MW-3D-0917	9/7/2017	<5.0	**460 D**	<5.0	<5.0	**7.4 D**	<19	<9.7	NA	<9.7
CPA-MW-3D-0917-AD	9/7/2017	<5.0	**480 D**	<5.0	<5.0	**7.1 D**	<19	<9.5	NA	<9.5
CPA-MW-4D-0917	9/7/2017	<1.0	**150**	<1.0	<1.0	**1.9**	**140**	<10	NA	<10
CPA-MW-5D-0917	9/7/2017	<50	**1,700 D**	<50	<50	<50	<2.0	**21**	<0.99	<0.99
North of W.G. Krummrich Facility										
ESL-MW-A-0917	9/5/2017	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
ESL-MW-D1-0917	9/5/2017	<2.0	**160 D**	**2.2 D**	<2.0	**24 D**	NA	NA	NA	NA
GWE-1D-0917	9/6/2017	<1.0	<1.0	<1.0	<1.0	<1.0	NA	NA	NA	NA
GWE-2D-0917	9/6/2017	<5.0	**110 D**	<5.0	<5.0	<5.0	NA	NA	NA	NA
GWE-3D-0917	9/6/2017	<67	**1,400 D**	<67	<67	**110 D**	NA	NA	NA	NA
GWE-5D-0917	9/5/2017	**16**	**500 D**	**8.8**	**3.1**	**68**	NA	NA	NA	NA
PM1D-0917	9/5/2017	<1.0	**25**	<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
D - compound analyzed at a dilution
AD - analytical duplicate
Bold - indicates concentration greater than reporting limit
NA - sample not analyzed for select analyte

Prepared By: SJD 10/23/2017
Checked By: TJG 10/23/2017
Reviewed By: AWD 10/31/2017

Table 3
Monitored Natural Attenuation Results
3Q17 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Plant
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-0917	9/8/2017	1,300	70	330 D	0.01	<0.50	<0.50	-	28	-	2.4	-	5,000 D	<0.050	<5.0	13	-	-148.03
BSA-MW-1S-F(0.2)-0917	9/8/2017	-	-	-	-	-	-	>3.30	-	30	-	2.5	-	-	-	-	12	-
BSA-MW-2D-0917	9/8/2017	810	33	190 D	0.02	6.3	<0.50	-	8.1	-	0.94	-	15,000 D	<0.050	<5.0	9.5	-	-114.61
BSA-MW-2D-F(0.2)-0917	9/8/2017	-	-	-	-	-	-	>3.30	-	8.2	-	0.94	-	-	-	-	12	-
BSA-MW-3D-0917	9/7/2017	750	30	220 D	0.06	0.60	<0.50	-	12	-	2.30	-	160	<0.050	<5.0	5.5	-	-87.78
BSA-MW-3D-F(0.2)-0917	9/7/2017	-	-	-	-	-	-	3.00	-	11	-	2.3	-	-	-	-	6.1	-
BSA-MW-4D-0917	9/7/2017	560	17	330 D	0.04	2.8	<0.50	-	8.2	-	0.59	-	56	<0.050	120 D	4.9	-	-106.59
BSA-MW-4D-F(0.2)-0917	9/7/2017	-	-	-	-	-	-	>3.30	-	8.1	-	0.57	-	-	-	-	5.0	-
BSA-MW-5D-0917	9/7/2017	660	19	160 D	0.04	12 D	<2.5	-	12	-	0.26	-	5,700 D	<0.050	<5.0	8.3	-	-131.90
BSA-MW-5D-F(0.2)-0917	9/7/2017	-	-	-	-	-	-	>3.30	-	12	-	0.26	-	-	-	-	8.2	-
Chlorobenzene Process Area																		
CPA-MW-1D-0917	9/8/2017	920	5.3	150 D	0.01	28	9.2	-	0.26	-	0.12	-	13,000 D	<0.050	<5.0	9.1	-	-139.46
CPA-MW-1D-F(0.2)-0917	9/8/2017	-	-	-	-	-	-	0.00	-	0.12	-	0.11	-	-	-	-	10	-
CPA-MW-2D-0917	9/8/2017	520	17	49	0.03	2.4	0.68	-	8.1	-	0.46	-	1,200	<0.050	110 D	6.5	-	-113.72
CPA-MW-2D-F(0.2)-0917	9/8/2017	-	-	-	-	-	-	>3.30	-	8.3	-	0.47	-	-	-	-	7.3	-
CPA-MW-3D-0917	9/7/2017	570	17	79 D	0.03	6.9	<0.50	-	10	-	0.57	-	1,900	<0.050	<5.0	6.4	-	-131.37
CPA-MW-3D-F(0.2)-0917	9/7/2017	-	-	-	-	-	-	>3.30	-	9.6	-	0.55	-	-	-	-	6.7	-
CPA-MW-4D-0917	9/7/2017	680	26	220 D	0.05	16	<0.50	-	17	-	0.44	-	12,000 D	<0.050	<5.0	8.0	-	-138.15
CPA-MW-4D-F(0.2)-0917	9/7/2017	-	-	-	-	-	-	>3.30	-	16	-	0.42	-	-	-	-	8.4	-
CPA-MW-5D-0917	9/6/2017	650	38	220 D	0.05	0.83	<0.50	-	19	-	0.92	-	34	<0.050	73 D	5.2	-	-88.57
CPA-MW-5D-F(0.2)-0917	9/6/2017	-	-	-	-	-	-	>3.30	-	19	-	0.92	-	-	-	-	6.7	-
North of W.G. Krummrich Facility																		
ESL-MW-A-0916	9/5/2017	400	17	95 D	0.04	<0.50	<0.50	-	14	-	0.46	-	8.3	0.067 J	630 D	3.6	-	-120.74
ESL-MW-A-F(0.2)-0916	9/5/2017	-	-	-	-	-	-	>3.30	-	13	-	0.44	-	-	-	-	5.4	-
ESL-MW-D1-0917	9/5/2017	410	19	94 D	0.03	<0.50	<0.50	-	12	-	0.37	-	22	<0.050	490 D	2.8	-	-130.76
ESL-MW-D1-F(0.2)-0917	9/5/2017	-	-	-	-	-	-	>3.30	-	13	-	0.40	-	-	-	-	4.2	-
GWE-1D-0917	9/6/2017	540	21	74 D	0.05	<0.50	<0.50	-	20	-	1.1	-	18	<0.050	270 D	4.7	-	-134.72
GWE-1D-F(0.2)-0917	9/6/2017	-	-	-	-	-	-	>3.30	-	18	-	1.1	-	-	-	-	6.3	-
GWE-2D-0917	9/6/2017	420	23	740 D	0.09	<0.50	<0.50	-	19	-	0.47	-	16	<0.050	870 D	4.0	-	-106.44
GWE-2D-F(0.2)-0917	9/6/2017	-	-	-	-	-	-	>3.30	-	20	-	0.48	-	-	-	-	4.4	-
GWE-3D-0917	9/6/2017	480	28	1,400 D	0.16	0.78	<0.50	-	26	-	0.83	-	54	<0.050	350 D	6.3	-	-119.31
GWE-3D-F(0.2)-0917	9/6/2017	-	-	-	-	-	-	>3.30	-	26	-	0.83	-	-	-	-	5.9	-
GWE-5D-0917	9/5/2017	410	21	240 D	0.05	<0.50	<0.50	-	17	-	0.54	-	73	<0.050	440 D	4.1	-	-110.02
GWE-5D-F(0.2)-0917	9/5/2017	-	-	-	-	-	-	>3.30	-	18	-	0.54	-	-	-	-	5.8	-
PM1D-0917	9/5/2017	440	22	79 D	0.05	<0.50	<0.50	-	13	-	0.51	-	33	<0.050	280 D	2.3	-	-164.42
PM1D-F(0.2)-0917	9/5/2017	-	-	-	-	-	-	>3.30	-	14	-	0.52	-	-	-	-	3.2	-

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
J - result is an estimated value

Prepared By: TJG 10/03/2017
Checked By: SJD 10/23/2017
Reviewed By: AWD 10/31/2017

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

(On CD)

In-Situ Inc.

9/8/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	TJG	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	25.00 ft

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-1S	Final Pumping Rate	200 mL/min
Well Diameter	2 in	System Volume	363 mL
Well Total Depth	27.34 ft	Calculated Sample Rate	108 sec
Depth to Top of Screen	22.50 ft	Sample Rate	108 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	15.82 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	14:20:42	22.57	7.12	2892.23	3.66	0.03	-129.16
	14:22:30	20.74	7.06	2949.84	3.55	0.02	-136.64
	14:24:18	20.67	7.03	3016.26	3.27	0.02	-142.47
	14:26:06	20.65	7.01	3055.01	3.47	0.02	-145.79
	14:27:54	20.56	7.01	3070.05	3.67	0.01	-148.03
Variance in Last 3 Readings		-0.07	-0.03	66.42	-0.28	0.00	7.64
		-0.02	-0.02	38.75	0.20	0.00	-3.32
		-0.09	0.00	15.04	0.20	-0.01	-2.24

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	74.55 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	76.98 ft	Calculated Sample Rate	127 sec
Depth to Top of Screen	72.05 ft	Sample Rate	127 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	19.85 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	10:23:26	18.16	6.83	1909.15	1.86	0.05	-107.23
	10:25:33	17.89	6.85	1934.43	1.94	0.03	-110.75
	10:27:40	17.89	6.87	1960.37	2.62	0.02	-112.51
	10:29:47	17.98	6.87	1947.32	1.94	0.01	-113.72
	10:31:54	17.95	6.89	1962.46	1.93	0.02	-114.61
Variance in Last 3 Readings		0.00	0.02	25.94	0.68	-0.01	-1.76
		0.09	0.00	-13.05	-0.68	-0.01	-1.21
		-0.03	0.02	15.14	-0.01	0.01	-0.89

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	112.35 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	109.85 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	22.31 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	14:29:37	19.46	6.99	2173.10	25.7	0.12	-103.36
	14:32:26	19.27	6.95	1939.06	17.7	0.09	-95.10
	14:35:15	18.78	6.94	1846.64	15.8	0.09	-90.62
	14:38:07	18.73	6.93	1840.66	10.5	0.06	-88.47
	14:40:56	18.60	6.93	1869.11	9.71	0.06	-87.78
Variance in Last 3 Readings		-0.49	-0.01	-92.42	-1.90	0.00	4.48
		-0.05	-0.01	-5.98	-5.30	-0.03	2.15
		-0.13	0.00	28.45	-0.79	0.00	0.69

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	120.73 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	123.13 ft	Calculated Sample Rate	179 sec
Depth to Top of Screen	118.23 ft	Sample Rate	179 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	33.15 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:09:15	19.32	7.04	1495.84	2.69	0.16	-106.03
	13:12:14	18.96	7.05	1476.27	1.99	0.11	-105.87
	13:15:13	18.35	7.05	1481.09	2.43	0.06	-106.11
	13:18:12	18.11	7.05	1479.21	4.97	0.06	-106.19
	13:21:11	18.09	7.05	1476.90	1.67	0.04	-106.59
Variance in Last 3 Readings		-0.61	0.00	4.82	0.44	-0.05	-0.24
		-0.24	0.00	-1.88	2.54	0.00	-0.08
		-0.02	0.00	-2.31	-3.30	-0.02	-0.40

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	118.04 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	120.87 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	115.54 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	29.60 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	10:15:04	17.82	18.33	1635.36	4.05	0.17	-123.18
	10:17:55	17.35	18.06	1627.61	3.25	0.09	-126.62
	10:20:47	17.30	17.98	1615.40	2.68	0.07	-128.90
	10:23:38	17.26	17.98	1630.31	2.09	0.05	-130.42
	10:26:29	17.26	18.16	1621.88	1.88	0.04	-131.90
Variance in Last 3 Readings		-0.05	-0.08	-12.21	-0.57	-0.02	-2.28
		-0.04	0.00	14.91	-0.59	-0.02	-1.52
		0.00	0.18	-8.43	-0.21	-0.01	-1.48

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	68.32 ft

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	74.68 ft	Calculated Sample Rate	119 sec
Depth to Top of Screen	65.82 ft	Sample Rate	119 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	15.04 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	13:11:39	20.78	7.77	2037.75	2.84	0.07	-68.11
	13:13:38	20.51	7.87	2037.53	2.67	0.02	-96.85
	13:15:37	20.52	8.06	2017.43	3.30	0.01	-120.66
	13:17:36	20.47	8.16	1995.11	2.77	0.01	-131.36
	13:19:35	20.57	8.21	1997.52	2.50	0.01	-139.46
Variance in Last 3 Readings		0.01	0.19	-20.10	0.63	-0.01	-23.81
		-0.05	0.10	-22.32	-0.53	0.00	-10.70
		0.10	0.05	2.41	-0.27	0.00	-8.10

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	102.15 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	104.61 ft	Calculated Sample Rate	158 sec
Depth to Top of Screen	99.65 ft	Sample Rate	158 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	12.39 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	11:50:36	20.87	7.00	1184.19	5.98	0.10	-113.10
	11:53:14	20.25	7.01	1202.66	3.85	0.05	-112.97
	11:55:52	20.11	7.02	1206.44	2.46	0.06	-113.00
	11:58:30	20.14	7.03	1197.83	2.22	0.03	-113.65
	12:01:09	20.22	7.03	1189.45	2.11	0.03	-113.72
Variance in Last 3 Readings		-0.14	0.01	3.78	-1.39	0.01	-0.03
		0.03	0.01	-8.61	-0.24	-0.03	-0.65
		0.08	0.00	-8.38	-0.11	0.00	-0.07

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	110.50 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	112.72 ft	Calculated Sample Rate	167 sec
Depth to Top of Screen	108.00 ft	Sample Rate	167 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	14.79 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:07:09	19.01	7.11	1262.12	8.62	0.06	-129.68
	16:09:56	19.11	7.11	1251.60	2.84	0.05	-130.38
	16:12:43	18.96	7.12	1244.24	1.99	0.04	-130.88
	16:15:30	18.97	7.12	1253.65	2.19	0.03	-131.14
	16:18:17	18.90	7.12	1253.27	1.95	0.03	-131.37
Variance in Last 3 Readings		-0.15	0.01	-7.36	-0.85	-0.01	-0.50
		0.01	0.00	9.41	0.20	-0.01	-0.26
		-0.07	0.00	-0.38	-0.24	0.00	-0.23

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	118.57 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	120.93 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	116.07 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	28.55 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	11:34:48	18.31	6.99	1899.74	4.82	0.15	-128.22
	11:37:44	17.71	7.03	1890.06	3.03	0.10	-133.71
	11:40:40	17.62	7.04	1870.35	2.85	0.07	-136.05
	11:43:36	17.50	7.05	1882.61	2.36	0.06	-137.22
	11:46:32	17.35	7.06	1893.52	2.18	0.05	-138.15
Variance in Last 3 Readings		-0.09	0.01	-19.71	-0.18	-0.03	-2.34
		-0.12	0.01	12.26	-0.49	-0.01	-1.17
		-0.15	0.01	10.91	-0.18	-0.01	-0.93

Notes:

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Low-Flow System
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Project Information:		**Pump Information:**	
Operator Name	TJG	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	118.5
		Pump Placement from TOC	112.25 ft

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	849mL
Well Total Depth	114.71 ft	Calculated Sample Rate	169 sec
Depth to Top of Screen	109.75 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	24.07 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	16:08:52	16.64	6.78	1960.70	14.9	0.06	-88.85
	16:11:42	16.75	6.78	1948.75	12.8	0.05	-88.87
	16:14:32	16.73	6.78	1957.76	13.8	0.11	-88.63
	16:17:22	16.76	6.79	1953.18	11.8	0.06	-88.68
	16:20:14	16.71	6.79	1951.19	9.77	0.05	-88.57
Variance in Last 3 Readings		-0.02	0.00	9.01	1.00	0.06	0.24
		0.03	0.01	-4.58	-2.00	-0.05	-0.05
		-0.05	0.00	-1.99	-2.03	-0.01	0.11

Notes:

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Low-Flow System
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Project Information:		**Pump Information:**	
Operator Name	TJG	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	107.47 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	109.86 ft	Calculated Sample Rate	163 sec
Depth to Top of Screen	105.16 ft	Sample Rate	163 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	19.66 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	14:03:41	17.93	7.01	2091.83	24.7	0.11	-121.01
	14:06:24	16.86	7.01	2048.69	18.7	0.09	-122.46
	14:09:07	16.78	7.01	1976.71	15.7	0.08	-121.02
	14:11:50	16.73	7.01	1966.97	11.6	0.07	-120.15
	14:14:33	16.59	7.01	1980.04	10.5	0.04	-120.74
Variance in Last 3 Readings		-0.08	0.00	-71.98	-3.0	-0.01	1.44
		-0.05	0.00	-9.74	-4.1	-0.01	0.87
		-0.14	0.00	13.07	-1.1	-0.03	-0.59

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	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	116.16 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	119.24 ft	Calculated Sample Rate	173 sec
Depth to Top of Screen	113.66 ft	Sample Rate	173 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	23.43 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	13:05:08	18.65	6.91	1568.11	4.65	0.12	15.62
	13:08:01	17.98	6.89	1670.66	2.28	0.08	-99.94
	13:10:54	17.94	6.95	1728.21	1.52	0.05	-124.80
	13:13:47	17.80	6.97	1736.40	1.04	0.04	-129.15
	13:16:48	17.76	6.98	1739.83	1.05	0.03	-130.76
Variance in Last 3 Readings		-0.04	0.06	57.55	-0.76	-0.03	-24.86
		-0.14	0.02	8.19	-0.48	-0.01	-4.35
		-0.04	0.01	3.43	0.01	-0.01	-1.61

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	130 ft
		Pump Placement from TOC	124.80 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-1D	Final Pumping Rate	300 mL/min
Well Diameter	1 in	System Volume	670 mL
Well Total Depth	126.95	Calculated Sample Rate	134 sec
Depth to Top of Screen	119.80 ft	Sample Rate	134 sec
Screen Length	10 ft	Stabilized Drawdown	0.03 ft
Depth to Water	27.44 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	13:47:44	19.59	7.00	1582.88	30.4	0.09	-138.70
	13:51:05	19.33	7.00	1594.89	29.5	0.09	-136.98
	13:54:26	19.13	7.00	1562.17	27.1	0.08	-135.69
	13:57:47	18.77	7.00	1580.15	28.9	0.06	-134.83
	14:01:08	18.55	7.00	1587.52	26.3	0.05	-134.72
Variance in Last 3 Readings		-0.20	0.00	-32.72	-2.4	-0.01	1.29
		-0.36	0.00	17.98	1.8	-0.02	0.86
		-0.22	0.00	7.37	-2.6	-0.01	0.11

Notes:

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Project Information:		**Pump Information:**	
Operator Name	TJG	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	138.00 ft
		Pump Placement from TOC	131.69 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-2D	Final Pumping Rate	300 mL/min
Well Diameter	1 in	System Volume	706 mL
Well Total Depth	136.62 ft	Calculated Sample Rate	141 sec
Depth to Top of Screen	126.69 ft	Sample Rate	141 sec
Screen Length	10 ft	Stabilized Drawdown	0.00 ft
Depth to Water	27.05 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	11:26:47	18.69	6.83	3794.35	1.27	0.14	-112.49
	11:29:08	18.87	6.83	3867.19	1.18	0.12	-111.19
	11:31:35	18.58	6.83	4025.96	1.01	0.11	-108.17
	11:33:56	18.56	6.83	4036.53	1.01	0.1	-106.94
	11:36:17	18.51	6.83	4062.71	1.15	0.09	-106.44
Variance in Last 3 Readings		-0.29	0.00	158.77	-0.17	-0.01	3.02
		-0.02	0.00	10.57	0.00	-0.01	1.23
		-0.05	0.00	26.18	0.14	-0.01	0.50

Notes:

In-Situ Inc.

9/6/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	TJG	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	116.0 ft
		Pump Placement from TOC	112.23 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-3D	Final Pumping Rate	300 mL/min
Well Diameter	1 in	System Volume	608 mL
Well Total Depth	114.86 ft	Calculated Sample Rate	121 sec
Depth to Top of Screen	107.23 ft	Sample Rate	121 sec
Screen Length	10 ft	Stabilized Drawdown	0.01 ft
Depth to Water	25.15 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:01:02	15.92	6.61	5447.14	1.25	0.24	-117.63
	10:04:04	15.88	6.68	5468.02	1.12	0.21	-119.03
	10:07:06	15.88	6.72	5477.50	0.98	0.18	-119.50
	10:10:08	15.92	6.74	5463.71	1.59	0.17	-119.53
	10:13:14	15.94	6.76	5462.83	2.17	0.16	-119.31
Variance in Last 3 Readings		0	0.04	9.48	-0.14	-0.03	-0.47
		0.04	0.02	-13.79	0.61	-0.01	-0.03
		0.02	0.02	-0.88	0.58	-0.01	0.22

Notes:

In-Situ Inc.

9/5/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	TJG	Pump Model/Type	SS Monsoon
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.17 in
Site Name	LTM	Tubing Length	108.52 ft
		Pump Placement from TOC	102.52 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	674 mL
Well Total Depth	105.12 ft	Calculated Sample Rate	134 sec
Depth to Top of Screen	100.02 ft	Sample Rate	134 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	15.42 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	15:03:49	17.36	6.88	2143.46	12.1	0.11	-112.23
	15:06:03	16.91	6.87	2123.34	10.8	0.08	-108.49
	15:08:17	16.79	6.86	2108.51	7.48	0.08	-106.29
	15:10:31	17.02	6.86	2105.65	3.66	0.06	-107.60
	15:12:45	17.29	6.87	2099.91	4.52	0.05	-110.02
Variance in Last 3 Readings		-0.12	-0.01	-14.83	-3.32	0.00	2.20
		0.23	0.00	-2.86	-3.82	-0.02	-1.31
		0.27	0.01	-5.74	0.86	-0.01	-2.42

Notes:

In-Situ Inc.

9/5/2017

Low-Flow System
ISI Low-Flow Log

Project Information:		**Pump Information:**	
Operator Name	TJG	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	103.29 ft

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 ft	Calculated Sample Rate	162 sec
Depth to Top of Screen	100.79 ft	Sample Rate	162 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	21.14 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	11:31:58	16.91	6.87	1432.36	--	0.08	-173.64
	11:34:41	16.77	6.89	1423.59	--	0.07	-170.88
	11:37:23	16.75	6.90	1418.87	--	0.06	-168.67
	11:40:05	16.83	6.91	1412.65	0.00	0.05	-166.64
	11:42:47	16.69	6.91	1410.99	2.39	0.05	-164.42
Variance in Last 3 Readings		-0.02	0.01	-4.72	--	-0.01	2.21
		0.08	0.01	-6.22	--	-0.01	2.03
		-0.14	0.00	-1.66	2.39	0.00	2.22

Notes: Turbidimeter issues. Fixed issues in time for final 2 readings.

APPENDIX B
CHAINS-OF-CUSTODY

(On CD)

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

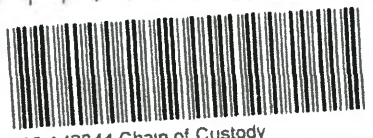
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Samantha D'Censo

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Emily White~~	Date: 9/5/17	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: 3Q17 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No:
P O # 42262863	☐ 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)	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-0917	9/5/17	1045	G	W	14	N		3	1	1	1	3	2	3			
PMID-F(0.2)-0917		1045			4	Y									1	3	
ESL-MW-D1-0917		1215			14	N		3	1	1	1	3	2	3			
ESL-MW-D1-F(0.2)-0917		1215			4	Y									1	3	
ESL-MW-A-0917		1315			14	N		3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0917		1315			4	Y									1	3	
GWE-SD-0917		1411			14	N		3	1	1	1	3	2	3			
GWE-SD-F(0.2)-0917		1411			4	Y									1	3	
3Q17 LTM Trip Blank #1					2	N		2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	4	1	1	2	1,3	3	4	3	


680-142844 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:		Cooler Temp. (°C): Obs'd _____ Corr'd _____		Therm ID No: _____
Relinquished by: Samantha D'Censo	Company: Golder	Date/Time: 9/5/17 1531	Received by:	Company: SAV.	Date/Time: 09-06-17 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: 29(CF)3 1C	Date/Time:

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

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9/6/17 CS

1.2/1.2

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 680-490210.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 680-142844-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 9/18/2017			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: 3Q17 LTM GW Sampling - 1403345	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PM1D-0917 (680-142844-1)	9/5/17	10:45 Central		Water			X	3	
ESL-MW-D1-0917 (680-142844-3)	9/5/17	12:15 Central		Water			X	3	
ESL-MW-A-0917 (680-142844-5)	9/5/17	13:15 Central		Water			X	3	
GWE-5D-0917 (680-142844-7)	9/5/17	14:11 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 9/7/17 1800	Company	Received by:		Date/Time: 9/8/17 940	Company: TA	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:				

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SS
9/8/17

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: Samantha DiCenso	Date: 9/6/17	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-3D-0917	9/6/17	0913	G	W	14	N		3		1	1	1	3	2	3			
GWE-3D-F(0.2)-0917		0913			4	Y										1	3	
GWE-2D-0917		1034			14	N		3		1	1	1	3	2	3			
GWE-2D-F(0.2)-0917		1034			4	Y										1	3	
GWE-1D-0917		1300			14	N		3		1	1	1	3	2	3			
GWE-1D-F(0.2)-0917		1300			4	Y										1	3	
CPA-MW-5D-0917		1520			16	N		3	2	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0917		1520			4	Y										1	3	
3Q17 LTM Trip Blank #2					2			2										

680-142913 Chain of Custody

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

2	1	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:

SDG 680-142913

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd _____ Corr'd _____	Therm ID No. _____
Relinquished by: Samantha Peters	Company: Golder	Date/Time: 1730 9/6/17	Received by:	Company: SAV.	Date/Time: 09-07-17 0910
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 1.8/1.7(C) 20/1.9c

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

Page 34 of 39

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 680-490191.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 680-142913-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 9/19/2017			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ MEE Only	8260B/5030B (MOD) Custom Sublist Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	Total Number of containers	Special Instructions/Note: ms/c17th
			Preservation Code:								
GWE-3D-0917 (680-142913-1)	9/6/17	09:13 Central		Water			X	X		6	
GWE-2D-0917 (680-142913-3)	9/6/17	10:34 Central		Water			X	X		6	
GWE-1D-0917 (680-142913-5)	9/6/17	13:00 Central		Water			X	X		6	
CPA-MW-5D-0917 (680-142913-7)	9/6/17	15:20 Central		Water			X	X	X	8	
3Q17 LTM Trip Blank #2 (680-142913-9)	9/6/17	Central		Water				X		2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 9-6-17 1100	Company	Received by:	Date/Time: 9-6-17 940	Company: TAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks:

SJD 10/16/17

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

3.8/C3.8
2.2/C2.2

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Emily White~~	Date: 9/8/17	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: ☑ CALENDAR DAYS ☐ WORKING DAYS			Sampler:
St. Charles, MO 63301	TAT if different from Below Standard: ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			For Lab Use Only: Walk-in Client: Lab Sampling:
(636) 724-9191 Phone				
(636) 724-9323 FAX				Job / SDG No:
Project Name: 3017 LTM GW Sampling-1403345				
Site: Solutia WG Krummrich Facility				
P O # 42262863				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	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	SVOCs by 8270	Sample Specific Notes
BSA-MW-2D-0917	9/8/17	0930	G	W	16	N		3	1	1	1	3	2	3			2	
BSA-MW-2D-F(0.2)-0917		0930			4	Y									1	3		
BSA-MW-1S-0917		1328			16	N		3	1	1	1	3	2	3			2	
BSA-MW-1S-F(0.2)-0917		1328			4	Y									1	3		
BSA-MW-1S-0917-EB		1408			5	N		3									2	
CPA-MW-2D-0917		1100			16	N		3	1	1	1	3	2	3			2	
CPA-MW-2D-F(0.2)-0917		1100			4	Y									1	3		
CPA-MW-2D-0917-AD		1100			5	N		3									2	
CPA-MW-1D-0917		1220			16	N		3	1	1	1	3	2	3			2	
CPA-MW-1D-F(0.2)-0917		1220			4	Y									1	3		
3017 LTM Trip Blank #4					2			2										

240-84763 Chain of Custody

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

	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.:	Cooler Temp. (°C): Obs'd _____ Corr'd _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Samantha DiCenzo	Golder	9/8/17 1600	[illegible]	TAL	9-9-17 930
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

ACS 9/12/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.1
Client Contact: Shipping/Receiving	Phone	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84763-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #			
Email	WO #			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.1/ Alkalinity & CO2, Free	325.2/ Chloride	375.4/ Sulfate	415.1	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Subset Template (HCl)	415.1_Diss/FIELD_FLTRD DOC (FF)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
BSA-MW-2D-0917 (240-84763-1)	9/8/17	09:30 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-2D-F(0.2)-0917 (240-84763-2)	9/8/17	09:30 Central		Water										X	X						4	
BSA-MW-1S-0917 (240-84763-3)	9/8/17	13:28 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-1S-F(0.2)-0917 (240-84763-4)	9/8/17	13:28 Central		Water										X	X						4	
BSA-MW-1S-0917-EB (240-84763-5)	9/8/17	14:08 Central		Water							X		X								5	
CPA-MW-2D-0917 (240-84763-6)	9/8/17	11:00 Central		Water			X	X	X	X	X	X	X								12	
CPA-MW-2D-F(0.2)-0917 (240-84763-7)	9/8/17	11:00 Central		Water										X	X						4	
CPA-MW-2D-0917-AD (240-84763-8)	9/8/17	11:00 Central		Water							X		X								5	
CPA-MW-1D-0917 (240-84763-9)	9/8/17	12:20 Central		Water			X	X	X	X	X	X	X								12	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[illegible]	4-13-17 1430	240	[illegible]	4-14-17 935	240
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by: 1.2/1.5	Date/Time	Company

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SSD 9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84763-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.1/ Alkalinity & CO2, Free	325.2/ Chloride	375.4/ Sulfate	415.1	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Subset Template (HCl)	415.1_DissFIELD_FLTRD DOC (FF)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
CPA-MW-1D-F(0.2)-0917 (240-84763-10)	9/8/17	12:20 Central		Water										X	X	4	
3Q17 LTM TRIP BLANK #4 (240-84763-11)	9/8/17	Central		Water									X			2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	9-13-17 1430	240	[signature]	9-14-17 935	[signature]
2	Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
3	Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.2/1.5

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SDD 9/29/17

14

1.8/C1.8 9/B
1.4/C1.4 } 9/9
1.2/C1.2

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: Samantha DiCenso	Date: 9/7/17	COC No
Golder Associates Inc	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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 ____			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-0917	9/7/17	0926	G	W	16	N		3	2	1	1	1	3	2	3			
BSA-MW-5D-F(0.2)-0917		0926			4	Y										1	3	
BSA-MW-5D-0917-MS		0926			5	N		3	2									
BSA-MW-5D-0917-MSD		0926			5	N		3	2									
BSA-MW-4D-0917		1220			16	N		3	2	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)0917		1220			4	Y										1	3	
BSA-MW-3D-0917		1340			16	N		3	2	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0917		1340			4	Y										1	3	
BSA-MW-3D-0917-EB		1430			5	N		3	2									
CPA-MW-4D-0917		1045			16	N		3	2	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0917		1045			4	Y										1	3	
CPA-MW-3D-0917		1517			16	N		3	2	1	1	1	3	2	3			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____								2	1	4	1	1	2	1,3	3	4	3	

240-84791 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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	9/7/17 1730	Terry Bruno	TA Can	9/9/17 0930
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

Page 47 of 56

SSD 9/20/17

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: Samantha DiCenso	Date: 9/7/17	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No:
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-F(0.2)-0917	9/7/17	1517	G	W	4	Y										1	3	
CPA-MW-3D-0917-AD		1517	L	L	5	N		3	2									
3Q17 LTM Trip Blank #3	—	—	—		2			2										
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	1	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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	9/7/17 1730	Jerry Burns	TA Car	9/8/17 0930
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

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3D 9/12/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84791-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404	PO #:			
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	WO #:			
Email:	Project #: 68001754			
Project Name: WGK Long Term Monitoring (LTM)	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCl	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	325.2/ Chloride	375.4/ Sulfate	415.1	310.1/ Alkalinity & CO2, Free	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Sublist Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV def)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	415.1_Diss/FIELD_FLTRD DOC (FF)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
BSA-MW-5D-0917 (240-84791-1)	9/7/17	09:26 Central		Water			X	X	X	X	X	X	X								22	
BSA-MW-5D-0917 (240-84791-1MS)	9/7/17	09:26 Central	MS	Water								X	X								1	
BSA-MW-5D-0917 (240-84791-1MSD)	9/7/17	09:26 Central	MSD	Water								X	X								1	
BSA-MW-5D-F(0.2)-0917 (240-84791-2)	9/7/17	09:26 Central		Water										X	X						4	
BSA-MW-4D-0917 (240-84791-3)	9/7/17	12:20 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-4D-F(0.2)-0917 (240-84791-4)	9/7/17	12:20 Central		Water										X	X						4	
BSA-MW-3D-0917 (240-84791-5)	9/7/17	13:40 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-3D-F(0.2)-0917 (240-84791-6)	9/7/17	13:40 Central		Water										X	X						4	
BSA-MW-3D-0917-EB (240-84791-7)	9/7/17	14:30 Central		Water								X	X								5	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		9-13-17 1430	240		9-14-17 935	
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by: 1-2/1-5	Date/Time	Company

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3D 9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.2
Client Contact: Shipping/Receiving	Phone	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84791-1
Address: 5102 LaRoche Avenue.	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #			
Email:	WO #			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastekd, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	325.2/ Chloride	375.4/ Sulfate	415.1	310.1/ Alkalinity & CO2, Free	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Subset Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	415.1_Diss/FIELD_FLTRD DOC (FF)	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
CPA-MW-4D-0917 (240-84791-8)	9/7/17	10:45 Central		Water			X	X	X	X	X	X	X			12	
CPA-MW-4D-F(0.2)-0917 (240-84791-9)	9/7/17	10:45 Central		Water										X	X	4	
CPA-MW-3D-0917 (240-84791-10)	9/7/17	15:17 Central		Water			X	X	X	X	X	X	X			12	
CPA-MW-3D-F(0.2)-0917 (240-84791-11)	9/7/17	15:17 Central		Water										X	X	4	
CPA-MW-3D-0917-AD (240-84791-12)	9/7/17	15:17 Central		Water								X	X			5	
3Q17 LTM TRIP BLANK #3 (240-84791-13)	9/7/17	Central		Water								X				2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	9-13-17 1430	240		9-14-17 935	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2/1.5

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SSD 9/29/17

APPENDIX C
QUALITY ASSURANCE REPORT

(On CD)

QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

3rd QUARTER 2017
LONG-TERM MONITORING PROGRAM
SOLUTIA INC. W.G. KRUMMRICH PLANT
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

November 2017 **140-3345**

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Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater, surface water, and sediment samples collected September 5 through September 8, 2017 at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) plant (Site) in Sauget, Illinois. Golder collected a total of twenty three (23) samples from groundwater monitoring wells and piezometers. Seventeen (17) groundwater samples, four (4) trip blanks, two (2) equipment blanks (EB), two (2) analytical duplicates (AD), and one (1) 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 or Canton, Ohio 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 four (4) sample delivery groups (SDGs) and described in the table below:

Sample Delivery Group (SDG)	Sample Identification
KPS196	PM1D-0917
	ESL-MW-D1-0917
	ESL-MW-A-0917
	GWE-5D-0917
	3Q17 LTM Trip Blank #1
KPS197	GWE-3D-0917
	GWE-2D-0917
	GWE-1D-0917
	CPA-MW-5D-0917
	3Q17 LTM Trip Blank #2
KPS198	BSA-MW-2D-0217
	BSA-MW-1S-0917
	BSA-MW-1S-0917-EB
	CPA-MW-2D-0217
	CPA-MW-2D-0217-AD
	CPA-MW-1D-0917
	3Q17 LTM Trip Blank #4

Sample Delivery Group (SDG)	Sample Identification
KPS199	BSA-MW-5D-0917
	BSA-MW-4D-0917
	BSA-MW-3D-0917
	BSA-MW-3D-0917-EB
	CPA-MW-4D-0917
	CPA-MW-3D-0917
	CPA-MW-3D-0917-AD
	3Q17 LTM Trip Blank #3

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). Four (4) trip blanks, two (2) EBs, two (2) ADs, and one (1) MS/MSD pairs were submitted and analyzed for VOC and SVOC analysis. 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 was not detected

Golder data qualifiers are defined below:

- D – The analyte was analyzed at a dilution
- J – The analyte was detected and the result is considered an estimated value

Sections 2 and 3 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 seventeen (17) groundwater monitoring locations and analyzed for VOCs. Analytical duplicate samples were collected from two (2) sampling locations, CPA-MW-2D and CPA-MW-3D. Two (2) EBs and four (4) trip blanks were also prepared and shipped for laboratory analysis. The samples were submitted to TestAmerica, placed into four (4) data packages or SDGs (KPS196, KPS197, KPS198, and KPS199) 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.

KPS197 and KPS199– Samples were received at temperatures below the 4°C ± 2°C criteria. The samples in these SDGs were otherwise received in good condition and data qualification was not required.

KPS198 – Sample vials for BSA-MW-1S were received at the laboratory outside the pH criteria and were analyzed over 7 days after sample collection; therefore, some data qualification was necessary. The delay between sample receipt and sample analysis was delayed due to weather conditions.

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.

Four (4) laboratory prepared trip blanks were shipped and analyzed for VOCs during the 3Q17 event to evaluate whether cross contamination occurred during sample shipment. Results for contaminants of concern for the received 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.

Two (2) EBs were collected during the 3Q17 event to assess the effectiveness of the decontamination procedure. Detections were noted in the following EBs:

- BSA-MW-1S-0917-EB (SDG KPS198): benzene at 85 µg/L, chlorobenzene at 2.3 µg/L, 1,2-dichlorobenzene at 2.1 µg/L, and 1,4-dichlorobenzene at 2.2 µg/L

The samples associated with the EBs did not require qualification 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. One (1) MS/MSD pair was collected during the 3Q17 event associated with sample BSA-MW-5D. MS/MSD accuracy and precision data met criteria; therefore, qualification was not required.

2.6 Analytical Duplicates

One (1) AD is collected for every ten (10) field samples to determine the overall precision of field and laboratory methods. Two (2) ADs were collected during the 3Q17 event associated with samples 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 seventeen (17) groundwater monitoring locations and analyzed for SVOCs. Analytical duplicate samples were 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 four (4) data packages or SDGs (KPS196, KPS197, KPS198, and KPS199) 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.

KPS197 and KPS199 – Samples were received at temperatures below the 4°C ± 2°C criteria. The samples in these SDGs 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 3Q17 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 were within control limits.

3.4 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.

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. One (1) MS/MSD pair was collected during the 3Q17 event associated with sample BSA-MW-5D. 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, qualification was not required for associated samples.

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 3Q17 event associated with samples 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.

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

Sample CPA-MW-1D-0217 required dilution due to high levels of 1,2,4-trichlorobenzene. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 5.0.

4.0 INORGANICS AND GENERAL CHEMISTRY

Samples were collected from seventeen (17) groundwater monitoring locations and analyzed for inorganics and general chemistry. The samples were submitted to TestAmerica, placed into four (4) data packages or SDGs (KPS196, KPS197, KPS198, and KPS199), 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.

KPS197 and KPS199 – Samples were received at temperatures below the 4°C ± 2°C criteria. The samples in these SDGs 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-2D, BSA-MW-5D, and GWE-3D, for various analytes. MS/MSD accuracy and precision data met criteria; therefore, qualification was not required.

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 3Q17 sampling event from the Solutia Inc. WGK plant 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, 1,2,4-Trichlorobenzene, Methane, Ethane, Nitrate as N, Chloride, and Sulfate	D	PM1D, ESL-MW-A, ESL-MW-D1, GWE-1D, GWE-2D, GWE-3D, GWE-5D, 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, CPA-MW-5D

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)

(On CD)

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
3Q17 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-3Q17 LTM
Reviewer: S. DiCenso
Laboratory: TestAmerica
SDG#: KPS196
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: September 2017

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: PM1D-0917, PM1D-F(0.2)-0917, ESL-MW-D1-0917, ESL-MW-D1-F(0.2)-0917, ESL-MW-A-0917, ESL-MW-A-F(0.2)-0917, GWE-5D-0917, GWE-5D-F(0.2)-0917, 3Q17 LTM Trip Blank #1

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

Comments:

VOC: Insufficient sample volume to perform MS/MSD associated with batch 494803.

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

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 295212.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples PM1D, ESL-MW-D1, ESL-MW-A, and GWE-5D required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples PM1D, ESL-MW-D1, ESL-MW-A, and GWE-5D 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 3.1°C, within 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: Some compounds did not meet calibration requirements, data was qualified as required.

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: None

Additional Comments: None

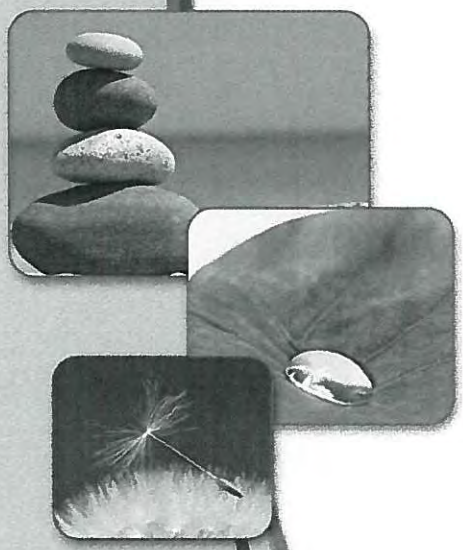
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	PM1D, ESL-MW-D1, ESL-MW-A, GWE-5D
Failed ICV	Nitrate as N	J	ESL-MW-A

SDG KPS196

Sample Results from:

PM1D
ESL-MW-D1
ESL-MW-A
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: 680-142844-1
TestAmerica Sample Delivery Group: KPS196
Client Project/Site: 3Q17 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:
9/25/2017 12:44:10 PM

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

SJD
9/28/17

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SSD
9/28/17

Job ID: 680-142844-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 3Q17 LTM GW Sampling - 1403345

Report Number: 680-142844-1

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 9/6/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5), GWE-5D-0917 (680-142844-7) and 3Q17 LTM Trip Blank #1 (680-142844-9) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/14/2017 and 09/15/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-494803.

The following sample was diluted to bring the concentration of target analytes within the calibration range: ESL-MW-D1-0917 (680-142844-3). Elevated reporting limits (RLs) are provided.

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

DISSOLVED GASES
Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 09/18/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295212.

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

METALS (ICP) - DISSOLVED
Samples PM1D-F(0.2)-0917 (680-142844-2), ESL-MW-D1-F(0.2)-0917 (680-142844-4), ESL-MW-A-F(0.2)-0917 (680-142844-6) and GWE-5D-F(0.2)-0917 (680-142844-8) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/07/2017 and analyzed on 09/08/2017.

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

METALS (ICP)
Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/07/2017 and analyzed on 09/08/2017.

SSD 9/28/17

Job ID: 680-142844-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

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

ALKALINITY

Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 09/13/2017.

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

CHLORIDE

Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 09/16/2017.

Samples PM1D-0917 (680-142844-1)[2X], ESL-MW-D1-0917 (680-142844-3)[2X], ESL-MW-A-0917 (680-142844-5)[2X] and GWE-5D-0917 (680-142844-7)[5X] 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.

NITRATE-NITRITE AS NITROGEN

Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 09/06/2017.

The Nitrate as N result is obtained from a calculation incorporating the Nitrate+Nitrite and Nitrite results. Re-analysis is not performed if QC for the calculated analyte does not meet acceptance criteria, provided the QC results for the component analytes are acceptable. Data have been qualified to denote this situation.

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

SULFATE

Samples PM1D-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 09/16/2017.

Samples PM1D-0917 (680-142844-1)[10X], ESL-MW-D1-0917 (680-142844-3)[20X], ESL-MW-A-0917 (680-142844-5)[50X] and GWE-5D-0917 (680-142844-7)[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-0917 (680-142844-1), ESL-MW-D1-0917 (680-142844-3), ESL-MW-A-0917 (680-142844-5) and GWE-5D-0917 (680-142844-7) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 09/20/2017.

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)-0917 (680-142844-2), ESL-MW-D1-F(0.2)-0917 (680-142844-4), ESL-MW-A-F(0.2)-0917 (680-142844-6) and GWE-5D-F(0.2)-0917 (680-142844-8) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 09/13/2017.

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

SSD
9/28/17

Sample Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-142844-1	PM1D-0917	Water	09/05/17 10:45	09/06/17 09:30
680-142844-2	PM1D-F(0.2)-0917	Water	09/05/17 10:45	09/06/17 09:30
680-142844-3	ESL-MW-D1-0917	Water	09/05/17 12:15	09/06/17 09:30
680-142844-4	ESL-MW-D1-F(0.2)-0917	Water	09/05/17 12:15	09/06/17 09:30
680-142844-5	ESL-MW-A-0917	Water	09/05/17 13:15	09/06/17 09:30
680-142844-6	ESL-MW-A-F(0.2)-0917	Water	09/05/17 13:15	09/06/17 09:30
680-142844-7	GWE-5D-0917	Water	09/05/17 14:11	09/06/17 09:30
680-142844-8	GWE-5D-F(0.2)-0917	Water	09/05/17 14:11	09/06/17 09:30
680-142844-9	3Q17 LTM Trip Blank #1	Water	09/05/17 00:00	09/06/17 09:30

SJD
9/28/17

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
6010C	Metals (ICP)	SW846	TAL SAV
310.1-1978	Alkalinity	MCAWW	TAL SAV
325.2-1978	Chloride	MCAWW	TAL SAV
353.2-1993 R2.0	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4-1978	Sulfate	MCAWW	TAL SAV
415.1-1974	TOC	MCAWW	TAL SAV
415.1-1974	DOC	MCAWW	TAL SAV

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 CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

SSD
9/28/17
TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

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
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

SJD
9/28/17

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: PM1D-0917 — Lab Sample ID: 680-142844-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	25		1.0		ug/L	1		8260B	Total/NA
Methane	33		0.50		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.51		0.010		mg/L	1		6010C	Total Recoverable
Chloride	79	D	2.0		mg/L	2		325.2-1978	Total/NA
Sulfate	280	D	50		mg/L	10		375.4-1978	Total/NA
Total Organic Carbon	2.3		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	440		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	22		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: PM1D-F(0.2)-0917 — Lab Sample ID: 680-142844-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.52		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.2		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: ESL-MW-D1-0917 — Lab Sample ID: 680-142844-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene - DL	160	D	2.0		ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene - DL	2.2	D	2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene - DL	24	D	2.0		ug/L	2		8260B	Total/NA
Methane	22		0.50		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.37		0.010		mg/L	1		6010C	Total Recoverable
Chloride	94	D	2.0		mg/L	2		325.2-1978	Total/NA
Sulfate	490	D	100		mg/L	20		375.4-1978	Total/NA
Total Organic Carbon	2.8		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	410		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	19		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: ESL-MW-D1-F(0.2)-0917 — Lab Sample ID: 680-142844-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.40		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.2		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: ESL-MW-A-0917 — Lab Sample ID: 680-142844-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	8.3		0.50		ug/L	1		RSK-175	Total/NA
Iron	14		0.050		mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

SJD 9/26/17

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-A-0917 (Continued) — Lab Sample ID: 680-142844-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	0.46		0.010		mg/L	1		6010C	Total Recoverable
Chloride	95	D	2.0		mg/L	2		325.2-1978	Total/NA
Nitrate as N	0.067	J	0.050		mg/L	1		353.2-1993 R2.0	Total/NA
Sulfate	630	D	250		mg/L	50		375.4-1978	Total/NA
Total Organic Carbon	3.6		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	400		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	17		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: ESL-MW-A-F(0.2)-0917 — Lab Sample ID: 680-142844-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.44		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.4		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: GWE-5D-0917 — Lab Sample ID: 680-142844-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	16		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	8.8		1.0		ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	3.1		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	68		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene - DL	500	D	10		ug/L	10		8260B	Total/NA
Methane	73		0.50		ug/L	1		RSK-175	Total/NA
Iron	17		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.54		0.010		mg/L	1		6010C	Total Recoverable
Chloride	240	D	5.0		mg/L	5		325.2-1978	Total/NA
Sulfate	440	D	100		mg/L	20		375.4-1978	Total/NA
Total Organic Carbon	4.1		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	410		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	21		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: GWE-5D-F(0.2)-0917 — Lab Sample ID: 680-142844-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	18		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.54		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.8		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: 3Q17 LTM Trip Blank #1 — Lab Sample ID: 680-142844-9

No Detections.

This Detection Summary does not include radiochemical test results.

SJD
9/28/17

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: PM1D-0917

Date Collected: 09/05/17 10:45
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-1

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			09/15/17 17:01	1
Chlorobenzene	**25**		1.0		ug/L			09/15/17 17:01	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 17:01	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 17:01	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/15/17 17:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*73 - 131*		*09/15/17 17:01*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 122*		*09/15/17 17:01*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*09/15/17 17:01*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**33**		0.50		ug/L			09/18/17 15:10	1
Ethane	0.50	U	0.50		ug/L			09/18/17 15:10	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*87*		*76 - 121*		*09/18/17 15:10*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**13**		0.050		mg/L		09/07/17 08:46	09/08/17 00:55	1
Manganese	**0.51**		0.010		mg/L		09/07/17 08:46	09/08/17 00:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**79**	D	2.0		mg/L			09/16/17 14:46	2
Nitrate as N	0.050	U	0.050		mg/L			09/06/17 17:15	1
Sulfate	**280**	D	50		mg/L			09/16/17 15:32	10
Total Organic Carbon	**2.3**		1.0		mg/L			09/20/17 21:12	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**440**		5.0		mg/L			09/13/17 17:58	1
Carbon Dioxide, Free	**22**		5.0		mg/L			09/13/17 17:58	1

SSD
9/28/17
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: PM1D-F(0.2)-0917

Date Collected: 09/05/17 10:45
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-2

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		09/07/17 08:46	09/08/17 01:20	1
Manganese, Dissolved	0.52		0.010		mg/L		09/07/17 08:46	09/08/17 01:20	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.2		1.0		mg/L			09/13/17 18:24	1

SJD
9/28/17
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-D1-0917

Date Collected: 09/05/17 12:15
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.0	U	2.0		ug/L			09/15/17 14:02	2
Chlorobenzene	**160**	D	2.0		ug/L			09/15/17 14:02	2
1,2-Dichlorobenzene	**2.2**	D	2.0		ug/L			09/15/17 14:02	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			09/15/17 14:02	2
1,4-Dichlorobenzene	**24**	D	2.0		ug/L			09/15/17 14:02	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/15/17 14:02*	*2*
1,2-Dichloroethane-d4 (Surr)	*96*		*73 - 131*		*09/15/17 14:02*	*2*
Dibromofluoromethane (Surr)	*99*		*80 - 122*		*09/15/17 14:02*	*2*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/15/17 14:02*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**22**		0.50		ug/L			09/18/17 15:27	1
Ethane	0.50	U	0.50		ug/L			09/18/17 15:27	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*89*		*76 - 121*		*09/18/17 15:27*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12**		0.050		mg/L		09/07/17 08:46	09/08/17 00:59	1
Manganese	**0.37**		0.010		mg/L		09/07/17 08:46	09/08/17 00:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**94**	D	2.0		mg/L			09/16/17 14:46	2
Nitrate as N	0.050	U	0.050		mg/L			09/06/17 17:17	1
Sulfate	**490**	D	100		mg/L			09/16/17 15:25	20
Total Organic Carbon	**2.8**		1.0		mg/L			09/20/17 21:59	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**410**		5.0		mg/L			09/13/17 18:47	1
Carbon Dioxide, Free	**19**		5.0		mg/L			09/13/17 18:47	1

SSD
9/28/17

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-D1-F(0.2)-0917
Date Collected: 09/05/17 12:15
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-4
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		09/07/17 08:46	09/08/17 01:24	1
Manganese, Dissolved	0.40		0.010		mg/L		09/07/17 08:46	09/08/17 01:24	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.2		1.0		mg/L			09/13/17 18:48	1

SJD
9/28/17
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-A-0917

Date Collected: 09/05/17 13:15
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-5

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			09/14/17 17:29	1
Chlorobenzene	1.0	U	1.0		ug/L			09/14/17 17:29	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 17:29	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 17:29	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/14/17 17:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*73 - 131*		*09/14/17 17:29*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/14/17 17:29*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*09/14/17 17:29*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**8.3**		0.50		ug/L			09/18/17 15:44	1
Ethane	0.50	U	0.50		ug/L			09/18/17 15:44	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*86*		*76 - 121*		*09/18/17 15:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**14**		0.050		mg/L		09/07/17 08:46	09/08/17 01:12	1
Manganese	**0.46**		0.010		mg/L		09/07/17 08:46	09/08/17 01:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**95**	D	2.0		mg/L			09/16/17 14:47	2
Nitrate as N	**0.067**	J	0.050		mg/L			09/06/17 17:20	1
Sulfate	**630**	D	250		mg/L			09/16/17 15:16	50
Total Organic Carbon	**3.6**		1.0		mg/L			09/20/17 22:16	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**400**		5.0		mg/L			09/13/17 18:56	1
Carbon Dioxide, Free	**17**		5.0		mg/L			09/13/17 18:56	1

SSD
9/28/17
TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-A-F(0.2)-0917
Date Collected: 09/05/17 13:15
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-6
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		09/07/17 08:46	09/08/17 01:29	1
Manganese, Dissolved	0.44		0.010		mg/L		09/07/17 08:46	09/08/17 01:29	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.4		1.0		mg/L			09/13/17 19:04	1

SJD
9/28/17

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: GWE-5D-0917

Date Collected: 09/05/17 14:11
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	16		1.0		ug/L			09/14/17 17:54	1
1,2-Dichlorobenzene	8.8		1.0		ug/L			09/14/17 17:54	1
1,3-Dichlorobenzene	3.1		1.0		ug/L			09/14/17 17:54	1
1,4-Dichlorobenzene	68		1.0		ug/L			09/14/17 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*09/14/17 17:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/14/17 17:54*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 122*		*09/14/17 17:54*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/14/17 17:54*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	500	D	10		ug/L			09/15/17 12:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/15/17 12:48*	*10*
1,2-Dichloroethane-d4 (Surr)	*95*		*73 - 131*		*09/15/17 12:48*	*10*
Dibromofluoromethane (Surr)	*98*		*80 - 122*		*09/15/17 12:48*	*10*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*09/15/17 12:48*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	73		0.50		ug/L			09/18/17 16:01	1
Ethane	0.50	U	0.50		ug/L			09/18/17 16:01	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*85*		*76 - 121*		*09/18/17 16:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17		0.050		mg/L		09/07/17 08:46	09/08/17 01:16	1
Manganese	0.54		0.010		mg/L		09/07/17 08:46	09/08/17 01:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	240	D	5.0		mg/L			09/16/17 15:37	5
Nitrate as N	0.050	U	0.050		mg/L			09/06/17 17:21	1
Sulfate	440	D	100		mg/L			09/16/17 15:25	20
Total Organic Carbon	4.1		1.0		mg/L			09/20/17 22:33	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	410		5.0		mg/L			09/13/17 19:06	1
Carbon Dioxide, Free	21		5.0		mg/L			09/13/17 19:06	1

SJD
9/28/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: GWE-5D-F(0.2)-0917
Date Collected: 09/05/17 14:11
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-8
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	18		0.050		mg/L		09/07/17 08:46	09/08/17 01:33	1
Manganese, Dissolved	0.54		0.010		mg/L		09/07/17 08:46	09/08/17 01:33	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.8		1.0		mg/L			09/13/17 19:30	1

SJD
9/28/17
TestAmerica Savannah

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: 3Q17 LTM Trip Blank #1
Date Collected: 09/05/17 00:00
Date Received: 09/06/17 09:30

Lab Sample ID: 680-142844-9
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			09/14/17 18:19	1
Chlorobenzene	1.0	U	1.0		ug/L			09/14/17 18:19	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 18:19	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 18:19	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/14/17 18:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*73 - 131*		*09/14/17 18:19*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/14/17 18:19*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*09/14/17 18:19*	*1*

SSD
9/28/17

TestAmerica Savannah

Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

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 (80-120)	12DCE (73-131)	DBFM (80-122)	BFB (80-120)
680-142844-1	PM1D-0917	104	88	91	101
680-142844-3 - DL	ESL-MW-D1-0917	100	96	99	98
680-142844-5	ESL-MW-A-0917	99	91	96	96
680-142844-7	GWE-5D-0917	98	90	94	98
680-142844-7 - DL	GWE-5D-0917	99	95	98	99
680-142844-9	3Q17 LTM Trip Blank #1	99	91	96	96
LCS 680-494663/5	Lab Control Sample	101	96	90	97
LCS 680-494803/3	Lab Control Sample	106	89	95	99
LCS 680-494808/4	Lab Control Sample	102	98	97	97
LCSD 680-494663/27	Lab Control Sample Dup	101	99	96	95
LCSD 680-494803/4	Lab Control Sample Dup	105	88	94	96
LCSD 680-494808/5	Lab Control Sample Dup	102	97	98	97
MB 680-494663/9	Method Blank	98	90	94	101
MB 680-494803/8	Method Blank	100	89	92	104
MB 680-494808/9	Method Blank	99	92	98	98

Surrogate Legend

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

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	rifluoroet (76-121)
680-142844-1	PM1D-0917	87
680-142844-3	ESL-MW-D1-0917	89
680-142844-5	ESL-MW-A-0917	86
680-142844-7	GWE-5D-0917	85
LCS 240-295212/5	Lab Control Sample	85
LCSD 240-295212/6	Lab Control Sample Dup	85
MB 240-295212/4	Method Blank	93

Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

SJD
9/28/17
TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

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

Lab Sample ID: MB 680-494663/9
Matrix: Water
Analysis Batch: 494663

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			09/14/17 11:19	1
Chlorobenzene	1.0	U	1.0		ug/L			09/14/17 11:19	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 11:19	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 11:19	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/14/17 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*09/14/17 11:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/14/17 11:19*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 122*		*09/14/17 11:19*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*09/14/17 11:19*	*1*

Lab Sample ID: LCS 680-494663/5
Matrix: Water
Analysis Batch: 494663

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	51.5		ug/L		103	80 - 120
Chlorobenzene	50.0	50.4		ug/L		101	80 - 120
1,2-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,4-Dichlorobenzene	50.0	49.9		ug/L		100	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*73 - 131*
Dibromofluoromethane (Surr)	*90*		*80 - 122*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: LCSD 680-494663/27
Matrix: Water
Analysis Batch: 494663

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	51.3		ug/L		103	80 - 120	0	20
Chlorobenzene	50.0	50.0		ug/L		100	80 - 120	1	20
1,2-Dichlorobenzene	50.0	48.4		ug/L		97	80 - 120	0	20
1,3-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120	1	20
1,4-Dichlorobenzene	50.0	49.7		ug/L		99	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*99*		*73 - 131*
Dibromofluoromethane (Surr)	*96*		*80 - 122*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

SSD
9/28/17
TestAmerica Savannah

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

Lab Sample ID: MB 680-494803/8
Matrix: Water
Analysis Batch: 494803

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			09/15/17 10:51	1
Chlorobenzene	1.0	U	1.0		ug/L			09/15/17 10:51	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 10:51	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 10:51	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 10:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/15/17 10:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*73 - 131*		*09/15/17 10:51*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 122*		*09/15/17 10:51*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/15/17 10:51*	*1*

Lab Sample ID: LCS 680-494803/3
Matrix: Water
Analysis Batch: 494803

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	45.2		ug/L		90	80 - 120
Chlorobenzene	50.0	45.9		ug/L		92	80 - 120
1,2-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	48.2		ug/L		96	80 - 120
1,4-Dichlorobenzene	50.0	47.2		ug/L		94	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*89*		*73 - 131*
Dibromofluoromethane (Surr)	*95*		*80 - 122*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 680-494803/4
Matrix: Water
Analysis Batch: 494803

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	44.6		ug/L		89	80 - 120	1	20
Chlorobenzene	50.0	45.7		ug/L		91	80 - 120	0	20
1,2-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120	2	20
1,3-Dichlorobenzene	50.0	47.2		ug/L		94	80 - 120	2	20
1,4-Dichlorobenzene	50.0	46.5		ug/L		93	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*88*		*73 - 131*
Dibromofluoromethane (Surr)	*94*		*80 - 122*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*

SSD
9/28/17
TestAmerica Savannah

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

Lab Sample ID: MB 680-494808/9
Matrix: Water
Analysis Batch: 494808

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			09/15/17 11:58	1
Chlorobenzene	1.0	U	1.0		ug/L			09/15/17 11:58	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 11:58	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 11:58	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/15/17 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/15/17 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*73 - 131*		*09/15/17 11:58*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 122*		*09/15/17 11:58*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/15/17 11:58*	*1*

Lab Sample ID: LCS 680-494808/4
Matrix: Water
Analysis Batch: 494808

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	51.6		ug/L		103	80 - 120
Chlorobenzene	50.0	50.0		ug/L		100	80 - 120
1,2-Dichlorobenzene	50.0	48.9		ug/L		98	80 - 120
1,3-Dichlorobenzene	50.0	49.6		ug/L		99	80 - 120
1,4-Dichlorobenzene	50.0	49.4		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*73 - 131*
Dibromofluoromethane (Surr)	*97*		*80 - 122*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: LCSD 680-494808/5
Matrix: Water
Analysis Batch: 494808

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	51.5		ug/L		103	80 - 120	0	20
Chlorobenzene	50.0	48.9		ug/L		98	80 - 120	2	20
1,2-Dichlorobenzene	50.0	48.4		ug/L		97	80 - 120	1	20
1,3-Dichlorobenzene	50.0	49.2		ug/L		98	80 - 120	1	20
1,4-Dichlorobenzene	50.0	49.5		ug/L		99	80 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*73 - 131*
Dibromofluoromethane (Surr)	*98*		*80 - 122*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

SJD
9/28/17

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-295212/4
Matrix: Water
Analysis Batch: 295212

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/18/17 13:44	1
Ethane	0.50	U	0.50		ug/L			09/18/17 13:44	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 13:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*93*		*76 - 121*		*09/18/17 13:44*	*1*

Lab Sample ID: LCS 240-295212/5
Matrix: Water
Analysis Batch: 295212

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	199		ug/L		100	80 - 130
Ethane	374	391		ug/L		105	76 - 131
Ethylene	349	370		ug/L		106	79 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*76 - 121*

Lab Sample ID: LCSD 240-295212/6
Matrix: Water
Analysis Batch: 295212

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	199	202		ug/L		101	80 - 130	2	35
Ethane	374	397		ug/L		106	76 - 131	2	35
Ethylene	349	374		ug/L		107	79 - 132	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*76 - 121*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-494315/1-A
Matrix: Water
Analysis Batch: 494496

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		09/07/17 08:45	09/08/17 00:25	1
Iron, Dissolved	0.050	U	0.050		mg/L		09/07/17 08:45	09/08/17 00:25	1
Manganese	0.010	U	0.010		mg/L		09/07/17 08:45	09/08/17 00:25	1
Manganese, Dissolved	0.010	U	0.010		mg/L		09/07/17 08:45	09/08/17 00:25	1

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

Lab Sample ID: LCS 680-494315/2-A
Matrix: Water
Analysis Batch: 494496

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.00		mg/L		100	80 - 120
Iron, Dissolved	5.00	5.00		mg/L		100	80 - 120
Manganese	0.500	0.548		mg/L		110	80 - 120
Manganese, Dissolved	0.500	0.548		mg/L		110	80 - 120

Method: 310.1-1978 - Alkalinity

Lab Sample ID: MB 680-494724/7
Matrix: Water
Analysis Batch: 494724

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			09/13/17 15:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			09/13/17 15:53	1

Lab Sample ID: LCS 680-494724/8
Matrix: Water
Analysis Batch: 494724

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	264		mg/L		106	80 - 120

Lab Sample ID: LCSD 680-494724/33
Matrix: Water
Analysis Batch: 494724

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	278		mg/L		111	80 - 120	5	30

Method: 325.2-1978 - Chloride

Lab Sample ID: MB 680-495149/6
Matrix: Water
Analysis Batch: 495149

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			09/16/17 14:04	1

Lab Sample ID: LCS 680-495149/7
Matrix: Water
Analysis Batch: 495149

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	27.0		mg/L		108	85 - 115

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Method: 325.2-1978 - Chloride (Continued)

Lab Sample ID: LCSD 680-495149/13
Matrix: Water
Analysis Batch: 495149

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
Chloride	25.0	27.0		mg/L		108	85 - 115	0	30

Method: 353.2-1993 R2.0 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-494265/13
Matrix: Water
Analysis Batch: 494265

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			09/06/17 17:06	1

Lab Sample ID: LCS 680-494265/16
Matrix: Water
Analysis Batch: 494265

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	0.539	^	mg/L		108	75 - 125
Nitrate Nitrite as N	1.00	1.05		mg/L		105	90 - 110
Nitrite as N	0.500	0.511		mg/L		102	90 - 110

Method: 375.4-1978 - Sulfate

Lab Sample ID: MB 680-495124/4
Matrix: Water
Analysis Batch: 495124

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			09/16/17 14:09	1

Lab Sample ID: LCS 680-495124/5
Matrix: Water
Analysis Batch: 495124

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

Lab Sample ID: LCSD 680-495124/7
Matrix: Water
Analysis Batch: 495124

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
Sulfate	20.0	20.1		mg/L		100	75 - 125	1	30

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QC Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Method: 415.1-1974 - DOC

Lab Sample ID: MB 680-494618/1-A
Matrix: Water
Analysis Batch: 494843

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			09/13/17 15:50	1

Lab Sample ID: LCS 680-494618/2-A
Matrix: Water
Analysis Batch: 494843

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	21.2		mg/L		106	80 - 120

Lab Sample ID: LCSD 680-494618/3-A
Matrix: Water
Analysis Batch: 494843

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	21.3		mg/L		107	80 - 120	0	20

Method: 415.1-1974 - TOC

Lab Sample ID: MB 680-495460/2
Matrix: Water
Analysis Batch: 495460

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			09/20/17 20:13	1

Lab Sample ID: LCS 680-495460/3
Matrix: Water
Analysis Batch: 495460

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	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-495460/4
Matrix: Water
Analysis Batch: 495460

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
Total Organic Carbon	20.0	21.0		mg/L		105	80 - 120	1	25

Lab Sample ID: 680-142844-1 MS
Matrix: Water
Analysis Batch: 495460

Client Sample ID: PM1D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.3		20.0	23.2		mg/L		105	80 - 120

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Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Method: 415.1-1974 - TOC (Continued)

Lab Sample ID: 680-142844-1 MSD
Matrix: Water
Analysis Batch: 495460

Client Sample ID: PM1D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2.3		20.0	23.2		mg/L		105	80 - 120	0	25

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QC Association Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

GC/MS VOA

Analysis Batch: 494663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-5	ESL-MW-A-0917	Total/NA	Water	8260B	
680-142844-7	GWE-5D-0917	Total/NA	Water	8260B	
680-142844-9	3Q17 LTM Trip Blank #1	Total/NA	Water	8260B	
MB 680-494663/9	Method Blank	Total/NA	Water	8260B	
LCS 680-494663/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494663/27	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 494803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	8260B	
MB 680-494803/8	Method Blank	Total/NA	Water	8260B	
LCS 680-494803/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494803/4	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 494808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-3 - DL	ESL-MW-D1-0917	Total/NA	Water	8260B	
680-142844-7 - DL	GWE-5D-0917	Total/NA	Water	8260B	
MB 680-494808/9	Method Blank	Total/NA	Water	8260B	
LCS 680-494808/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494808/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 295212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	RSK-175	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	RSK-175	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	RSK-175	
680-142844-7	GWE-5D-0917	Total/NA	Water	RSK-175	
MB 240-295212/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295212/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-295212/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 494315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total Recoverable	Water	3005A	
680-142844-2	PM1D-F(0.2)-0917	Dissolved	Water	3005A	
680-142844-3	ESL-MW-D1-0917	Total Recoverable	Water	3005A	
680-142844-4	ESL-MW-D1-F(0.2)-0917	Dissolved	Water	3005A	
680-142844-5	ESL-MW-A-0917	Total Recoverable	Water	3005A	
680-142844-6	ESL-MW-A-F(0.2)-0917	Dissolved	Water	3005A	
680-142844-7	GWE-5D-0917	Total Recoverable	Water	3005A	
680-142844-8	GWE-5D-F(0.2)-0917	Dissolved	Water	3005A	
MB 680-494315/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494315/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

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Metals (Continued)

Analysis Batch: 494496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total Recoverable	Water	6010C	494315
680-142844-2	PM1D-F(0.2)-0917	Dissolved	Water	6010C	494315
680-142844-3	ESL-MW-D1-0917	Total Recoverable	Water	6010C	494315
680-142844-4	ESL-MW-D1-F(0.2)-0917	Dissolved	Water	6010C	494315
680-142844-5	ESL-MW-A-0917	Total Recoverable	Water	6010C	494315
680-142844-6	ESL-MW-A-F(0.2)-0917	Dissolved	Water	6010C	494315
680-142844-7	GWE-5D-0917	Total Recoverable	Water	6010C	494315
680-142844-8	GWE-5D-F(0.2)-0917	Dissolved	Water	6010C	494315
MB 680-494315/1-A	Method Blank	Total Recoverable	Water	6010C	494315
LCS 680-494315/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494315

General Chemistry

Analysis Batch: 494265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	353.2-1993 R2.0	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	353.2-1993 R2.0	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	353.2-1993 R2.0	
680-142844-7	GWE-5D-0917	Total/NA	Water	353.2-1993 R2.0	
MB 680-494265/13	Method Blank	Total/NA	Water	353.2-1993 R2.0	
LCS 680-494265/16	Lab Control Sample	Total/NA	Water	353.2-1993 R2.0	

Filtration Batch: 494618

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-494618/1-A	Method Blank	Dissolved	Water	FILTRATION	
LCS 680-494618/2-A	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 680-494618/3-A	Lab Control Sample Dup	Dissolved	Water	FILTRATION	

Analysis Batch: 494724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	310.1-1978	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	310.1-1978	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	310.1-1978	
680-142844-7	GWE-5D-0917	Total/NA	Water	310.1-1978	
MB 680-494724/7	Method Blank	Total/NA	Water	310.1-1978	
LCS 680-494724/8	Lab Control Sample	Total/NA	Water	310.1-1978	
LCSD 680-494724/33	Lab Control Sample Dup	Total/NA	Water	310.1-1978	

Analysis Batch: 494843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-2	PM1D-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142844-4	ESL-MW-D1-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142844-6	ESL-MW-A-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142844-8	GWE-5D-F(0.2)-0917	Dissolved	Water	415.1-1974	
MB 680-494618/1-A	Method Blank	Dissolved	Water	415.1-1974	494618
LCS 680-494618/2-A	Lab Control Sample	Dissolved	Water	415.1-1974	494618
LCSD 680-494618/3-A	Lab Control Sample Dup	Dissolved	Water	415.1-1974	494618

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General Chemistry (Continued)

Analysis Batch: 495124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	375.4-1978	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	375.4-1978	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	375.4-1978	
680-142844-7	GWE-5D-0917	Total/NA	Water	375.4-1978	
MB 680-495124/4	Method Blank	Total/NA	Water	375.4-1978	
LCS 680-495124/5	Lab Control Sample	Total/NA	Water	375.4-1978	
LCSD 680-495124/7	Lab Control Sample Dup	Total/NA	Water	375.4-1978	

Analysis Batch: 495149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	325.2-1978	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	325.2-1978	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	325.2-1978	
680-142844-7	GWE-5D-0917	Total/NA	Water	325.2-1978	
MB 680-495149/6	Method Blank	Total/NA	Water	325.2-1978	
LCS 680-495149/7	Lab Control Sample	Total/NA	Water	325.2-1978	
LCSD 680-495149/13	Lab Control Sample Dup	Total/NA	Water	325.2-1978	

Analysis Batch: 495460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142844-1	PM1D-0917	Total/NA	Water	415.1-1974	
680-142844-3	ESL-MW-D1-0917	Total/NA	Water	415.1-1974	
680-142844-5	ESL-MW-A-0917	Total/NA	Water	415.1-1974	
680-142844-7	GWE-5D-0917	Total/NA	Water	415.1-1974	
MB 680-495460/2	Method Blank	Total/NA	Water	415.1-1974	
LCS 680-495460/3	Lab Control Sample	Total/NA	Water	415.1-1974	
LCSD 680-495460/4	Lab Control Sample Dup	Total/NA	Water	415.1-1974	
680-142844-1 MS	PM1D-0917	Total/NA	Water	415.1-1974	
680-142844-1 MSD	PM1D-0917	Total/NA	Water	415.1-1974	

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Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: PM1D-0917

Lab Sample ID: 680-142844-1
Matrix: Water
Date Collected: 09/05/17 10:45
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494803	09/15/17 17:01	CMB	TAL SAV
Total/NA	Analysis	RSK-175		1	295212	09/18/17 15:10	BPM	TAL CAN
Total Recoverable	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	494496	09/08/17 00:55	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494724	09/13/17 17:58	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		2	495149	09/16/17 14:46	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494265	09/06/17 17:15	JER	TAL SAV
Total/NA	Analysis	375.4-1978		10	495124	09/16/17 15:32	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 21:12	KLD	TAL SAV

Client Sample ID: PM1D-F(0.2)-0917

Lab Sample ID: 680-142844-2
Matrix: Water
Date Collected: 09/05/17 10:45
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Dissolved	Analysis	6010C		1	494496	09/08/17 01:20	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	494843	09/13/17 18:24	KLD	TAL SAV

Client Sample ID: ESL-MW-D1-0917

Lab Sample ID: 680-142844-3
Matrix: Water
Date Collected: 09/05/17 12:15
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	2	494808	09/15/17 14:02	CMB	TAL SAV
Total/NA	Analysis	RSK-175		1	295212	09/18/17 15:27	BPM	TAL CAN
Total Recoverable	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	494496	09/08/17 00:59	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494724	09/13/17 18:47	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		2	495149	09/16/17 14:46	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494265	09/06/17 17:17	JER	TAL SAV
Total/NA	Analysis	375.4-1978		20	495124	09/16/17 15:25	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 21:59	KLD	TAL SAV

Client Sample ID: ESL-MW-D1-F(0.2)-0917

Lab Sample ID: 680-142844-4
Matrix: Water
Date Collected: 09/05/17 12:15
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Dissolved	Analysis	6010C		1	494496	09/08/17 01:24	BCB	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: ESL-MW-D1-F(0.2)-0917

Lab Sample ID: 680-142844-4
Matrix: Water
Date Collected: 09/05/17 12:15
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1-1974		1	494843	09/13/17 18:48	KLD	TAL SAV

Client Sample ID: ESL-MW-A-0917

Lab Sample ID: 680-142844-5
Matrix: Water
Date Collected: 09/05/17 13:15
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494663	09/14/17 17:29	CMB	TAL SAV
Total/NA	Analysis	RSK-175		1	295212	09/18/17 15:44	BPM	TAL CAN
Total Recoverable	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	494496	09/08/17 01:12	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494724	09/13/17 18:56	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		2	495149	09/16/17 14:47	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494265	09/06/17 17:20	JER	TAL SAV
Total/NA	Analysis	375.4-1978		50	495124	09/16/17 15:16	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 22:16	KLD	TAL SAV

Client Sample ID: ESL-MW-A-F(0.2)-0917

Lab Sample ID: 680-142844-6
Matrix: Water
Date Collected: 09/05/17 13:15
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Dissolved	Analysis	6010C		1	494496	09/08/17 01:29	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	494843	09/13/17 19:04	KLD	TAL SAV

Client Sample ID: GWE-5D-0917

Lab Sample ID: 680-142844-7
Matrix: Water
Date Collected: 09/05/17 14:11
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494663	09/14/17 17:54	CMB	TAL SAV
Total/NA	Analysis	8260B	DL	10	494808	09/15/17 12:48	CMB	TAL SAV
Total/NA	Analysis	RSK-175		1	295212	09/18/17 16:01	BPM	TAL CAN
Total Recoverable	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	494496	09/08/17 01:16	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494724	09/13/17 19:06	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495149	09/16/17 15:37	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494265	09/06/17 17:21	JER	TAL SAV
Total/NA	Analysis	375.4-1978		20	495124	09/16/17 15:25	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 22:33	KLD	TAL SAV

SJD
9/28/17

TestAmerica Savannah

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Client Sample ID: GWE-5D-F(0.2)-0917

Lab Sample ID: 680-142844-8

Date Collected: 09/05/17 14:11
Matrix: Water
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494315	09/07/17 08:46	BJB	TAL SAV
Dissolved	Analysis	6010C		1	494496	09/08/17 01:33	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	494843	09/13/17 19:30	KLD	TAL SAV

Client Sample ID: 3Q17 LTM Trip Blank #1

Lab Sample ID: 680-142844-9

Date Collected: 09/05/17 00:00
Matrix: Water
Date Received: 09/06/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494663	09/14/17 18:19	CMB	TAL SAV

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

SSD
9/28/17

TestAmerica Savannah

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

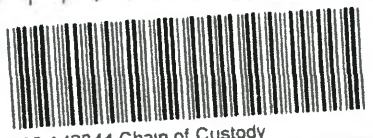
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other: Samantha D'Censo

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Emily White~~	Date: 9/5/17	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: 3Q17 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No:
P O # 42262863	☐ 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)	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-0917	9/5/17	1045	G	W	14	N		3	1	1	1	3	2	3			
PMID-F(0.2)-0917		1045			4	Y									1	3	
ESL-MW-D1-0917		1215			14	N		3	1	1	1	3	2	3			
ESL-MW-D1-F(0.2)-0917		1215			4	Y									1	3	
ESL-MW-A-0917		1315			14	N		3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0917		1315			4	Y									1	3	
GWE-SD-0917		1411			14	N		3	1	1	1	3	2	3			
GWE-SD-F(0.2)-0917		1411			4	Y									1	3	
3Q17 LTM Trip Blank #1					2	N		2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	4	1	1	2	1,3	3	4	3	


680-142844 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:		Cooler Temp. (°C): Obs'd _____ Corr'd _____		Therm ID No: _____
Relinquished by: Samantha D'Censo	Company: Golder	Date/Time: 9/5/17 1531	Received by:	Company: SAV.	Date/Time: 09-06-17 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: 29(CF)3 1C	Date/Time:

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

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9/6/17 CS

1.2/1.2

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 680-490210.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 680-142844-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 9/18/2017			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: 3Q17 LTM GW Sampling - 1403345	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PM1D-0917 (680-142844-1)	9/5/17	10:45 Central		Water			X	3	
ESL-MW-D1-0917 (680-142844-3)	9/5/17	12:15 Central		Water			X	3	
ESL-MW-A-0917 (680-142844-5)	9/5/17	13:15 Central		Water			X	3	
GWE-5D-0917 (680-142844-7)	9/5/17	14:11 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 9/7/17 1800	Company	Received by:		Date/Time: 9/8/17 940	Company: TA	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:				

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SS
9/8/17

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____

Canton Facility

Client TA Savannah Site Name _____ Cooler unpacked by:

Cooler Received on 9/8/17 Opened on 9/8/17

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # _____ Foam Box (Client Cooler) Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.2 °C

IR GUN #36 (CF +0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were custody seals on the outside of the cooler(s)?	If Yes Quantity_____	Yes (No)
-Were custody seals on the outside of the cooler(s) signed & dated?		Yes No (NA)
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes (No)
3. Shippers' packing slip attached to the cooler(s)?		(Yes) No
4. Did custody papers accompany the sample(s)?		(Yes) No
5. Were the custody papers relinquished & signed in the appropriate place?		(Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC?		Yes (No)
7. Did all bottles arrive in good condition (Unbroken)?		(Yes) No
8. Could all bottle labels be reconciled with the COC?		(Yes) No
9. Were correct bottle(s) used for the test(s) indicated?		(Yes) No
10. Sufficient quantity received to perform indicated analyses?		(Yes) No
11. Are these work share samples?		(Yes) No

If yes, Questions 11-15 have been checked at the originating laboratory.

11. Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# HC697954
12. Were VOAs on the COC?	Yes No	
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No NA	
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes No	
15. Was a LL Hg or Me Hg trip blank present? _____	Yes No	

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

17. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-142844-1
SDG Number: KPS196

Login Number: 142844
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 (excluding tests with immediate HTs)	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	

SJD
9/28/17

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-18
Alaska	State Program	10		06-30-18
Alaska (UST)	State Program	10	UST-104	11-05-17 *
Arizona	State Program	9	AZ808	12-14-17
Arkansas DEQ	State Program	6	88-0692	02-01-18
California	State Program	9	2939	06-30-17 *
Colorado	State Program	8	N/A	12-31-17
Connecticut	State Program	1	PH-0161	03-31-19
Florida	NELAP	4	E87052	06-30-18
GA Dept. of Agriculture	State Program	4	N/A	06-12-18
Georgia	State Program	4	803	06-30-18
Guam	State Program	9	15-005r	04-16-18
Hawaii	State Program	9	N/A	06-30-18
Illinois	NELAP	5	200022	11-30-17
Indiana	State Program	5	N/A	06-30-18
Iowa	State Program	7	353	06-30-19
Kentucky (DW)	State Program	4	90084	12-31-17
Kentucky (UST)	State Program	4	18	06-30-18
Kentucky (WW)	State Program	4	90084	12-31-17
L-A-B	DoD ELAP		L2463	09-22-19
L-A-B	ISO/IEC 17025		L2463.01	09-22-19
Louisiana	NELAP	6	30690	06-30-18
Louisiana (DW)	NELAP	6	LA160019	12-31-17
Maine	State Program	1	GA00006	09-24-18
Maryland	State Program	3	250	12-31-17
Massachusetts	State Program	1	M-GA006	06-30-18
Michigan	State Program	5	9925	06-30-17 *
Mississippi	State Program	4	N/A	06-30-18
Nebraska	State Program	7	TestAmerica-Savannah	06-30-18
New Jersey	NELAP	2	GA769	06-30-18
New Mexico	State Program	6	N/A	06-30-18
New York	NELAP	2	10842	03-31-18
North Carolina (DW)	State Program	4	13701	07-31-18
North Carolina (WW/SW)	State Program	4	269	12-31-17
Oklahoma	State Program	6	9984	08-31-18
Pennsylvania	NELAP	3	68-00474	06-30-18
Puerto Rico	State Program	2	GA00006	12-31-17
South Carolina	State Program	4	98001	06-30-17 *
Tennessee	State Program	4	TN02961	06-30-18
Texas	NELAP	6	T104704185-16-9	11-30-17
Texas	State Program	6	T104704185	06-30-18
US Fish & Wildlife	Federal		LE058448-0	07-31-18
USDA	Federal		SAV 3-04	06-14-20 *
Virginia	NELAP	3	460161	06-14-18
Washington	State Program	10	C805	06-10-18
West Virginia (DW)	State Program	3	9950C	12-31-17
West Virginia DEP	State Program	3	094	06-30-18
Wisconsin	State Program	5	999819810	08-31-18
Wyoming	State Program	8	8TMS-L	06-30-16 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

SJD
9/28/17

TestAmerica Savannah

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142844-1
SDG: KPS196

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

SJD
9/28/17

TestAmerica Savannah

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
3Q17 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-3Q17 LTM
Reviewer: S. DiCenso
Laboratory: TestAmerica
SDG#: KPS197
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: September 2017

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: GWE-3D-0917, GWE-3D-F(0.2)-0917, GWE-2D-0917, GWE-2D-F(0.2)-0917, GWE-1D-0917, GWE-1D-F(0.2)-0917, CPA-MW-5D-0917, CPA-MW-5D-F(0.2)-0917, 3Q17 LTM Trip Blank #2

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

Comments:

VOC: Samples GWE-3D, GWE-2D, and CPA-MW-5D required dilution prior to analysis, reporting limits were adjusted accordingly.

SVOC: No deficiencies noted.

Dissolved Gases: Insufficient sample volume to perform MS/MSD associated with batch 295212.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples GWE-3D, GWE-2D, GWE-1D, and CPA-MW-5D required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples GWE-3D, GWE-2D, GWE-1D, and CPA-MW-5D 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 1.9°C, and 2.0°C, some outside the 4°C ± 2°C criteria

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

Comments: Detections in diluted analysis were qualified.

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: Some compounds did not meet calibration requirements; however, calibration criteria were met by analytes of interest. No data qualification was required.

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: None

Additional Comments: None

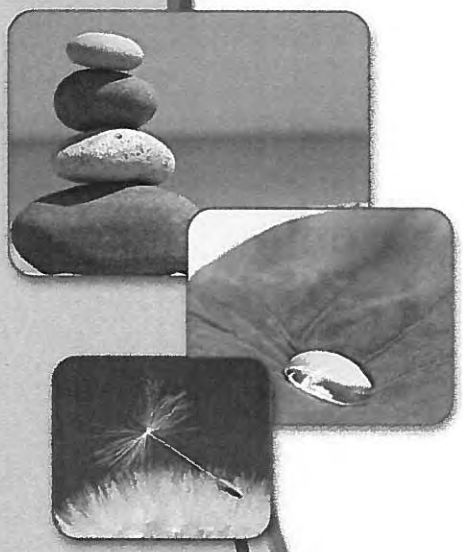
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Chlorobenzene, 1,4-Dichlorobenzene, Chloride, and Sulfate	D	GWE-3D, GWE-2D, GWE-1D, CPA-MW-5D

SDG KPS197

Sample Results from:

GWE-3D
GWE-2D
GWE-1D
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: 680-142913-1
TestAmerica Sample Delivery Group: KPS197
Client Project/Site: 3Q17 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:
9/25/2017 12:39:48 PM

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

SJD
10/16/17

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SSD 10/16/17

Job ID: 680-142913-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 3Q17 LTM GW Sampling - 1403345

Report Number: 680-142913-1

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 9/7/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.9° C and 2.0° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5), CPA-MW-5D-0917 (680-142913-7) and 3Q17 LTM Trip Blank #2 (680-142913-9) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/12/2017 and 09/13/2017.

Samples GWE-3D-0917 (680-142913-1)[66.67X], GWE-2D-0917 (680-142913-3)[5X] and CPA-MW-5D-0917 (680-142913-7)[50X] 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.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Sample CPA-MW-5D-0917 (680-142913-7) was analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW846 Method 8270D. The samples were prepared on 09/11/2017 and analyzed on 09/13/2017.

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

DISSOLVED GASES

Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 09/18/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295212.

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

METALS (ICP) - DISSOLVED

Samples GWE-3D-F(0.2)-0917 (680-142913-2), GWE-2D-F(0.2)-0917 (680-142913-4), GWE-1D-F(0.2)-0917 (680-142913-6) and CPA-MW-5D-F(0.2)-0917 (680-142913-8) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/07/2017 and analyzed on 09/13/2017.

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

METALS (ICP)

Job ID: 680-142913-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/07/2017 and analyzed on 09/13/2017.

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

ALKALINITY
Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 09/08/2017 and 09/14/2017.

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

CHLORIDE
Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 09/16/2017.

Samples GWE-3D-0917 (680-142913-1)[50X], GWE-2D-0917 (680-142913-3)[20X], GWE-1D-0917 (680-142913-5)[2X] and CPA-MW-5D-0917 (680-142913-7)[5X] 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.

NITRATE-NITRITE AS NITROGEN
Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 09/07/2017.

The Nitrate as N result is obtained from a calculation incorporating the Nitrate Nitrite as N and Nitrite as N results. Re-analysis is not performed if QC for the calculated analyte does not meet acceptance criteria, provided the QC results for the component analytes are acceptable. Data have been qualified to denote this situation.

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

SULFATE
Samples GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 09/16/2017.

Samples GWE-3D-0917 (680-142913-1)[20X], GWE-2D-0917 (680-142913-3)[50X], GWE-1D-0917 (680-142913-5)[10X] and CPA-MW-5D-0917 (680-142913-7)[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 GWE-3D-0917 (680-142913-1), GWE-2D-0917 (680-142913-3), GWE-1D-0917 (680-142913-5) and CPA-MW-5D-0917 (680-142913-7) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 09/20/2017.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GWE-3D-F(0.2)-0917 (680-142913-2), GWE-2D-F(0.2)-0917 (680-142913-4), GWE-1D-F(0.2)-0917 (680-142913-6) and CPA-MW-5D-F(0.2)-0917 (680-142913-8) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 09/20/2017.

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: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-142913-1	GWE-3D-0917	Water	09/06/17 09:13	09/07/17 09:10
680-142913-2	GWE-3D-F(0.2)-0917	Water	09/06/17 09:13	09/07/17 09:10
680-142913-3	GWE-2D-0917	Water	09/06/17 10:34	09/07/17 09:10
680-142913-4	GWE-2D-F(0.2)-0917	Water	09/06/17 10:34	09/07/17 09:10
680-142913-5	GWE-1D-0917	Water	09/06/17 13:00	09/07/17 09:10
680-142913-6	GWE-1D-F(0.2)-0917	Water	09/06/17 13:00	09/07/17 09:10
680-142913-7	CPA-MW-5D-0917	Water	09/06/17 15:20	09/07/17 09:10
680-142913-8	CPA-MW-5D-F(0.2)-0917	Water	09/06/17 15:20	09/07/17 09:10
680-142913-9	3Q17 LTM Trip Blank #2	Water	09/06/17 00:00	09/07/17 09:10

SJD 10/16/17

Method Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
6010C	Metals (ICP)	SW846	TAL SAV
310.1-1978	Alkalinity	MCAWW	TAL SAV
325.2-1978	Chloride	MCAWW	TAL SAV
353.2-1993 R2.0	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4-1978	Sulfate	MCAWW	TAL SAV
415.1-1974	TOC	MCAWW	TAL SAV
415.1-1974	DOC	MCAWW	TAL SAV

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 CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

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.
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
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-3D-0917 — Lab Sample ID: 680-142913-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1400	D	67		ug/L	66.67		8260B	Total/NA
1,4-Dichlorobenzene	110	D	67		ug/L	66.67		8260B	Total/NA
Methane	54		0.50		ug/L	1		RSK-175	Total/NA
Ethane	0.78		0.50		ug/L	1		RSK-175	Total/NA
Iron	26		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.83		0.010		mg/L	1		6010C	Total Recoverable
Chloride	1400	D	50		mg/L	50		325.2-1978	Total/NA
Sulfate	350	D	100		mg/L	20		375.4-1978	Total/NA
Total Organic Carbon	6.3		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	480		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	28		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: GWE-3D-F(0.2)-0917 — Lab Sample ID: 680-142913-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	26		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.83		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.9		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: GWE-2D-0917 — Lab Sample ID: 680-142913-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	110	D	5.0		ug/L	5		8260B	Total/NA
Methane	16		0.50		ug/L	1		RSK-175	Total/NA
Iron	19		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.47		0.010		mg/L	1		6010C	Total Recoverable
Chloride	740	D	20		mg/L	20		325.2-1978	Total/NA
Sulfate	870	D	250		mg/L	50		375.4-1978	Total/NA
Total Organic Carbon	4.0		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	23		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: GWE-2D-F(0.2)-0917 — Lab Sample ID: 680-142913-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	20		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.48		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.4		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: GWE-1D-0917 — Lab Sample ID: 680-142913-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	18		0.50		ug/L	1		RSK-175	Total/NA
Iron	20		0.050		mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-1D-0917 (Continued) — Lab Sample ID: 680-142913-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	1.1		0.010		mg/L	1		6010C	Total Recoverable
Chloride	74	D	2.0		mg/L	2		325.2-1978	Total/NA
Sulfate	270	D	50		mg/L	10		375.4-1978	Total/NA
Total Organic Carbon	4.7		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	540		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	21		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: GWE-1D-F(0.2)-0917 — Lab Sample ID: 680-142913-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	18		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.1		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.3		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: CPA-MW-5D-0917 — Lab Sample ID: 680-142913-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1700	D	50		ug/L	50		8260B	Total/NA
2-Chlorophenol	21		0.99		ug/L	1		8270D	Total/NA
Methane	34		0.50		ug/L	1		RSK-175	Total/NA
Ethane	0.83		0.50		ug/L	1		RSK-175	Total/NA
Iron	19		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.92		0.010		mg/L	1		6010C	Total Recoverable
Chloride	220	D	5.0		mg/L	5		325.2-1978	Total/NA
Sulfate	73	D	25		mg/L	5		375.4-1978	Total/NA
Total Organic Carbon	5.2		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	650		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	38		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: CPA-MW-5D-F(0.2)-0917 — Lab Sample ID: 680-142913-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	19		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.92		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.7		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: 3Q17 LTM Trip Blank #2 — Lab Sample ID: 680-142913-9

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-3D-0917

Date Collected: 09/06/17 09:13
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	67	U	67		ug/L			09/12/17 17:28	66.67
Chlorobenzene	**1400**	D	67		ug/L			09/12/17 17:28	66.67
1,2-Dichlorobenzene	67	U	67		ug/L			09/12/17 17:28	66.67
1,3-Dichlorobenzene	67	U	67		ug/L			09/12/17 17:28	66.67
1,4-Dichlorobenzene	**110**	D	67		ug/L			09/12/17 17:28	66.67

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*73 - 120*		*09/12/17 17:28*	*66.67*
1,2-Dichloroethane-d4 (Surr)	*104*		*61 - 138*		*09/12/17 17:28*	*66.67*
Dibromofluoromethane (Surr)	*96*		*69 - 124*		*09/12/17 17:28*	*66.67*
4-Bromofluorobenzene (Surr)	*108*		*69 - 120*		*09/12/17 17:28*	*66.67*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**54**		0.50		ug/L			09/18/17 19:11	1
Ethane	**0.78**		0.50		ug/L			09/18/17 19:11	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*76*		*76 - 121*		*09/18/17 19:11*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**26**		0.050		mg/L		09/07/17 14:49	09/13/17 19:25	1
Manganese	**0.83**		0.010		mg/L		09/07/17 14:49	09/13/17 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1400**	D	50		mg/L			09/16/17 15:09	50
Nitrate as N	0.050	U	0.050		mg/L			09/07/17 16:52	1
Sulfate	**350**	D	100		mg/L			09/16/17 15:30	20
Total Organic Carbon	**6.3**		1.0		mg/L			09/20/17 22:52	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**480**		5.0		mg/L			09/14/17 15:39	1
Carbon Dioxide, Free	**28**		5.0		mg/L			09/14/17 15:39	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-3D-F(0.2)-0917
Date Collected: 09/06/17 09:13
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	26		0.050		mg/L		09/07/17 14:49	09/13/17 19:21	1
Manganese, Dissolved	0.83		0.010		mg/L		09/07/17 14:49	09/13/17 19:21	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.9		1.0		mg/L			09/20/17 09:25	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-2D-0917
Date Collected: 09/06/17 10:34
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.0	U	5.0		ug/L			09/12/17 17:51	5
Chlorobenzene	**110**	D	5.0		ug/L			09/12/17 17:51	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			09/12/17 17:51	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			09/12/17 17:51	5
1,4-Dichlorobenzene	5.0	U	5.0		ug/L			09/12/17 17:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*73 - 120*		*09/12/17 17:51*	*5*
1,2-Dichloroethane-d4 (Surr)	*97*		*61 - 138*		*09/12/17 17:51*	*5*
Dibromofluoromethane (Surr)	*92*		*69 - 124*		*09/12/17 17:51*	*5*
4-Bromofluorobenzene (Surr)	*103*		*69 - 120*		*09/12/17 17:51*	*5*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**16**		0.50		ug/L			09/18/17 19:28	1
Ethane	0.50	U	0.50		ug/L			09/18/17 19:28	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*80*		*76 - 121*		*09/18/17 19:28*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**19**		0.050		mg/L		09/07/17 14:49	09/13/17 19:11	1
Manganese	**0.47**		0.010		mg/L		09/07/17 14:49	09/13/17 19:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**740**	D	20		mg/L			09/16/17 15:09	20
Nitrate as N	0.050	U	0.050		mg/L			09/07/17 16:56	1
Sulfate	**870**	D	250		mg/L			09/16/17 15:14	50
Total Organic Carbon	**4.0**		1.0		mg/L			09/20/17 23:09	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**420**		5.0		mg/L			09/14/17 15:50	1
Carbon Dioxide, Free	**23**		5.0		mg/L			09/14/17 15:50	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-2D-F(0.2)-0917
Date Collected: 09/06/17 10:34
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	20		0.050		mg/L		09/07/17 14:49	09/13/17 19:16	1
Manganese, Dissolved	0.48		0.010		mg/L		09/07/17 14:49	09/13/17 19:16	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.4		1.0		mg/L			09/20/17 10:14	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-1D-0917

Date Collected: 09/06/17 13:00
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-5

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			09/12/17 18:13	1
Chlorobenzene	1.0	U	1.0		ug/L			09/12/17 18:13	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 18:13	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 18:13	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 18:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*73 - 120*		*09/12/17 18:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*61 - 138*		*09/12/17 18:13*	*1*
Dibromofluoromethane (Surr)	*96*		*69 - 124*		*09/12/17 18:13*	*1*
4-Bromofluorobenzene (Surr)	*106*		*69 - 120*		*09/12/17 18:13*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**18**		0.50		ug/L			09/18/17 20:02	1
Ethane	0.50	U	0.50		ug/L			09/18/17 20:02	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*79*		*76 - 121*		*09/18/17 20:02*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**20**		0.050		mg/L		09/07/17 14:49	09/13/17 19:07	1
Manganese	**1.1**		0.010		mg/L		09/07/17 14:49	09/13/17 19:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**74**	D	2.0		mg/L			09/16/17 14:46	2
Nitrate as N	0.050	U	0.050		mg/L			09/07/17 16:59	1
Sulfate	**270**	D	50		mg/L			09/16/17 15:32	10
Total Organic Carbon	**4.7**		1.0		mg/L			09/20/17 23:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**540**		5.0		mg/L			09/08/17 11:29	1
Carbon Dioxide, Free	**21**		5.0		mg/L			09/08/17 11:29	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-1D-F(0.2)-0917
Date Collected: 09/06/17 13:00
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-6
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	18		0.050		mg/L		09/07/17 14:49	09/13/17 19:02	1
Manganese, Dissolved	1.1		0.010		mg/L		09/07/17 14:49	09/13/17 19:02	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.3		1.0		mg/L			09/20/17 10:35	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: CPA-MW-5D-0917

Date Collected: 09/06/17 15:20
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	50	U	50		ug/L			09/13/17 14:29	50
Chlorobenzene	**1700**	D	50		ug/L			09/13/17 14:29	50
1,2-Dichlorobenzene	50	U	50		ug/L			09/13/17 14:29	50
1,3-Dichlorobenzene	50	U	50		ug/L			09/13/17 14:29	50
1,4-Dichlorobenzene	50	U	50		ug/L			09/13/17 14:29	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*73 - 120*		*09/13/17 14:29*	*50*
1,2-Dichloroethane-d4 (Surr)	*103*		*61 - 138*		*09/13/17 14:29*	*50*
Dibromofluoromethane (Surr)	*95*		*69 - 124*		*09/13/17 14:29*	*50*
4-Bromofluorobenzene (Surr)	*113*		*69 - 120*		*09/13/17 14:29*	*50*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.99	U	0.99		ug/L		09/11/17 08:26	09/13/17 17:27	1
1,4-Dioxane	0.99	U	0.99		ug/L		09/11/17 08:26	09/13/17 17:27	1
2-Chlorophenol	**21**		0.99		ug/L		09/11/17 08:26	09/13/17 17:27	1
4-Chloroaniline	2.0	U	2.0		ug/L		09/11/17 08:26	09/13/17 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*66*		*23 - 127*	*09/11/17 08:26*	*09/13/17 17:27*	*1*
Phenol-d5	*21*		*10 - 120*	*09/11/17 08:26*	*09/13/17 17:27*	*1*
Nitrobenzene-d5	*66*		*32 - 120*	*09/11/17 08:26*	*09/13/17 17:27*	*1*
2-Fluorophenol	*34*		*10 - 120*	*09/11/17 08:26*	*09/13/17 17:27*	*1*
2,4,6-Tribromophenol	*71*		*28 - 120*	*09/11/17 08:26*	*09/13/17 17:27*	*1*
2-Fluorobiphenyl (Surr)	*69*		*38 - 120*	*09/11/17 08:26*	*09/13/17 17:27*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**34**		0.50		ug/L			09/18/17 20:19	1
Ethane	**0.83**		0.50		ug/L			09/18/17 20:19	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*77*		*76 - 121*		*09/18/17 20:19*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**19**		0.050		mg/L		09/07/17 14:49	09/13/17 18:53	1
Manganese	**0.92**		0.010		mg/L		09/07/17 14:49	09/13/17 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**	D	5.0		mg/L			09/16/17 14:45	5
Nitrate as N	0.050	U	0.050		mg/L			09/07/17 17:00	1
Sulfate	**73**	D	25		mg/L			09/16/17 15:29	5
Total Organic Carbon	**5.2**		1.0		mg/L			09/20/17 23:45	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**650**		5.0		mg/L			09/08/17 11:55	1
Carbon Dioxide, Free	**38**		5.0		mg/L			09/08/17 11:55	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: CPA-MW-5D-F(0.2)-0917
Date Collected: 09/06/17 15:20
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-8
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	19		0.050		mg/L		09/07/17 14:49	09/13/17 18:57	1
Manganese, Dissolved	0.92		0.010		mg/L		09/07/17 14:49	09/13/17 18:57	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.7		1.0		mg/L			09/20/17 10:52	1

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: 3Q17 LTM Trip Blank #2
Date Collected: 09/06/17 00:00
Date Received: 09/07/17 09:10

Lab Sample ID: 680-142913-9
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			09/13/17 14:06	1
Chlorobenzene	1.0	U	1.0		ug/L			09/13/17 14:06	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 14:06	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 14:06	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*73 - 120*		*09/13/17 14:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*61 - 138*		*09/13/17 14:06*	*1*
Dibromofluoromethane (Surr)	*92*		*69 - 124*		*09/13/17 14:06*	*1*
4-Bromofluorobenzene (Surr)	*104*		*69 - 120*		*09/13/17 14:06*	*1*

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Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

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 (73-120)	12DCE (61-138)	DBFM (69-124)	BFB (69-120)
680-142913-1	GWE-3D-0917	100	104	96	108
680-142913-3	GWE-2D-0917	96	97	92	103
680-142913-5	GWE-1D-0917	101	103	96	106
680-142913-7	CPA-MW-5D-0917	102	103	95	113
680-142913-9	3Q17 LTM Trip Blank #2	102	103	92	104
LCS 240-294512/4	Lab Control Sample	105	95	90	111
LCS 240-294672/4	Lab Control Sample	103	95	90	113
MB 240-294512/6	Method Blank	103	102	92	110
MB 240-294672/6	Method Blank	93	95	90	96

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)					
Lab Sample ID	Client Sample ID	TPH (23-127)	PHL (10-120)	NBZ (32-120)	2FP (10-120)	TBP (28-120)	FBP (38-120)
680-142913-7	CPA-MW-5D-0917	66	21	66	34	71	69
LCS 240-294276/11-A	Lab Control Sample	85	35	84	50	81	79
MB 240-294276/10-A	Method Blank	91	31	77	48	63	72

Surrogate Legend

TPH = Terphenyl-d14
PHL = Phenol-d5
NBZ = Nitrobenzene-d5
2FP = 2-Fluorophenol
TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl (Surr)

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	rifluoroet (76-121)
680-142913-1	GWE-3D-0917	76
680-142913-3	GWE-2D-0917	80
680-142913-5	GWE-1D-0917	79
680-142913-7	CPA-MW-5D-0917	77
LCS 240-295212/5	Lab Control Sample	85
LCSD 240-295212/6	Lab Control Sample Dup	85
MB 240-295212/4	Method Blank	93

Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

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

Lab Sample ID: MB 240-294512/6
Matrix: Water
Analysis Batch: 294512

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			09/12/17 14:52	1
Chlorobenzene	1.0	U	1.0		ug/L			09/12/17 14:52	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 14:52	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 14:52	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/12/17 14:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*73 - 120*		*09/12/17 14:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*61 - 138*		*09/12/17 14:52*	*1*
Dibromofluoromethane (Surr)	*92*		*69 - 124*		*09/12/17 14:52*	*1*
4-Bromofluorobenzene (Surr)	*110*		*69 - 120*		*09/12/17 14:52*	*1*

Lab Sample ID: LCS 240-294512/4
Matrix: Water
Analysis Batch: 294512

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.8		ug/L		108	79 - 120
Chlorobenzene	10.0	9.87		ug/L		99	80 - 120
1,2-Dichlorobenzene	10.0	9.67		ug/L		97	80 - 120
1,3-Dichlorobenzene	10.0	9.65		ug/L		96	80 - 120
1,4-Dichlorobenzene	10.0	9.91		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*73 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*61 - 138*
Dibromofluoromethane (Surr)	*90*		*69 - 124*
4-Bromofluorobenzene (Surr)	*111*		*69 - 120*

Lab Sample ID: MB 240-294672/6
Matrix: Water
Analysis Batch: 294672

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			09/13/17 13:15	1
Chlorobenzene	1.0	U	1.0		ug/L			09/13/17 13:15	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 13:15	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 13:15	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/13/17 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*73 - 120*		*09/13/17 13:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*61 - 138*		*09/13/17 13:15*	*1*
Dibromofluoromethane (Surr)	*90*		*69 - 124*		*09/13/17 13:15*	*1*
4-Bromofluorobenzene (Surr)	*96*		*69 - 120*		*09/13/17 13:15*	*1*

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

Lab Sample ID: LCS 240-294672/4
Matrix: Water
Analysis Batch: 294672

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.8		ug/L		108	79 - 120
Chlorobenzene	10.0	9.74		ug/L		97	80 - 120
1,2-Dichlorobenzene	10.0	9.55		ug/L		96	80 - 120
1,3-Dichlorobenzene	10.0	9.65		ug/L		97	80 - 120
1,4-Dichlorobenzene	10.0	9.49		ug/L		95	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*73 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*61 - 138*
Dibromofluoromethane (Surr)	*90*		*69 - 124*
4-Bromofluorobenzene (Surr)	*113*		*69 - 120*

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

Lab Sample ID: MB 240-294276/10-A
Matrix: Water
Analysis Batch: 294613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294276

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	1.0	U	1.0		ug/L		09/11/17 08:26	09/13/17 10:35	1
1,4-Dioxane	1.0	U	1.0		ug/L		09/11/17 08:26	09/13/17 10:35	1
2-Chlorophenol	1.0	U	1.0		ug/L		09/11/17 08:26	09/13/17 10:35	1
4-Chloroaniline	2.0	U	2.0		ug/L		09/11/17 08:26	09/13/17 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*91*		*23 - 127*	*09/11/17 08:26*	*09/13/17 10:35*	*1*
Phenol-d5	*31*		*10 - 120*	*09/11/17 08:26*	*09/13/17 10:35*	*1*
Nitrobenzene-d5	*77*		*32 - 120*	*09/11/17 08:26*	*09/13/17 10:35*	*1*
2-Fluorophenol	*48*		*10 - 120*	*09/11/17 08:26*	*09/13/17 10:35*	*1*
2,4,6-Tribromophenol	*63*		*28 - 120*	*09/11/17 08:26*	*09/13/17 10:35*	*1*
2-Fluorobiphenyl (Surr)	*72*		*38 - 120*	*09/11/17 08:26*	*09/13/17 10:35*	*1*

Lab Sample ID: LCS 240-294276/11-A
Matrix: Water
Analysis Batch: 294784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294276

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	20.0	13.7		ug/L		68	49 - 120
1,4-Dioxane	20.0	6.55		ug/L		33	10 - 120
2-Chlorophenol	20.0	13.9		ug/L		69	53 - 120
4-Chloroaniline	20.0	1.93	J	ug/L		10	10 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*85*		*23 - 127*
Phenol-d5	*35*		*10 - 120*
Nitrobenzene-d5	*84*		*32 - 120*
2-Fluorophenol	*50*		*10 - 120*

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

Lab Sample ID: LCS 240-294276/11-A
Matrix: Water
Analysis Batch: 294784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294276

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*81*		*28 - 120*
2-Fluorobiphenyl (Surr)	*79*		*38 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-295212/4
Matrix: Water
Analysis Batch: 295212

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/18/17 13:44	1
Ethane	0.50	U	0.50		ug/L			09/18/17 13:44	1
Ethylene	0.50	U	0.50		ug/L			09/18/17 13:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*93*		*76 - 121*		*09/18/17 13:44*	*1*

Lab Sample ID: LCS 240-295212/5
Matrix: Water
Analysis Batch: 295212

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	199		ug/L		100	80 - 130
Ethane	374	391		ug/L		105	76 - 131
Ethylene	349	370		ug/L		106	79 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*76 - 121*

Lab Sample ID: LCSD 240-295212/6
Matrix: Water
Analysis Batch: 295212

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	199	202		ug/L		101	80 - 130	2	35
Ethane	374	397		ug/L		106	76 - 131	2	35
Ethylene	349	374		ug/L		107	79 - 132	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*85*		*76 - 121*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-494422/1-A
Matrix: Water
Analysis Batch: 494702

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494422

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		09/07/17 14:49	09/13/17 18:10	1
Iron, Dissolved	0.050	U	0.050		mg/L		09/07/17 14:49	09/13/17 18:10	1
Manganese	0.010	U	0.010		mg/L		09/07/17 14:49	09/13/17 18:10	1
Manganese, Dissolved	0.010	U	0.010		mg/L		09/07/17 14:49	09/13/17 18:10	1

Lab Sample ID: LCS 680-494422/2-A
Matrix: Water
Analysis Batch: 494702

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494422

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.90		mg/L		98	80 - 120
Iron, Dissolved	5.00	4.90		mg/L		98	80 - 120
Manganese	0.500	0.527		mg/L		105	80 - 120
Manganese, Dissolved	0.500	0.527		mg/L		105	80 - 120

Method: 310.1-1978 - Alkalinity

Lab Sample ID: MB 680-494545/4
Matrix: Water
Analysis Batch: 494545

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			09/08/17 10:24	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			09/08/17 10:24	1

Lab Sample ID: LCS 680-494545/5
Matrix: Water
Analysis Batch: 494545

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	264		mg/L		105	80 - 120

Lab Sample ID: LCSD 680-494545/24
Matrix: Water
Analysis Batch: 494545

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	266		mg/L		106	80 - 120	1	30

Lab Sample ID: 680-142913-5 DU
Matrix: Water
Analysis Batch: 494545

Client Sample ID: GWE-1D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	540		529		mg/L		2	30
Carbon Dioxide, Free	21		20.4		mg/L		3	30

Method: 310.1-1978 - Alkalinity (Continued)

Lab Sample ID: MB 680-494784/7
Matrix: Water
Analysis Batch: 494784

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			09/14/17 13:46	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			09/14/17 13:46	1

Lab Sample ID: LCS 680-494784/8
Matrix: Water
Analysis Batch: 494784

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	260		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-494784/34
Matrix: Water
Analysis Batch: 494784

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	263		mg/L		105	80 - 120	1	30

Method: 325.2-1978 - Chloride

Lab Sample ID: MB 680-495149/6
Matrix: Water
Analysis Batch: 495149

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			09/16/17 14:04	1

Lab Sample ID: LCS 680-495149/7
Matrix: Water
Analysis Batch: 495149

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	27.0		mg/L		108	85 - 115

Lab Sample ID: LCSD 680-495149/13
Matrix: Water
Analysis Batch: 495149

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
Chloride	25.0	27.0		mg/L		108	85 - 115	0	30

Method: 353.2-1993 R2.0 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-494441/13
Matrix: Water
Analysis Batch: 494441

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			09/07/17 16:30	1

Method: 353.2-1993 R2.0 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-494441/16
Matrix: Water
Analysis Batch: 494441

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	0.546	^	mg/L		109	75 - 125
Nitrate Nitrite as N	1.00	1.05		mg/L		105	90 - 110
Nitrite as N	0.500	0.504		mg/L		101	90 - 110

Lab Sample ID: 680-142913-1 MS
Matrix: Water
Analysis Batch: 494441

Client Sample ID: GWE-3D-0917
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	0.543	^	mg/L		109	75 - 125
Nitrate Nitrite as N	0.050	U	1.00	1.06		mg/L		106	90 - 110
Nitrite as N	0.050	U	0.500	0.517		mg/L		101	90 - 110

Lab Sample ID: 680-142913-1 MSD
Matrix: Water
Analysis Batch: 494441

Client Sample ID: GWE-3D-0917
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	0.540	^	mg/L		108	75 - 125	1	30
Nitrate Nitrite as N	0.050	U	1.00	1.06		mg/L		106	90 - 110	0	10
Nitrite as N	0.050	U	0.500	0.520		mg/L		101	90 - 110	1	10

Method: 375.4-1978 - Sulfate

Lab Sample ID: MB 680-495124/4
Matrix: Water
Analysis Batch: 495124

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			09/16/17 14:09	1

Lab Sample ID: LCS 680-495124/5
Matrix: Water
Analysis Batch: 495124

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

Lab Sample ID: LCSD 680-495124/7
Matrix: Water
Analysis Batch: 495124

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
Sulfate	20.0	20.1		mg/L		100	75 - 125	1	30

Method: 415.1-1974 - DOC

Lab Sample ID: MB 680-495462/2
Matrix: Water
Analysis Batch: 495462

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			09/20/17 08:10	1

Lab Sample ID: LCS 680-495462/4
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	20.0		mg/L		100	80 - 120

Lab Sample ID: LCSD 680-495462/5
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	19.8		mg/L		99	80 - 120	1	20

Lab Sample ID: 680-142913-2 MS
Matrix: Water
Analysis Batch: 495462

Client Sample ID: GWE-3D-F(0.2)-0917
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	5.9		20.0	26.5		mg/L		103	80 - 120

Lab Sample ID: 680-142913-2 MSD
Matrix: Water
Analysis Batch: 495462

Client Sample ID: GWE-3D-F(0.2)-0917
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	5.9		20.0	26.1		mg/L		101	80 - 120	2	20

Method: 415.1-1974 - TOC

Lab Sample ID: MB 680-495460/2
Matrix: Water
Analysis Batch: 495460

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			09/20/17 20:13	1

Lab Sample ID: LCS 680-495460/3
Matrix: Water
Analysis Batch: 495460

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	20.0	20.8		mg/L		104	80 - 120

Method: 415.1-1974 - TOC (Continued)

Lab Sample ID: LCSD 680-495460/4
Matrix: Water
Analysis Batch: 495460

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
Total Organic Carbon	20.0	21.0		mg/L		105	80 - 120	1	25

QC Association Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

GC/MS VOA

Analysis Batch: 294512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	8260B	
680-142913-3	GWE-2D-0917	Total/NA	Water	8260B	
680-142913-5	GWE-1D-0917	Total/NA	Water	8260B	
MB 240-294512/6	Method Blank	Total/NA	Water	8260B	
LCS 240-294512/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 294672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	8260B	
680-142913-9	3Q17 LTM Trip Blank #2	Total/NA	Water	8260B	
MB 240-294672/6	Method Blank	Total/NA	Water	8260B	
LCS 240-294672/4	Lab Control Sample	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 294276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	3510C	
MB 240-294276/10-A	Method Blank	Total/NA	Water	3510C	
LCS 240-294276/11-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 294613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	8270D	294276
MB 240-294276/10-A	Method Blank	Total/NA	Water	8270D	294276

Analysis Batch: 294784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-294276/11-A	Lab Control Sample	Total/NA	Water	8270D	294276

GC VOA

Analysis Batch: 295212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	RSK-175	
680-142913-3	GWE-2D-0917	Total/NA	Water	RSK-175	
680-142913-5	GWE-1D-0917	Total/NA	Water	RSK-175	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	RSK-175	
MB 240-295212/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295212/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-295212/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 494422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total Recoverable	Water	3005A	
680-142913-2	GWE-3D-F(0.2)-0917	Dissolved	Water	3005A	
680-142913-3	GWE-2D-0917	Total Recoverable	Water	3005A	
680-142913-4	GWE-2D-F(0.2)-0917	Dissolved	Water	3005A	

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Metals (Continued)

Prep Batch: 494422 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-5	GWE-1D-0917	Total Recoverable	Water	3005A	
680-142913-6	GWE-1D-F(0.2)-0917	Dissolved	Water	3005A	
680-142913-7	CPA-MW-5D-0917	Total Recoverable	Water	3005A	
680-142913-8	CPA-MW-5D-F(0.2)-0917	Dissolved	Water	3005A	
MB 680-494422/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494422/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 494702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total Recoverable	Water	6010C	494422
680-142913-2	GWE-3D-F(0.2)-0917	Dissolved	Water	6010C	494422
680-142913-3	GWE-2D-0917	Total Recoverable	Water	6010C	494422
680-142913-4	GWE-2D-F(0.2)-0917	Dissolved	Water	6010C	494422
680-142913-5	GWE-1D-0917	Total Recoverable	Water	6010C	494422
680-142913-6	GWE-1D-F(0.2)-0917	Dissolved	Water	6010C	494422
680-142913-7	CPA-MW-5D-0917	Total Recoverable	Water	6010C	494422
680-142913-8	CPA-MW-5D-F(0.2)-0917	Dissolved	Water	6010C	494422
MB 680-494422/1-A	Method Blank	Total Recoverable	Water	6010C	494422
LCS 680-494422/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494422

General Chemistry

Analysis Batch: 494441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	353.2-1993 R2.0	
680-142913-3	GWE-2D-0917	Total/NA	Water	353.2-1993 R2.0	
680-142913-5	GWE-1D-0917	Total/NA	Water	353.2-1993 R2.0	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	353.2-1993 R2.0	
MB 680-494441/13	Method Blank	Total/NA	Water	353.2-1993 R2.0	
LCS 680-494441/16	Lab Control Sample	Total/NA	Water	353.2-1993 R2.0	
680-142913-1 MS	GWE-3D-0917	Total/NA	Water	353.2-1993 R2.0	
680-142913-1 MSD	GWE-3D-0917	Total/NA	Water	353.2-1993 R2.0	

Analysis Batch: 494545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-5	GWE-1D-0917	Total/NA	Water	310.1-1978	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	310.1-1978	
MB 680-494545/4	Method Blank	Total/NA	Water	310.1-1978	
LCS 680-494545/5	Lab Control Sample	Total/NA	Water	310.1-1978	
LCSD 680-494545/24	Lab Control Sample Dup	Total/NA	Water	310.1-1978	
680-142913-5 DU	GWE-1D-0917	Total/NA	Water	310.1-1978	

Analysis Batch: 494784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	310.1-1978	
680-142913-3	GWE-2D-0917	Total/NA	Water	310.1-1978	
MB 680-494784/7	Method Blank	Total/NA	Water	310.1-1978	
LCS 680-494784/8	Lab Control Sample	Total/NA	Water	310.1-1978	
LCSD 680-494784/34	Lab Control Sample Dup	Total/NA	Water	310.1-1978	

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General Chemistry (Continued)

Analysis Batch: 495124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	375.4-1978	
680-142913-3	GWE-2D-0917	Total/NA	Water	375.4-1978	
680-142913-5	GWE-1D-0917	Total/NA	Water	375.4-1978	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	375.4-1978	
MB 680-495124/4	Method Blank	Total/NA	Water	375.4-1978	
LCS 680-495124/5	Lab Control Sample	Total/NA	Water	375.4-1978	
LCSD 680-495124/7	Lab Control Sample Dup	Total/NA	Water	375.4-1978	

Analysis Batch: 495149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	325.2-1978	
680-142913-3	GWE-2D-0917	Total/NA	Water	325.2-1978	
680-142913-5	GWE-1D-0917	Total/NA	Water	325.2-1978	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	325.2-1978	
MB 680-495149/6	Method Blank	Total/NA	Water	325.2-1978	
LCS 680-495149/7	Lab Control Sample	Total/NA	Water	325.2-1978	
LCSD 680-495149/13	Lab Control Sample Dup	Total/NA	Water	325.2-1978	

Analysis Batch: 495460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-1	GWE-3D-0917	Total/NA	Water	415.1-1974	
680-142913-3	GWE-2D-0917	Total/NA	Water	415.1-1974	
680-142913-5	GWE-1D-0917	Total/NA	Water	415.1-1974	
680-142913-7	CPA-MW-5D-0917	Total/NA	Water	415.1-1974	
MB 680-495460/2	Method Blank	Total/NA	Water	415.1-1974	
LCS 680-495460/3	Lab Control Sample	Total/NA	Water	415.1-1974	
LCSD 680-495460/4	Lab Control Sample Dup	Total/NA	Water	415.1-1974	

Analysis Batch: 495462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-142913-2	GWE-3D-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142913-4	GWE-2D-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142913-6	GWE-1D-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142913-8	CPA-MW-5D-F(0.2)-0917	Dissolved	Water	415.1-1974	
MB 680-495462/2	Method Blank	Dissolved	Water	415.1-1974	
LCS 680-495462/4	Lab Control Sample	Dissolved	Water	415.1-1974	
LCSD 680-495462/5	Lab Control Sample Dup	Dissolved	Water	415.1-1974	
680-142913-2 MS	GWE-3D-F(0.2)-0917	Dissolved	Water	415.1-1974	
680-142913-2 MSD	GWE-3D-F(0.2)-0917	Dissolved	Water	415.1-1974	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-3D-0917

Lab Sample ID: 680-142913-1
Matrix: Water
Date Collected: 09/06/17 09:13
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		66.67	294512	09/12/17 17:28	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	295212	09/18/17 19:11	BPM	TAL CAN
Total Recoverable	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1	494702	09/13/17 19:25	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494784	09/14/17 15:39	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		50	495149	09/16/17 15:09	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494441	09/07/17 16:52	JER	TAL SAV
Total/NA	Analysis	375.4-1978		20	495124	09/16/17 15:30	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 22:52	KLD	TAL SAV

Client Sample ID: GWE-3D-F(0.2)-0917

Lab Sample ID: 680-142913-2
Matrix: Water
Date Collected: 09/06/17 09:13
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Dissolved	Analysis	6010C		1	494702	09/13/17 19:21	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 09:25	KLD	TAL SAV

Client Sample ID: GWE-2D-0917

Lab Sample ID: 680-142913-3
Matrix: Water
Date Collected: 09/06/17 10:34
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	294512	09/12/17 17:51	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	295212	09/18/17 19:28	BPM	TAL CAN
Total Recoverable	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1	494702	09/13/17 19:11	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494784	09/14/17 15:50	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		20	495149	09/16/17 15:09	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494441	09/07/17 16:56	JER	TAL SAV
Total/NA	Analysis	375.4-1978		50	495124	09/16/17 15:14	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 23:09	KLD	TAL SAV

Client Sample ID: GWE-2D-F(0.2)-0917

Lab Sample ID: 680-142913-4
Matrix: Water
Date Collected: 09/06/17 10:34
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Dissolved	Analysis	6010C		1	494702	09/13/17 19:16	BCB	TAL SAV

TestAmerica Savannah
SJD 10/16/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: GWE-2D-F(0.2)-0917

Lab Sample ID: 680-142913-4
Date Collected: 09/06/17 10:34
Matrix: Water
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 10:14	KLD	TAL SAV

Client Sample ID: GWE-1D-0917

Lab Sample ID: 680-142913-5
Date Collected: 09/06/17 13:00
Matrix: Water
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	294512	09/12/17 18:13	LRW	TAL CAN
Total/NA	Analysis	RSK-175		1	295212	09/18/17 20:02	BPM	TAL CAN
Total Recoverable	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1	494702	09/13/17 19:07	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494545	09/08/17 11:29	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		2	495149	09/16/17 14:46	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494441	09/07/17 16:59	JER	TAL SAV
Total/NA	Analysis	375.4-1978		10	495124	09/16/17 15:32	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 23:26	KLD	TAL SAV

Client Sample ID: GWE-1D-F(0.2)-0917

Lab Sample ID: 680-142913-6
Date Collected: 09/06/17 13:00
Matrix: Water
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Dissolved	Analysis	6010C		1	494702	09/13/17 19:02	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 10:35	KLD	TAL SAV

Client Sample ID: CPA-MW-5D-0917

Lab Sample ID: 680-142913-7
Date Collected: 09/06/17 15:20
Matrix: Water
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	294672	09/13/17 14:29	LRW	TAL CAN
Total/NA	Prep	3510C			294276	09/11/17 08:26	BMB	TAL CAN
Total/NA	Analysis	8270D		1	294613	09/13/17 17:27	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	295212	09/18/17 20:19	BPM	TAL CAN
Total Recoverable	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Total Recoverable	Analysis	6010C		1	494702	09/13/17 18:53	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494545	09/08/17 11:55	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495149	09/16/17 14:45	ALG	TAL SAV
Total/NA	Analysis	353.2-1993 R2.0		1	494441	09/07/17 17:00	JER	TAL SAV
Total/NA	Analysis	375.4-1978		5	495124	09/16/17 15:29	ALG	TAL SAV

TestAmerica Savannah
SJD 10/16/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Client Sample ID: CPA-MW-5D-0917

Lab Sample ID: 680-142913-7
Matrix: Water
Date Collected: 09/06/17 15:20
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	415.1-1974		1	495460	09/20/17 23:45	KLD	TAL SAV

Client Sample ID: CPA-MW-5D-F(0.2)-0917

Lab Sample ID: 680-142913-8
Matrix: Water
Date Collected: 09/06/17 15:20
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494422	09/07/17 14:49	AJR	TAL SAV
Dissolved	Analysis	6010C		1	494702	09/13/17 18:57	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 10:52	KLD	TAL SAV

Client Sample ID: 3Q17 LTM Trip Blank #2

Lab Sample ID: 680-142913-9
Matrix: Water
Date Collected: 09/06/17 00:00
Date Received: 09/07/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	294672	09/13/17 14:06	LRW	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

TestAmerica Savannah
SJD 10/16/17

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: Samantha DiCenso	Date: 9/6/17	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-3D-0917	9/6/17	0913	G	W	14	N		3		1	1	1	3	2	3			
GWE-3D-F(0.2)-0917		0913			4	Y										1	3	
GWE-2D-0917		1034			14	N		3		1	1	1	3	2	3			
GWE-2D-F(0.2)-0917		1034			4	Y										1	3	
GWE-1D-0917		1300			14	N		3		1	1	1	3	2	3			
GWE-1D-F(0.2)-0917		1300			4	Y										1	3	
CPA-MW-5D-0917		1520			16	N		3	2	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0917		1520			4	Y										1	3	
3Q17 LTM Trip Blank #2					2			2										

680-142913 Chain of Custody

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

2	1	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:

SDG 680-142913

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd _____ Corr'd _____	Therm ID No. _____
Relinquished by: Samantha Peters	Company: Golder	Date/Time: 1730 9/6/17	Received by:	Company: SAV.	Date/Time: 09-07-17 0910
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 1.8/1.7(C) 20/1.9c

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

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TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 680-490191.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 680-142913-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 9/19/2017			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ MEE Only	8260B/5030B (MOD) Custom Sublist Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	Total Number of containers	Special Instructions/Note: ms/c17th
			Preservation Code:								
GWE-3D-0917 (680-142913-1)	9/6/17	09:13 Central		Water			X	X		6	
GWE-2D-0917 (680-142913-3)	9/6/17	10:34 Central		Water			X	X		6	
GWE-1D-0917 (680-142913-5)	9/6/17	13:00 Central		Water			X	X		6	
CPA-MW-5D-0917 (680-142913-7)	9/6/17	15:20 Central		Water			X	X	X	8	
3Q17 LTM Trip Blank #2 (680-142913-9)	9/6/17	Central		Water				X		2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 9-6-17 1100	Company	Received by:	Date/Time: 9-6-17 940	Company: TAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks:

SJD 10/16/17

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client TA SAVANNAH Site Name ____ Cooler unpacked by: GDP

Cooler Received on 9-8-17 Opened on 9-8-17

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box (Client Cooler) Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 0.2 °C
   IR GUN #36 (CF +0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? (Yes) No
    If yes, Questions 11-15 have been checked at the originating laboratory.
11. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC697954
12. Were VOAs on the COC? Yes No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-142913-1
SDG Number: KPS197

Login Number: 142913
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SJD 10/16/17

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-18
Alaska	State Program	10		06-30-18
Alaska (UST)	State Program	10	UST-104	11-05-17 *
Arizona	State Program	9	AZ808	12-14-17
Arkansas DEQ	State Program	6	88-0692	02-01-18
California	State Program	9	2939	06-30-17 *
Colorado	State Program	8	N/A	12-31-17
Connecticut	State Program	1	PH-0161	03-31-19
Florida	NELAP	4	E87052	06-30-18
GA Dept. of Agriculture	State Program	4	N/A	06-12-18
Georgia	State Program	4	803	06-30-18
Guam	State Program	9	15-005r	04-16-18
Hawaii	State Program	9	N/A	06-30-18
Illinois	NELAP	5	200022	11-30-17
Indiana	State Program	5	N/A	06-30-18
Iowa	State Program	7	353	06-30-19
Kentucky (DW)	State Program	4	90084	12-31-17
Kentucky (UST)	State Program	4	18	06-30-18
Kentucky (WW)	State Program	4	90084	12-31-17
L-A-B	DoD ELAP		L2463	09-22-19
L-A-B	ISO/IEC 17025		L2463.01	09-22-19
Louisiana	NELAP	6	30690	06-30-18
Louisiana (DW)	NELAP	6	LA160019	12-31-17
Maine	State Program	1	GA00006	09-24-18
Maryland	State Program	3	250	12-31-17
Massachusetts	State Program	1	M-GA006	06-30-18
Michigan	State Program	5	9925	06-30-17 *
Mississippi	State Program	4	N/A	06-30-18
Nebraska	State Program	7	TestAmerica-Savannah	06-30-18
New Jersey	NELAP	2	GA769	06-30-18
New Mexico	State Program	6	N/A	06-30-18
New York	NELAP	2	10842	03-31-18
North Carolina (DW)	State Program	4	13701	07-31-18
North Carolina (WW/SW)	State Program	4	269	12-31-17
Oklahoma	State Program	6	9984	08-31-18
Pennsylvania	NELAP	3	68-00474	06-30-18
Puerto Rico	State Program	2	GA00006	12-31-17
South Carolina	State Program	4	98001	06-30-17 *
Tennessee	State Program	4	TN02961	06-30-18
Texas	NELAP	6	T104704185-16-9	11-30-17
Texas	State Program	6	T104704185	06-30-18
US Fish & Wildlife	Federal		LE058448-0	07-31-18
USDA	Federal		SAV 3-04	06-14-20 *
Virginia	NELAP	3	460161	06-14-18
Washington	State Program	10	C805	06-10-18
West Virginia (DW)	State Program	3	9950C	12-31-17
West Virginia DEP	State Program	3	094	06-30-18
Wisconsin	State Program	5	999819810	08-31-18
Wyoming	State Program	8	8TMS-L	06-30-16 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Savannah
SJD 10/16/17

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-142913-1
SDG: KPS197

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Savannah
SSD 10/16/17

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
3Q17 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-3Q17 LTM
Reviewer: S. DiCenso
Laboratory: TestAmerica
SDG#: KPS198
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: September 2017

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-2D-0917, BSA-MW-2D-F(0.2)-0917, BSA-MW-1S-0917, BSA-MW-1S-F(0.2)-0917, BSA-MW-1S-0917-EB, CPA-MW-2D-0917, CPA-MW-2D-F(0.2)-0917, CPA-MW-2D-0917-AD, CPA-MW-1D-0917, CPA-MW-1D-F(0.2)-0917, 3Q17 LTM Trip Blank #4

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 494993.

Samples BSA-MW-2D, BSA-MW-1S, BSA-MW-1S-EB, CPA-MW-2D, CPA-MW-2D-AD, and CPA-MW-1D required dilution prior to analysis, reporting limits were adjusted accordingly.

SVOC: Sample CPA-MW-1D required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batches 295392 and 295550.

Samples BSA-MW-2D, BSA-MW-1S, and CPA-MW-1D required dilution prior to analysis, reporting limits were adjusted accordingly.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-2D, BSA-MW-1S, and CPA-MW-1D required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Sample CPA-MW-2D 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 2.2°C and 3.8°C, within 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.

The VOC vials for BSA-MW-1S were received by the laboratory outside pH criteria and analyzed more than 7 days after sample collection; therefore, some qualification was necessary.

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: Some compounds did not meet calibration requirements; however, calibration criteria were met by analytes of interest. No data qualification was required.

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

Comments: Equipment blank for BSA-MW-1S was submitted with SDG KPS198.
Benzene, chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene were detected in the EB, qualification was not required due to 5x dilution 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 sample CPA-MW-2D-0917-AD was submitted with SDG KPS198.

Additional Comments: None

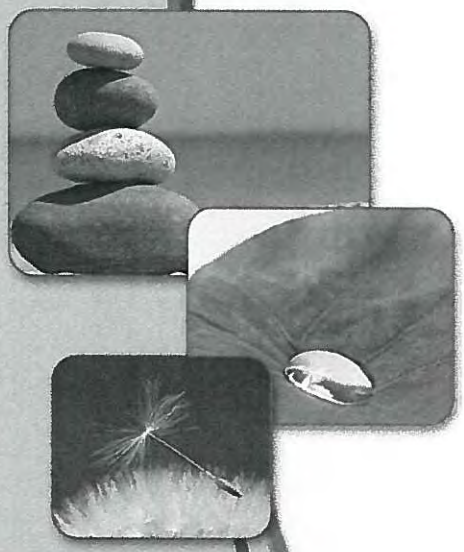
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2,4-Trichlorobenzene, Methane, Chloride, and Sulfate	D	BSA-MW-2D, BSA-MW-1S, BSA-MW-1S-EB, CPA-MW-2D, CPA-MW-2D-AD, CPA-MW-1D
Sample received outside pH criteria	Benzene	J	BSA-MW-1S

SDG KPS198

Sample Results from:

BSA-MW-2D
BSA-MW-1S
BSA-MW-1S-EB
CPA-MW-2D
CPA-MW-2D-AD
CPA-MW-1D



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-84763-1
TestAmerica Sample Delivery Group: KPS198
Client Project/Site: 3Q17 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:
9/27/2017 11:41:48 AM

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

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9/29/17

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

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

Table of Contents

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Definitions/Glossary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

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TestAmerica Canton

Job ID: 240-84763-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 3Q17 LTM GW Sampling - 1403345

Report Number: 240-84763-1

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 9/9/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 3.8° C.

Receipt Exceptions

Method(s) 8260B: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory,: BSA-MW-1S-0917 (240-84763-3).

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), BSA-MW-1S-0917-EB (240-84763-5), CPA-MW-2D-0917 (240-84763-6), CPA-MW-2D-0917-AD (240-84763-8), CPA-MW-1D-0917 (240-84763-9) and 3Q17 LTM TRIP BLANK #4 (240-84763-11) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/18/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-494993.

Samples BSA-MW-2D-0917 (240-84763-1)[500X], BSA-MW-1S-0917 (240-84763-3)[5000X], BSA-MW-1S-0917-EB (240-84763-5)[2X], CPA-MW-2D-0917 (240-84763-6)[250X], CPA-MW-2D-0917-AD (240-84763-8)[250X] and CPA-MW-1D-0917 (240-84763-9)[250X] 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.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), BSA-MW-1S-0917-EB (240-84763-5), CPA-MW-2D-0917 (240-84763-6), CPA-MW-2D-0917-AD (240-84763-8) and CPA-MW-1D-0917 (240-84763-9) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 09/14/2017 and analyzed on 09/15/2017 and 09/18/2017.

Sample CPA-MW-1D-0917 (240-84763-9)[5X] 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.

DISSOLVED GASES

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 09/19/2017 and

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Job ID: 240-84763-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

09/20/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295392.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295550.

Samples BSA-MW-2D-0917 (240-84763-1)[20X], BSA-MW-1S-0917 (240-84763-3)[5X] and CPA-MW-1D-0917 (240-84763-9)[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.

METALS (ICP) - DISSOLVED

Samples BSA-MW-2D-F(0.2)-0917 (240-84763-2), BSA-MW-1S-F(0.2)-0917 (240-84763-4), CPA-MW-2D-F(0.2)-0917 (240-84763-7) and CPA-MW-1D-F(0.2)-0917 (240-84763-10) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/14/2017 and analyzed on 09/16/2017.

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

METALS (ICP)

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/14/2017 and analyzed on 09/16/2017.

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

ALKALINITY

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 09/14/2017.

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

CHLORIDE

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 09/16/2017.

Samples BSA-MW-2D-0917 (240-84763-1)[5X], BSA-MW-1S-0917 (240-84763-3)[10X] and CPA-MW-1D-0917 (240-84763-9)[5X] 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.

NITRATE-NITRITE AS NITROGEN

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 09/14/2017.

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

SULFATE

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 09/16/2017.

Sample CPA-MW-2D-0917 (240-84763-6)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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Job ID: 240-84763-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

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

TOTAL ORGANIC CARBON

Samples BSA-MW-2D-0917 (240-84763-1), BSA-MW-1S-0917 (240-84763-3), CPA-MW-2D-0917 (240-84763-6) and CPA-MW-1D-0917 (240-84763-9) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 09/21/2017.

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-2D-F(0.2)-0917 (240-84763-2), BSA-MW-1S-F(0.2)-0917 (240-84763-4), CPA-MW-2D-F(0.2)-0917 (240-84763-7) and CPA-MW-1D-F(0.2)-0917 (240-84763-10) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 09/20/2017.

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

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9/29/17

Method Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

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 CAN
6010C	Metals (ICP)	SW846	TAL SAV
310.1-1978	Alkalinity	MCAWW	TAL SAV
325.2-1978	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL CAN
375.4-1978	Sulfate	MCAWW	TAL SAV
415.1-1974	TOC	MCAWW	TAL SAV
415.1-1974	DOC	MCAWW	TAL SAV

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 CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

SJD 9/29/17

Sample Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-84763-1	BSA-MW-2D-0917	Water	09/08/17 09:30	09/09/17 09:30
240-84763-2	BSA-MW-2D-F(0.2)-0917	Water	09/08/17 09:30	09/09/17 09:30
240-84763-3	BSA-MW-1S-0917	Water	09/08/17 13:28	09/09/17 09:30
240-84763-4	BSA-MW-1S-F(0.2)-0917	Water	09/08/17 13:28	09/09/17 09:30
240-84763-5	BSA-MW-1S-0917-EB	Water	09/08/17 14:08	09/09/17 09:30
240-84763-6	CPA-MW-2D-0917	Water	09/08/17 11:00	09/09/17 09:30
240-84763-7	CPA-MW-2D-F(0.2)-0917	Water	09/08/17 11:00	09/09/17 09:30
240-84763-8	CPA-MW-2D-0917-AD	Water	09/08/17 11:00	09/09/17 09:30
240-84763-9	CPA-MW-1D-0917	Water	09/08/17 12:20	09/09/17 09:30
240-84763-10	CPA-MW-1D-F(0.2)-0917	Water	09/08/17 12:20	09/09/17 09:30
240-84763-11	3Q17 LTM TRIP BLANK #4	Water	09/08/17 00:00	09/09/17 09:30

SDD
9/29/17

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-2D-0917 — Lab Sample ID: 240-84763-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	21000	D	500		ug/L	500		8260B	Total/NA
1,4-Dioxane	17		9.7		ug/L	1		8270D	Total/NA
Methane	15000	D	10		ug/L	20		RSK-175	Total/NA
Ethane	6.3		0.50		ug/L	1		RSK-175	Total/NA
Iron	8.1		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.94		0.010		mg/L	1		6010C	Total Recoverable
Chloride	190	D	5.0		mg/L	5		325.2-1978	Total/NA
Total Organic Carbon	9.5		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	810		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	33		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: BSA-MW-2D-F(0.2)-0917 — Lab Sample ID: 240-84763-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.2		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.94		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	12		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: BSA-MW-1S-0917 — Lab Sample ID: 240-84763-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	470000	D	5000		ug/L	5000		8260B	Total/NA
Methane	5000	D	2.5		ug/L	5		RSK-175	Total/NA
Iron	28		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.4		0.010		mg/L	1		6010C	Total Recoverable
Chloride	330	D	10		mg/L	10		325.2-1978	Total/NA
Total Organic Carbon	13		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	1300		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	70		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: BSA-MW-1S-F(0.2)-0917 — Lab Sample ID: 240-84763-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	30		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.5		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	12		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: BSA-MW-1S-0917-EB — Lab Sample ID: 240-84763-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	85	D	2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	2.3	D	2.0		ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	2.1	D	2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	2.2	D	2.0		ug/L	2		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

SJD
9/29/17

TestAmerica Canton

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-2D-0917 — Lab Sample ID: 240-84763-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	29000	D	250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	900	D	250		ug/L	250		8260B	Total/NA
2-Chlorophenol	36		9.7		ug/L	1		8270D	Total/NA
Methane	1200		0.50		ug/L	1		RSK-175	Total/NA
Ethane	2.4		0.50		ug/L	1		RSK-175	Total/NA
Ethylene	0.68		0.50		ug/L	1		RSK-175	Total/NA
Iron	8.1		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.46		0.010		mg/L	1		6010C	Total Recoverable
Chloride	49		1.0		mg/L	1		325.2-1978	Total/NA
Sulfate	110	D	25		mg/L	5		375.4-1978	Total/NA
Total Organic Carbon	6.5		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	520		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	17		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: CPA-MW-2D-F(0.2)-0917 — Lab Sample ID: 240-84763-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.3		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.47		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	7.3		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: CPA-MW-2D-0917-AD — Lab Sample ID: 240-84763-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	29000	D	250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	940	D	250		ug/L	250		8260B	Total/NA
2-Chlorophenol	39		9.6		ug/L	1		8270D	Total/NA

Client Sample ID: CPA-MW-1D-0917 — Lab Sample ID: 240-84763-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	9300	D	250		ug/L	250		8260B	Total/NA
Chlorobenzene	21000	D	250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	12000	D	250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	1400	D	250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	11000	D	250		ug/L	250		8260B	Total/NA
1,2,4-Trichlorobenzene - DL	600	D	48		ug/L	5		8270D	Total/NA
Methane	13000	D	5.0		ug/L	10		RSK-175	Total/NA
Ethane	28		0.50		ug/L	1		RSK-175	Total/NA
Ethylene	9.2		0.50		ug/L	1		RSK-175	Total/NA
Iron	0.26		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.12		0.010		mg/L	1		6010C	Total Recoverable
Chloride	150	D	5.0		mg/L	5		325.2-1978	Total/NA
Total Organic Carbon	9.1		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	920		5.0		mg/L	1		310.1-1978	Total/NA

This Detection Summary does not include radiochemical test results.

SJD
9/29/17

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-1D-0917 (Continued) — Lab Sample ID: 240-84763-9

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide, Free	5.3		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: CPA-MW-1D-F(0.2)-0917 — Lab Sample ID: 240-84763-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.12		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	10		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: 3Q17 LTM TRIP BLANK #4 — Lab Sample ID: 240-84763-11

No Detections.

This Detection Summary does not include radiochemical test results.

SSD 9/29/17

TestAmerica Canton

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-2D-0917

Date Collected: 09/08/17 09:30
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**21000**	D	500		ug/L			09/18/17 17:14	500
Chlorobenzene	500	U	500		ug/L			09/18/17 17:14	500
1,2-Dichlorobenzene	500	U	500		ug/L			09/18/17 17:14	500
1,3-Dichlorobenzene	500	U	500		ug/L			09/18/17 17:14	500
1,4-Dichlorobenzene	500	U	500		ug/L			09/18/17 17:14	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/18/17 17:14*	*500*
1,2-Dichloroethane-d4 (Surr)	*93*		*73 - 131*		*09/18/17 17:14*	*500*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/18/17 17:14*	*500*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/18/17 17:14*	*500*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.7	U	9.7		ug/L		09/14/17 14:04	09/15/17 20:09	1
1,4-Dioxane	**17**		9.7		ug/L		09/14/17 14:04	09/15/17 20:09	1
2-Chlorophenol	9.7	U	9.7		ug/L		09/14/17 14:04	09/15/17 20:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*80*		*39 - 124*	*09/14/17 14:04*	*09/15/17 20:09*	*1*
2-Fluorobiphenyl	*67*		*32 - 113*	*09/14/17 14:04*	*09/15/17 20:09*	*1*
2-Fluorophenol	*60*		*26 - 109*	*09/14/17 14:04*	*09/15/17 20:09*	*1*
Terphenyl-d14	*27*		*10 - 126*	*09/14/17 14:04*	*09/15/17 20:09*	*1*
Phenol-d5	*64*		*27 - 110*	*09/14/17 14:04*	*09/15/17 20:09*	*1*
Nitrobenzene-d5	*63*		*32 - 118*	*09/14/17 14:04*	*09/15/17 20:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**15000**	D	10		ug/L			09/20/17 15:40	20
Ethane	**6.3**		0.50		ug/L			09/19/17 15:57	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*80*		*76 - 121*		*09/19/17 15:57*	*1*
1,1,1-Trifluoroethane	*87*		*76 - 121*		*09/20/17 15:40*	*20*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**8.1**		0.050		mg/L		09/14/17 13:00	09/16/17 04:00	1
Manganese	**0.94**		0.010		mg/L		09/14/17 13:00	09/16/17 04:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**190**	D	5.0		mg/L			09/16/17 14:47	5
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:39	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:30	1
Total Organic Carbon	**9.5**		1.0		mg/L			09/21/17 00:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**810**		5.0		mg/L			09/14/17 19:54	1
Carbon Dioxide, Free	**33**		5.0		mg/L			09/14/17 19:54	1

SJD 9/29/17

TestAmerica Canton

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-2D-F(0.2)-0917
Date Collected: 09/08/17 09:30
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.2		0.050		mg/L		09/14/17 13:44	09/16/17 05:39	1
Manganese, Dissolved	0.94		0.010		mg/L		09/14/17 13:44	09/16/17 05:39	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	12		1.0		mg/L			09/20/17 11:10	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-1S-0917

Date Collected: 09/08/17 13:28
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**470000**	JD	5000		ug/L			09/18/17 17:35	5000
Chlorobenzene	5000	U	5000		ug/L			09/18/17 17:35	5000
1,2-Dichlorobenzene	5000	U	5000		ug/L			09/18/17 17:35	5000
1,3-Dichlorobenzene	5000	U	5000		ug/L			09/18/17 17:35	5000
1,4-Dichlorobenzene	5000	U	5000		ug/L			09/18/17 17:35	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/18/17 17:35*	*5000*
1,2-Dichloroethane-d4 (Surr)	*92*		*73 - 131*		*09/18/17 17:35*	*5000*
Dibromofluoromethane (Surr)	*100*		*80 - 122*		*09/18/17 17:35*	*5000*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 17:35*	*5000*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.5	U	9.5		ug/L		09/14/17 14:04	09/15/17 20:33	1
2-Chlorophenol	9.5	U	9.5		ug/L		09/14/17 14:04	09/15/17 20:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*39 - 124*	*09/14/17 14:04*	*09/15/17 20:33*	*1*
2-Fluorobiphenyl	*65*		*32 - 113*	*09/14/17 14:04*	*09/15/17 20:33*	*1*
2-Fluorophenol	*63*		*26 - 109*	*09/14/17 14:04*	*09/15/17 20:33*	*1*
Terphenyl-d14	*21*		*10 - 126*	*09/14/17 14:04*	*09/15/17 20:33*	*1*
Phenol-d5	*66*		*27 - 110*	*09/14/17 14:04*	*09/15/17 20:33*	*1*
Nitrobenzene-d5	*63*		*32 - 118*	*09/14/17 14:04*	*09/15/17 20:33*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**5000**	D	2.5		ug/L			09/20/17 15:58	5
Ethane	0.50	U	0.50		ug/L			09/19/17 16:14	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 16:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*90*		*76 - 121*		*09/19/17 16:14*	*1*
1,1,1-Trifluoroethane	*86*		*76 - 121*		*09/20/17 15:58*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**28**		0.050		mg/L		09/14/17 13:00	09/16/17 04:14	1
Manganese	**2.4**		0.010		mg/L		09/14/17 13:00	09/16/17 04:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**330**	D	10		mg/L			09/16/17 15:09	10
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:43	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:30	1
Total Organic Carbon	**13**		1.0		mg/L			09/21/17 01:07	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**1300**		5.0		mg/L			09/14/17 19:01	1
Carbon Dioxide, Free	**70**		5.0		mg/L			09/14/17 19:01	1

S JD 9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-1S-F(0.2)-0917
Date Collected: 09/08/17 13:28
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	30		0.050		mg/L		09/14/17 13:44	09/16/17 05:43	1
Manganese, Dissolved	2.5		0.010		mg/L		09/14/17 13:44	09/16/17 05:43	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	12		1.0		mg/L			09/20/17 11:25	1

SSD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-1S-0917-EB
Date Collected: 09/08/17 14:08
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**85**	D	2.0		ug/L			09/18/17 17:57	2
Chlorobenzene	**2.3**	D	2.0		ug/L			09/18/17 17:57	2
1,2-Dichlorobenzene	**2.1**	D	2.0		ug/L			09/18/17 17:57	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			09/18/17 17:57	2
1,4-Dichlorobenzene	**2.2**	D	2.0		ug/L			09/18/17 17:57	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/18/17 17:57*	*2*
1,2-Dichloroethane-d4 (Surr)	*110*		*73 - 131*		*09/18/17 17:57*	*2*
Dibromofluoromethane (Surr)	*108*		*80 - 122*		*09/18/17 17:57*	*2*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/18/17 17:57*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.7	U	9.7		ug/L		09/14/17 14:04	09/15/17 20:57	1
2-Chlorophenol	9.7	U	9.7		ug/L		09/14/17 14:04	09/15/17 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*		*39 - 124*	*09/14/17 14:04*	*09/15/17 20:57*	*1*
2-Fluorobiphenyl	*61*		*32 - 113*	*09/14/17 14:04*	*09/15/17 20:57*	*1*
2-Fluorophenol	*53*		*26 - 109*	*09/14/17 14:04*	*09/15/17 20:57*	*1*
Terphenyl-d14	*47*		*10 - 126*	*09/14/17 14:04*	*09/15/17 20:57*	*1*
Phenol-d5	*53*		*27 - 110*	*09/14/17 14:04*	*09/15/17 20:57*	*1*
Nitrobenzene-d5	*53*		*32 - 118*	*09/14/17 14:04*	*09/15/17 20:57*	*1*

SSD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-2D-0917

Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-6

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			09/18/17 18:20	250
Chlorobenzene	**29000**	D	250		ug/L			09/18/17 18:20	250
1,2-Dichlorobenzene	250	U	250		ug/L			09/18/17 18:20	250
1,3-Dichlorobenzene	250	U	250		ug/L			09/18/17 18:20	250
1,4-Dichlorobenzene	**900**	D	250		ug/L			09/18/17 18:20	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*09/18/17 18:20*	*250*
1,2-Dichloroethane-d4 (Surr)	*95*		*73 - 131*		*09/18/17 18:20*	*250*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/18/17 18:20*	*250*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 18:20*	*250*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.7	U	9.7		ug/L		09/14/17 14:04	09/15/17 21:21	1
2-Chlorophenol	**36**		9.7		ug/L		09/14/17 14:04	09/15/17 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*79*		*39 - 124*	*09/14/17 14:04*	*09/15/17 21:21*	*1*
2-Fluorobiphenyl	*67*		*32 - 113*	*09/14/17 14:04*	*09/15/17 21:21*	*1*
2-Fluorophenol	*57*		*26 - 109*	*09/14/17 14:04*	*09/15/17 21:21*	*1*
Terphenyl-d14	*26*		*10 - 126*	*09/14/17 14:04*	*09/15/17 21:21*	*1*
Phenol-d5	*60*		*27 - 110*	*09/14/17 14:04*	*09/15/17 21:21*	*1*
Nitrobenzene-d5	*61*		*32 - 118*	*09/14/17 14:04*	*09/15/17 21:21*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1200**		0.50		ug/L			09/19/17 16:32	1
Ethane	**2.4**		0.50		ug/L			09/19/17 16:32	1
Ethylene	**0.68**		0.50		ug/L			09/19/17 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*85*		*76 - 121*		*09/19/17 16:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**8.1**		0.050		mg/L		09/14/17 13:00	09/16/17 04:18	1
Manganese	**0.46**		0.010		mg/L		09/14/17 13:00	09/16/17 04:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**49**		1.0		mg/L			09/16/17 14:16	1
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:44	1
Sulfate	**110**	D	25		mg/L			09/16/17 15:29	5
Total Organic Carbon	**6.5**		1.0		mg/L			09/21/17 01:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**520**		5.0		mg/L			09/14/17 19:29	1
Carbon Dioxide, Free	**17**		5.0		mg/L			09/14/17 19:29	1

SJD 9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-2D-F(0.2)-0917
Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-7
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.3		0.050		mg/L		09/14/17 13:44	09/16/17 05:48	1
Manganese, Dissolved	0.47		0.010		mg/L		09/14/17 13:44	09/16/17 05:48	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.3		1.0		mg/L			09/20/17 11:43	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-2D-0917-AD

Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-8

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			09/18/17 18:42	250
Chlorobenzene	**29000**	D	250		ug/L			09/18/17 18:42	250
1,2-Dichlorobenzene	250	U	250		ug/L			09/18/17 18:42	250
1,3-Dichlorobenzene	250	U	250		ug/L			09/18/17 18:42	250
1,4-Dichlorobenzene	**940**	D	250		ug/L			09/18/17 18:42	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*09/18/17 18:42*	*250*
1,2-Dichloroethane-d4 (Surr)	*93*		*73 - 131*		*09/18/17 18:42*	*250*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/18/17 18:42*	*250*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 18:42*	*250*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.6	U	9.6		ug/L		09/14/17 14:04	09/15/17 21:45	1
2-Chlorophenol	**39**		9.6		ug/L		09/14/17 14:04	09/15/17 21:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*74*		*39 - 124*	*09/14/17 14:04*	*09/15/17 21:45*	*1*
2-Fluorobiphenyl	*64*		*32 - 113*	*09/14/17 14:04*	*09/15/17 21:45*	*1*
2-Fluorophenol	*60*		*26 - 109*	*09/14/17 14:04*	*09/15/17 21:45*	*1*
Terphenyl-d14	*23*		*10 - 126*	*09/14/17 14:04*	*09/15/17 21:45*	*1*
Phenol-d5	*59*		*27 - 110*	*09/14/17 14:04*	*09/15/17 21:45*	*1*
Nitrobenzene-d5	*59*		*32 - 118*	*09/14/17 14:04*	*09/15/17 21:45*	*1*

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-1D-0917

Date Collected: 09/08/17 12:20
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-9

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	9300	D	250		ug/L			09/18/17 19:03	250
Chlorobenzene	21000	D	250		ug/L			09/18/17 19:03	250
1,2-Dichlorobenzene	12000	D	250		ug/L			09/18/17 19:03	250
1,3-Dichlorobenzene	1400	D	250		ug/L			09/18/17 19:03	250
1,4-Dichlorobenzene	11000	D	250		ug/L			09/18/17 19:03	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/18/17 19:03*	*250*
1,2-Dichloroethane-d4 (Surr)	*94*		*73 - 131*		*09/18/17 19:03*	*250*
Dibromofluoromethane (Surr)	*98*		*80 - 122*		*09/18/17 19:03*	*250*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/18/17 19:03*	*250*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	9.6	U	9.6		ug/L		09/14/17 14:04	09/15/17 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*65*		*39 - 124*	*09/14/17 14:04*	*09/15/17 22:09*	*1*
2-Fluorobiphenyl	*56*		*32 - 113*	*09/14/17 14:04*	*09/15/17 22:09*	*1*
2-Fluorophenol	*51*		*26 - 109*	*09/14/17 14:04*	*09/15/17 22:09*	*1*
Terphenyl-d14	*13*		*10 - 126*	*09/14/17 14:04*	*09/15/17 22:09*	*1*
Phenol-d5	*50*		*27 - 110*	*09/14/17 14:04*	*09/15/17 22:09*	*1*
Nitrobenzene-d5	*53*		*32 - 118*	*09/14/17 14:04*	*09/15/17 22:09*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	600	D	48		ug/L		09/14/17 14:04	09/18/17 17:37	5

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	13000	D	5.0		ug/L			09/20/17 16:15	10
Ethane	28		0.50		ug/L			09/19/17 16:49	1
Ethylene	9.2		0.50		ug/L			09/19/17 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*82*		*76 - 121*		*09/19/17 16:49*	*1*
1,1,1-Trifluoroethane	*82*		*76 - 121*		*09/20/17 16:15*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.26		0.050		mg/L		09/14/17 13:00	09/16/17 04:23	1
Manganese	0.12		0.010		mg/L		09/14/17 13:00	09/16/17 04:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150	D	5.0		mg/L			09/16/17 14:47	5
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:45	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:30	1
Total Organic Carbon	9.1		1.0		mg/L			09/21/17 01:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	920		5.0		mg/L			09/14/17 20:43	1

SSD 9/29/17

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-1D-0917
Date Collected: 09/08/17 12:20
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-9
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide, Free	5.3		5.0		mg/L			09/14/17 20:43	1

SSD 9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-1D-F(0.2)-0917
Date Collected: 09/08/17 12:20
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-10
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.12		0.050		mg/L		09/14/17 13:44	09/16/17 05:53	1
Manganese, Dissolved	0.11		0.010		mg/L		09/14/17 13:44	09/16/17 05:53	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	10		1.0		mg/L			09/20/17 12:00	1

SSD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: 3Q17 LTM TRIP BLANK #4
Date Collected: 09/08/17 00:00
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84763-11
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			09/18/17 12:52	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:52	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:52	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:52	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*09/18/17 12:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*73 - 131*		*09/18/17 12:52*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 122*		*09/18/17 12:52*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*09/18/17 12:52*	*1*

SSD
9/29/17

TestAmerica Canton

Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

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 (80-120)	12DCE (73-131)	DBFM (80-122)	BFB (80-120)
240-84763-1	BSA-MW-2D-0917	100	93	96	104
240-84763-3	BSA-MW-1S-0917	104	92	100	102
240-84763-5	BSA-MW-1S-0917-EB	104	110	108	104
240-84763-6	CPA-MW-2D-0917	102	95	96	102
240-84763-8	CPA-MW-2D-0917-AD	103	93	96	102
240-84763-9	CPA-MW-1D-0917	104	94	98	98
240-84763-11	3Q17 LTM TRIP BLANK #4	102	88	94	103
LCS 680-494993/3	Lab Control Sample	106	90	95	99
LCSD 680-494993/4	Lab Control Sample Dup	105	90	95	99
MB 680-494993/8	Method Blank	100	90	94	102

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)					
Lab Sample ID	Client Sample ID	TBP (39-124)	FBP (32-113)	2FP (26-109)	TPH (10-126)	PHL (27-110)	NBZ (32-118)
240-84763-1	BSA-MW-2D-0917	80	67	60	27	64	63
240-84763-3	BSA-MW-1S-0917	79	65	63	21	66	63
240-84763-5	BSA-MW-1S-0917-EB	76	61	53	47	53	53
240-84763-6	CPA-MW-2D-0917	79	67	57	26	60	61
240-84763-8	CPA-MW-2D-0917-AD	74	64	60	23	59	59
240-84763-9	CPA-MW-1D-0917	65	56	51	13	50	53
LCS 680-494731/19-A	Lab Control Sample	78	63	52	68	56	58
MB 680-494731/18-A	Method Blank	82	60	57	79	58	58

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
TPH = Terphenyl-d14
PHL = Phenol-d5
NBZ = Nitrobenzene-d5

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	rifluoroet (76-121)
240-84763-1	BSA-MW-2D-0917	80
240-84763-1	BSA-MW-2D-0917	87
240-84763-3	BSA-MW-1S-0917	90
240-84763-3	BSA-MW-1S-0917	86

SJD 9/29/17

Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**rifluoroet (76-121)**
240-84763-6	CPA-MW-2D-0917	85
240-84763-9	CPA-MW-1D-0917	82
240-84763-9	CPA-MW-1D-0917	82
LCS 240-295392/5	Lab Control Sample	87
LCS 240-295550/5	Lab Control Sample	82
LCSD 240-295392/6	Lab Control Sample Dup	84
LCSD 240-295550/6	Lab Control Sample Dup	79
MB 240-295392/4	Method Blank	91
MB 240-295550/4	Method Blank	84

Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

SJD
9/29/17

TestAmerica Canton

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

Lab Sample ID: MB 680-494993/8
Matrix: Water
Analysis Batch: 494993

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			09/18/17 11:45	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/18/17 11:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/18/17 11:45*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 122*		*09/18/17 11:45*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 11:45*	*1*

Lab Sample ID: LCS 680-494993/3
Matrix: Water
Analysis Batch: 494993

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	44.7		ug/L		89	80 - 120
Chlorobenzene	50.0	46.7		ug/L		93	80 - 120
1,2-Dichlorobenzene	50.0	48.3		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120
1,4-Dichlorobenzene	50.0	47.1		ug/L		94	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*
Dibromofluoromethane (Surr)	*95*		*80 - 122*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 680-494993/4
Matrix: Water
Analysis Batch: 494993

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	44.3		ug/L		89	80 - 120	1	20
Chlorobenzene	50.0	46.1		ug/L		92	80 - 120	1	20
1,2-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120	0	20
1,3-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*
Dibromofluoromethane (Surr)	*95*		*80 - 122*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

SDD
9/29/17

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

Lab Sample ID: MB 680-494731/18-A
Matrix: Water
Analysis Batch: 494934

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 494731

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1
1,4-Dioxane	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1
2-Chlorophenol	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*39 - 124*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
2-Fluorobiphenyl	*60*		*32 - 113*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
2-Fluorophenol	*57*		*26 - 109*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
Terphenyl-d14	*79*		*10 - 126*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
Phenol-d5	*58*		*27 - 110*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
Nitrobenzene-d5	*58*		*32 - 118*	*09/14/17 14:04*	*09/15/17 19:45*	*1*

Lab Sample ID: LCS 680-494731/19-A
Matrix: Water
Analysis Batch: 494934

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494731

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	100	60.0		ug/L		60	33 - 130
1,4-Dioxane	100	45.8		ug/L		46	22 - 130
2-Chlorophenol	100	62.2		ug/L		62	39 - 130
4-Chloroaniline	100	55.7		ug/L		56	42 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*78*		*39 - 124*
2-Fluorobiphenyl	*63*		*32 - 113*
2-Fluorophenol	*52*		*26 - 109*
Terphenyl-d14	*68*		*10 - 126*
Phenol-d5	*56*		*27 - 110*
Nitrobenzene-d5	*58*		*32 - 118*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-295392/4
Matrix: Water
Analysis Batch: 295392

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/19/17 14:13	1
Ethane	0.50	U	0.50		ug/L			09/19/17 14:13	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 14:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*91*		*76 - 121*		*09/19/17 14:13*	*1*

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

Lab Sample ID: LCS 240-295392/5
Matrix: Water
Analysis Batch: 295392

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			199	201		ug/L		101	80 - 130		
Ethane			374	398		ug/L		107	76 - 131		
Ethylene			349	371		ug/L		106	79 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*87*		*76 - 121*

Lab Sample ID: LCSD 240-295392/6
Matrix: Water
Analysis Batch: 295392

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			199	197		ug/L		99	80 - 130	2	35
Ethane			374	390		ug/L		104	76 - 131	2	35
Ethylene			349	362		ug/L		104	79 - 132	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*84*		*76 - 121*

Lab Sample ID: MB 240-295550/4
Matrix: Water
Analysis Batch: 295550

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/20/17 14:48	1
Ethane	0.50	U	0.50		ug/L			09/20/17 14:48	1
Ethylene	0.50	U	0.50		ug/L			09/20/17 14:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*84*		*76 - 121*		*09/20/17 14:48*	*1*

Lab Sample ID: LCS 240-295550/5
Matrix: Water
Analysis Batch: 295550

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			199	198		ug/L		100	80 - 130		
Ethane			374	386		ug/L		103	76 - 131		
Ethylene			349	360		ug/L		103	79 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*82*		*76 - 121*

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

Lab Sample ID: LCSD 240-295550/6
Matrix: Water
Analysis Batch: 295550

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			199	199		ug/L		100	80 - 130	1	35
Ethane			374	389		ug/L		104	76 - 131	1	35
Ethylene			349	354		ug/L		102	79 - 132	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*79*		*76 - 121*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-494735/1-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		09/14/17 12:59	09/16/17 02:49	1
Manganese	0.010	U	0.010		mg/L		09/14/17 12:59	09/16/17 02:49	1

Lab Sample ID: LCS 680-494735/2-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron			5.00	5.44		mg/L		109	80 - 120
Manganese			0.500	0.548		mg/L		110	80 - 120

Lab Sample ID: MB 680-494750/1-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		09/14/17 13:44	09/16/17 04:28	1
Manganese, Dissolved	0.010	U	0.010		mg/L		09/14/17 13:44	09/16/17 04:28	1

Lab Sample ID: LCS 680-494750/2-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494750

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved			5.00	5.44		mg/L		109	80 - 120
Manganese, Dissolved			0.500	0.546		mg/L		109	80 - 120

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Method: 310.1-1978 - Alkalinity

Lab Sample ID: MB 680-494830/7
Matrix: Water
Analysis Batch: 494830

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			09/14/17 17:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			09/14/17 17:53	1

Lab Sample ID: LCS 680-494830/8
Matrix: Water
Analysis Batch: 494830

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	260		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-494830/34
Matrix: Water
Analysis Batch: 494830

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	264		mg/L		106	80 - 120	1	30

Method: 325.2-1978 - Chloride

Lab Sample ID: MB 680-495149/6
Matrix: Water
Analysis Batch: 495149

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			09/16/17 14:04	1

Lab Sample ID: LCS 680-495149/7
Matrix: Water
Analysis Batch: 495149

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	27.0		mg/L		108	85 - 115

Lab Sample ID: LCSD 680-495149/13
Matrix: Water
Analysis Batch: 495149

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
Chloride	25.0	27.0		mg/L		108	85 - 115	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 240-294909/4
Matrix: Water
Analysis Batch: 294909

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:37	1

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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 240-294909/5
Matrix: Water
Analysis Batch: 294909

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.22	1.23		mg/L		101	90 - 110

Lab Sample ID: 240-84763-1 MS
Matrix: Water
Analysis Batch: 294909

Client Sample ID: BSA-MW-2D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.050	U	1.00	1.00		mg/L		100	90 - 110

Lab Sample ID: 240-84763-1 MSD
Matrix: Water
Analysis Batch: 294909

Client Sample ID: BSA-MW-2D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.050	U	1.00	1.00		mg/L		100	90 - 110	0	20

Method: 375.4-1978 - Sulfate

Lab Sample ID: MB 680-495124/4
Matrix: Water
Analysis Batch: 495124

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			09/16/17 14:09	1

Lab Sample ID: LCS 680-495124/5
Matrix: Water
Analysis Batch: 495124

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

Lab Sample ID: LCSD 680-495124/7
Matrix: Water
Analysis Batch: 495124

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
Sulfate	20.0	20.1		mg/L		100	75 - 125	1	30

Method: 415.1-1974 - DOC

Lab Sample ID: MB 680-495462/2
Matrix: Water
Analysis Batch: 495462

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			09/20/17 08:10	1

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Method: 415.1-1974 - DOC (Continued)

Lab Sample ID: LCS 680-495462/4
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	20.0		mg/L		100	80 - 120

Lab Sample ID: LCSD 680-495462/5
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	19.8		mg/L		99	80 - 120	1	20

Method: 415.1-1974 - TOC

Lab Sample ID: MB 680-495460/2
Matrix: Water
Analysis Batch: 495460

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			09/20/17 20:13	1

Lab Sample ID: LCS 680-495460/3
Matrix: Water
Analysis Batch: 495460

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	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-495460/4
Matrix: Water
Analysis Batch: 495460

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
Total Organic Carbon	20.0	21.0		mg/L		105	80 - 120	1	25

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QC Association Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

GC/MS VOA

Analysis Batch: 494993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	8260B	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	8260B	
240-84763-5	BSA-MW-1S-0917-EB	Total/NA	Water	8260B	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	8260B	
240-84763-8	CPA-MW-2D-0917-AD	Total/NA	Water	8260B	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	8260B	
240-84763-11	3Q17 LTM TRIP BLANK #4	Total/NA	Water	8260B	
MB 680-494993/8	Method Blank	Total/NA	Water	8260B	
LCS 680-494993/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494993/4	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 494731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	3520C	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	3520C	
240-84763-5	BSA-MW-1S-0917-EB	Total/NA	Water	3520C	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	3520C	
240-84763-8	CPA-MW-2D-0917-AD	Total/NA	Water	3520C	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	3520C	
240-84763-9 - DL	CPA-MW-1D-0917	Total/NA	Water	3520C	
MB 680-494731/18-A	Method Blank	Total/NA	Water	3520C	
LCS 680-494731/19-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 494934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	8270D	494731
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	8270D	494731
240-84763-5	BSA-MW-1S-0917-EB	Total/NA	Water	8270D	494731
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	8270D	494731
240-84763-8	CPA-MW-2D-0917-AD	Total/NA	Water	8270D	494731
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	8270D	494731
MB 680-494731/18-A	Method Blank	Total/NA	Water	8270D	494731
LCS 680-494731/19-A	Lab Control Sample	Total/NA	Water	8270D	494731

Analysis Batch: 495070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-9 - DL	CPA-MW-1D-0917	Total/NA	Water	8270D	494731

GC VOA

Analysis Batch: 295392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	RSK-175	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	RSK-175	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	RSK-175	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	RSK-175	
MB 240-295392/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295392/5	Lab Control Sample	Total/NA	Water	RSK-175	

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GC VOA (Continued)

Analysis Batch: 295392 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 240-295392/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 295550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	RSK-175	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	RSK-175	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	RSK-175	
MB 240-295550/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295550/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-295550/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 494735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total Recoverable	Water	3005A	
240-84763-3	BSA-MW-1S-0917	Total Recoverable	Water	3005A	
240-84763-6	CPA-MW-2D-0917	Total Recoverable	Water	3005A	
240-84763-9	CPA-MW-1D-0917	Total Recoverable	Water	3005A	
MB 680-494735/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494735/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 494750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-2	BSA-MW-2D-F(0.2)-0917	Dissolved	Water	3005A	
240-84763-4	BSA-MW-1S-F(0.2)-0917	Dissolved	Water	3005A	
240-84763-7	CPA-MW-2D-F(0.2)-0917	Dissolved	Water	3005A	
240-84763-10	CPA-MW-1D-F(0.2)-0917	Dissolved	Water	3005A	
MB 680-494750/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494750/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 495053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total Recoverable	Water	6010C	494735
240-84763-2	BSA-MW-2D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84763-3	BSA-MW-1S-0917	Total Recoverable	Water	6010C	494735
240-84763-4	BSA-MW-1S-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84763-6	CPA-MW-2D-0917	Total Recoverable	Water	6010C	494735
240-84763-7	CPA-MW-2D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84763-9	CPA-MW-1D-0917	Total Recoverable	Water	6010C	494735
240-84763-10	CPA-MW-1D-F(0.2)-0917	Dissolved	Water	6010C	494750
MB 680-494735/1-A	Method Blank	Total Recoverable	Water	6010C	494735
MB 680-494750/1-A	Method Blank	Total Recoverable	Water	6010C	494750
LCS 680-494735/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494735
LCS 680-494750/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494750

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QC Association Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

General Chemistry

Analysis Batch: 294909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	353.2	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	353.2	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	353.2	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	353.2	
MB 240-294909/4	Method Blank	Total/NA	Water	353.2	
LCS 240-294909/5	Lab Control Sample	Total/NA	Water	353.2	
240-84763-1 MS	BSA-MW-2D-0917	Total/NA	Water	353.2	
240-84763-1 MSD	BSA-MW-2D-0917	Total/NA	Water	353.2	

Analysis Batch: 494830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	310.1-1978	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	310.1-1978	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	310.1-1978	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	310.1-1978	
MB 680-494830/7	Method Blank	Total/NA	Water	310.1-1978	
LCS 680-494830/8	Lab Control Sample	Total/NA	Water	310.1-1978	
LCSD 680-494830/34	Lab Control Sample Dup	Total/NA	Water	310.1-1978	

Analysis Batch: 495124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	375.4-1978	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	375.4-1978	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	375.4-1978	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	375.4-1978	
MB 680-495124/4	Method Blank	Total/NA	Water	375.4-1978	
LCS 680-495124/5	Lab Control Sample	Total/NA	Water	375.4-1978	
LCSD 680-495124/7	Lab Control Sample Dup	Total/NA	Water	375.4-1978	

Analysis Batch: 495149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	325.2-1978	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	325.2-1978	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	325.2-1978	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	325.2-1978	
MB 680-495149/6	Method Blank	Total/NA	Water	325.2-1978	
LCS 680-495149/7	Lab Control Sample	Total/NA	Water	325.2-1978	
LCSD 680-495149/13	Lab Control Sample Dup	Total/NA	Water	325.2-1978	

Analysis Batch: 495460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-1	BSA-MW-2D-0917	Total/NA	Water	415.1-1974	
240-84763-3	BSA-MW-1S-0917	Total/NA	Water	415.1-1974	
240-84763-6	CPA-MW-2D-0917	Total/NA	Water	415.1-1974	
240-84763-9	CPA-MW-1D-0917	Total/NA	Water	415.1-1974	
MB 680-495460/2	Method Blank	Total/NA	Water	415.1-1974	
LCS 680-495460/3	Lab Control Sample	Total/NA	Water	415.1-1974	
LCSD 680-495460/4	Lab Control Sample Dup	Total/NA	Water	415.1-1974	

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General Chemistry (Continued)

Analysis Batch: 495462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84763-2	BSA-MW-2D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84763-4	BSA-MW-1S-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84763-7	CPA-MW-2D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84763-10	CPA-MW-1D-F(0.2)-0917	Dissolved	Water	415.1-1974	
MB 680-495462/2	Method Blank	Dissolved	Water	415.1-1974	
LCS 680-495462/4	Lab Control Sample	Dissolved	Water	415.1-1974	
LCSD 680-495462/5	Lab Control Sample Dup	Dissolved	Water	415.1-1974	

SSD
9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-2D-0917

Lab Sample ID: 240-84763-1
Matrix: Water

Date Collected: 09/08/17 09:30
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	494993	09/18/17 17:14	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 20:09	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 15:57	BPM	TAL CAN
Total/NA	Analysis	RSK-175		20	295550	09/20/17 15:40	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 04:00	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 19:54	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495149	09/16/17 14:47	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:39	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:30	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 00:50	KLD	TAL SAV

Client Sample ID: BSA-MW-2D-F(0.2)-0917

Lab Sample ID: 240-84763-2
Matrix: Water

Date Collected: 09/08/17 09:30
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:39	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 11:10	KLD	TAL SAV

Client Sample ID: BSA-MW-1S-0917

Lab Sample ID: 240-84763-3
Matrix: Water

Date Collected: 09/08/17 13:28
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5000	494993	09/18/17 17:35	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 20:33	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 16:14	BPM	TAL CAN
Total/NA	Analysis	RSK-175		5	295550	09/20/17 15:58	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 04:14	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 19:01	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		10	495149	09/16/17 15:09	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:43	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:30	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 01:07	KLD	TAL SAV

SJD
9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: BSA-MW-1S-F(0.2)-0917

Lab Sample ID: 240-84763-4
Matrix: Water
Date Collected: 09/08/17 13:28
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:43	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 11:25	KLD	TAL SAV

Client Sample ID: BSA-MW-1S-0917-EB

Lab Sample ID: 240-84763-5
Matrix: Water
Date Collected: 09/08/17 14:08
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	494993	09/18/17 17:57	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 20:57	KNW	TAL SAV

Client Sample ID: CPA-MW-2D-0917

Lab Sample ID: 240-84763-6
Matrix: Water
Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	494993	09/18/17 18:20	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 21:21	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 16:32	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 04:18	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 19:29	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		1	495149	09/16/17 14:16	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:44	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		5	495124	09/16/17 15:29	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 01:30	KLD	TAL SAV

Client Sample ID: CPA-MW-2D-F(0.2)-0917

Lab Sample ID: 240-84763-7
Matrix: Water
Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:48	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 11:43	KLD	TAL SAV

SJD 9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Client Sample ID: CPA-MW-2D-0917-AD

Lab Sample ID: 240-84763-8
Matrix: Water
Date Collected: 09/08/17 11:00
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	494993	09/18/17 18:42	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 21:45	KNW	TAL SAV

Client Sample ID: CPA-MW-1D-0917

Lab Sample ID: 240-84763-9
Matrix: Water
Date Collected: 09/08/17 12:20
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	494993	09/18/17 19:03	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 22:09	KNW	TAL SAV
Total/NA	Prep	3520C	DL		494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D	DL	5	495070	09/18/17 17:37	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 16:49	BPM	TAL CAN
Total/NA	Analysis	RSK-175		10	295550	09/20/17 16:15	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 04:23	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 20:43	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495149	09/16/17 14:47	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:45	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:30	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 01:47	KLD	TAL SAV

Client Sample ID: CPA-MW-1D-F(0.2)-0917

Lab Sample ID: 240-84763-10
Matrix: Water
Date Collected: 09/08/17 12:20
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:53	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 12:00	KLD	TAL SAV

Client Sample ID: 3Q17 LTM TRIP BLANK #4

Lab Sample ID: 240-84763-11
Matrix: Water
Date Collected: 09/08/17 00:00
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494993	09/18/17 12:52	CMB	TAL SAV

SJD 9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

SJD
9/29/17

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84763-1
SDG: KPS198

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200022	11-30-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
8270D	3520C	Water	1,4-Dioxane

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
310.1-1978		Water	Alkalinity
310.1-1978		Water	Carbon Dioxide, Free
325.2-1978		Water	Chloride
375.4-1978		Water	Sulfate
415.1-1974		Water	Dissolved Organic Carbon
415.1-1974		Water	Total Organic Carbon

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

SSD
4/29/17

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

3.8/C3.8
2.2/C2.2

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: ~~Emily White~~	Date: 9/8/17	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: ☑ CALENDAR DAYS ☐ WORKING DAYS			Sampler:
St. Charles, MO 63301	TAT if different from Below Standard			For Lab Use Only:
(636) 724-9191 Phone	☑ 2 weeks			Walk-in Client:
(636) 724-9323 FAX	☐ 1 week			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 2 days			Job / SDG No:
Site: Solutia WG Krummrich Facility	☐ 1 day			
P O # 42262863				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	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	SVOCs by 8270	Sample Specific Notes
BSA-MW-2D-0917	9/8/17	0930	G	W	16	N		3	1	1	1	3	2	3			2	
BSA-MW-2D-F(0.2)-0917		0930			4	Y									1	3		
BSA-MW-15-0917		1328			16	N		3	1	1	1	3	2	3			2	
BSA-MW-15-F(0.2)-0917		1328			4	Y									1	3		
BSA-MW-15-0917-EB		1408			5	N		3									2	
CPA-MW-2D-0917		1100			16	N		3	1	1	1	3	2	3			2	
CPA-MW-2D-F(0.2)-0917		1100			4	Y									1	3		
CPA-MW-2D-0917-AD		1100			5	N		3									2	
CPA-MW-1D-0917		1220			16	N		3	1	1	1	3	2	3			2	
CPA-MW-1D-F(0.2)-0917		1220			4	Y									1	3		
3Q17 LTM Trip Blank #4					2			2										
								2	4	1	1	2	1,3	3	4	3		

240-84763 Chain of Custody

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

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

☑ Non-Hazard ☐ 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:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.:
Relinquished by: Samantha DiCenzo	Company: Golder	Date/Time: 1600 9/8/17	Received by: GOP	Company: TAL	Date/Time: 9-9-17 930
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

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SCV 9/12/17

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 847163**
Canton Facility

Client GOLDER Site Name — Cooler unpacked by: POP

Cooler Received on 9-9-17 Opened on 9-9-17

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt — See Multiple Cooler Form
   IR GUN# IR-8 (CF +0 °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN #36 (CF +0.3°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 — Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? — Yes No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? — Yes No
3. Shippers' packing slip attached to the cooler(s)? — Yes No
4. Did custody papers accompany the sample(s)? — Yes No
5. Were the custody papers relinquished & signed in the appropriate place? — Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? — Yes No
7. Did all bottles arrive in good condition (Unbroken)? — Yes No
8. Could all bottle labels be reconciled with the COC? — Yes No
9. Were correct bottle(s) used for the test(s) indicated? — Yes No
10. Sufficient quantity received to perform indicated analyses? — Yes No
11. Are these work share samples? — Yes No
    If yes, Questions 11-15 have been checked at the originating laboratory.
11. Were all preserved sample(s) at the correct pH upon receipt? — Yes No NA pH Strip Lot# HC697954
12. Were VOAs on the COC? — Yes No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. — Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # COVERED — Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES — Samples processed by:

17. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

TestAmerica Multiple Cooler Receipt Form/Narrative **Login # : 347163**
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
CLIENT	8	3.8	3.8	ICE
1	1	2.2	2.2	1

SDD 9/29/17

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
BSA-MW-2D-0917	240-84763-M-1	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
BSA-MW-2D-0917	240-84763-N-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
BSA-MW-2D-F(0.2)-0917	240-84763-D-2	Plastic 250ml - w/nitric - dis	<2	_____	_____
BSA-MW-1S-0917	240-84763-M-3	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
BSA-MW-1S-0917	240-84763-N-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
BSA-MW-1S-F(0.2)-0917	240-84763-D-4	Plastic 250ml - w/nitric - dis	<2	_____	_____
CPA-MW-2D-0917	240-84763-M-6	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
CPA-MW-2D-0917	240-84763-N-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
CPA-MW-2D-F(0.2)-0917	240-84763-D-7	Plastic 250ml - w/nitric - dis	<2	_____	_____
CPA-MW-1D-0917	240-84763-M-9	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
CPA-MW-1D-0917	240-84763-N-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
CPA-MW-1D-F(0.2)-0917	240-84763-D-10	Plastic 250ml - w/nitric - dis	<2	_____	_____

SSD
9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.1
Client Contact: Shipping/Receiving	Phone	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84763-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #			
Email:	WO #			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.1/ Alkalinity & CO2, Free	325.2/ Chloride	375.4/ Sulfate	415.1	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Sublist Template (HCl)	415.1_Diss/FIELD_FLTRD DOC (FF)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
BSA-MW-2D-0917 (240-84763-1)	9/8/17	09:30 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-2D-F(0.2)-0917 (240-84763-2)	9/8/17	09:30 Central		Water										X	X						4	
BSA-MW-1S-0917 (240-84763-3)	9/8/17	13:28 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-1S-F(0.2)-0917 (240-84763-4)	9/8/17	13:28 Central		Water										X	X						4	
BSA-MW-1S-0917-EB (240-84763-5)	9/8/17	14:08 Central		Water							X		X								5	
CPA-MW-2D-0917 (240-84763-6)	9/8/17	11:00 Central		Water			X	X	X	X	X	X	X								12	
CPA-MW-2D-F(0.2)-0917 (240-84763-7)	9/8/17	11:00 Central		Water										X	X						4	
CPA-MW-2D-0917-AD (240-84763-8)	9/8/17	11:00 Central		Water							X		X								5	
CPA-MW-1D-0917 (240-84763-9)	9/8/17	12:20 Central		Water			X	X	X	X	X	X	X								12	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	9-13-17 1436	240		9-14-17 935	
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by	Date/Time	Company	Received by: 1.2/1.5	Date/Time	Company

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SSD 9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s)	COC No: 240-76702.2
Client Contact: Shipping/Receiving	Phone	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84763-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.1/ Alkalinity & CO2, Free	325.2/ Chloride	375.4/ Sulfate	415.1	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Subset Template (HCl)	415.1_DissFIELD_FLTRD DOC (FF)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	Total Number of containers	Special Instructions/Note:
CPA-MW-1D-F(0.2)-0917 (240-84763-10)	9/8/17	12:20 Central		Water											X	X	4	
3Q17 LTM TRIP BLANK #4 (240-84763-11)	9/8/17	Central		Water										X			2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	9-13-17 1430	240	[signature]	9-14-17 935	[signature]
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.2/1.5

SJD 9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84763-1
SDG Number: KPS198

Login Number: 84763
List Number: 2
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 11:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SSD
9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84763-1
SDG Number: KPS198

Login Number: 84763
List Number: 3
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 11:25 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SJD
9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84763-1
SDG Number: KPS198

Login Number: 84763
List Number: 4
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 01:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SJD
9/29/17

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
3Q17 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-3Q17 LTM
Reviewer: S. DiCenso
Laboratory: TestAmerica
SDG#: KPS199
Matrix: Water

Project Manager: A. Derhake
Project Number: 140-3345
Sample Date: September 2017

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-0917, BSA-MW-5D-F(0.2)-0917, BSA-MW-4D-0917, BSA-MW-4D-F(0.2)-0917, BSA-MW-3D-0917, BSA-MW-3D-F(0.2)-0917, BSA-MW-3D-0917-EB, CPA-MW-4D-0917, CPA-MW-4D-F(0.2)-0917, CPA-MW-3D-0917, CPA-MW-3D-F(0.2)-0917, CPA-MW-3D-0917-AD, 3Q17 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 494993.

Samples BSA-MW-5D, BSA-MW-4D, BSA-MW-3D, CPA-MW-3D, and CPA-MW-3D-AD required dilution prior to analysis, reporting limits were adjusted accordingly.

SVOC: 4-chloroaniline exceeded recovery criteria low for MS and MSD of sample BSA-MW-5D in batch 494934.

Samples BSA-MW-5D and CPA-MW-4D required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 295392 and 295550.

Samples BSA-MW-5D, BSA-MW-4D, BSA-MW-3D, CPA-MW-3D, and CPA-MW-3D-AD required dilution prior to analysis, reporting limits were adjusted accordingly

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-5D, BSA-MW-4D, BSA-MW-3D, CPA-MW-4D, and CPA-MW-3D required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: No deficiencies noted.

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 1.2°C, 1.4°C, and 1.8°C, outside the 4°C ± 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

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: Some compounds did not meet calibration requirements; however, calibration criteria were met by analytes of interest. No data qualification was required.

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

Comments: Equipment blank for BSA-MW-3D was submitted with SDG KPS199.

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: 4-chloraniline exceeded the recovery criteria low for MS and MSD of sample BSA-MW-5D associated with batch 494934. Data was not qualified 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 sample CPA-MW-3D-AD was submitted with SDG KPS199.

Additional Comments: None

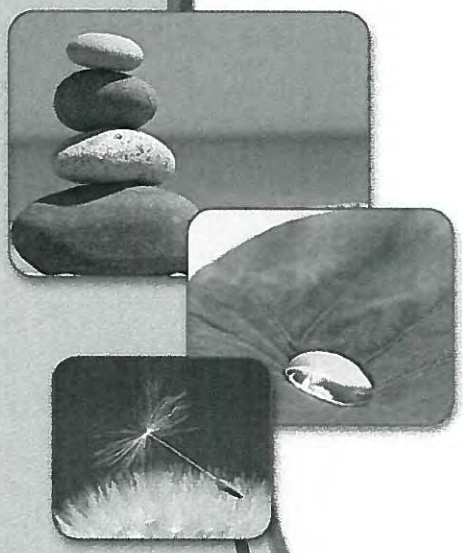
Qualifications:

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Methane, Ethane, Chloride, and Sulfate	D	BSA-MW-5D, BSA-MW-4D, BSA-MW-3D, CPA-MW-4D, CPA-MW-3D, CPA-MW-3D-AD

SDG KPS199

Sample Results from:

BSA-MW-5D
BSA-MW-4D
BSA-MW-3D
BSA-MW-3D-EB
CPA-MW-4D
CPA-MW-3D
CPA-MW-3D-AD



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-84791-1
TestAmerica Sample Delivery Group: KPS199
Client Project/Site: 3Q17 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:
9/25/2017 2:23:07 PM

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

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

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

SJD
9/29/17

Table of Contents

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9/29/17

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.
F1	MS and/or MSD Recovery is outside acceptance limits.

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

SJP
9/29/17

Job ID: 240-84791-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 3Q17 LTM GW Sampling - 1403345

Report Number: 240-84791-1

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 9/9/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 1.4° C and 1.8° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), BSA-MW-3D-0917-EB (240-84791-7), CPA-MW-4D-0917 (240-84791-8), CPA-MW-3D-0917 (240-84791-10), CPA-MW-3D-0917-AD (240-84791-12) and 3Q17 LTM TRIP BLANK #3 (240-84791-13) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/18/2017 and 09/19/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 680-494993.

Samples BSA-MW-5D-0917 (240-84791-1)[5X], BSA-MW-4D-0917 (240-84791-3)[20X], BSA-MW-3D-0917 (240-84791-5)[20X], CPA-MW-3D-0917 (240-84791-10)[5X] and CPA-MW-3D-0917-AD (240-84791-12)[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.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), BSA-MW-3D-0917-EB (240-84791-7), CPA-MW-4D-0917 (240-84791-8), CPA-MW-3D-0917 (240-84791-10) and CPA-MW-3D-0917-AD (240-84791-12) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 09/14/2017 and analyzed on 09/15/2017 and 09/16/2017.

4-Chloroaniline exceeded the recovery criteria low for the MS and MSD of sample BSA-MW-5D-0917MS (240-84791-1) in batch 680-494934.

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-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 09/19/2017 and 09/20/2017.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295392.

SJD
9/29/17

Job ID: 240-84791-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-295550.

Samples BSA-MW-5D-0917 (240-84791-1)[5X] and CPA-MW-4D-0917 (240-84791-8)[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.

METALS (ICP) - DISSOLVED

Samples BSA-MW-5D-F(0.2)-0917 (240-84791-2), BSA-MW-4D-F(0.2)-0917 (240-84791-4), BSA-MW-3D-F(0.2)-0917 (240-84791-6), CPA-MW-4D-F(0.2)-0917 (240-84791-9) and CPA-MW-3D-F(0.2)-0917 (240-84791-11) were analyzed for Metals (ICP) - Dissolved in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/14/2017 and analyzed on 09/16/2017.

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

METALS (ICP)

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/14/2017 and analyzed on 09/16/2017.

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

ALKALINITY

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 09/14/2017.

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

CHLORIDE

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 09/20/2017.

Samples BSA-MW-5D-0917 (240-84791-1)[5X], BSA-MW-4D-0917 (240-84791-3)[10X], BSA-MW-3D-0917 (240-84791-5)[5X], CPA-MW-4D-0917 (240-84791-8)[5X] and CPA-MW-3D-0917 (240-84791-10)[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-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 09/14/2017.

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

SULFATE

Samples BSA-MW-5D-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 09/16/2017.

Sample BSA-MW-4D-0917 (240-84791-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

SJD
9/20/17

Job ID: 240-84791-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

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-0917 (240-84791-1), BSA-MW-4D-0917 (240-84791-3), BSA-MW-3D-0917 (240-84791-5), CPA-MW-4D-0917 (240-84791-8) and CPA-MW-3D-0917 (240-84791-10) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 09/21/2017.

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)-0917 (240-84791-2), BSA-MW-4D-F(0.2)-0917 (240-84791-4), BSA-MW-3D-F(0.2)-0917 (240-84791-6), CPA-MW-4D-F(0.2)-0917 (240-84791-9) and CPA-MW-3D-F(0.2)-0917 (240-84791-11) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 09/20/2017.

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

SJD
9/29/17

Method Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

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 CAN
6010C	Metals (ICP)	SW846	TAL SAV
310.1-1978	Alkalinity	MCAWW	TAL SAV
325.2-1978	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL CAN
375.4-1978	Sulfate	MCAWW	TAL SAV
415.1-1974	TOC	MCAWW	TAL SAV
415.1-1974	DOC	MCAWW	TAL SAV

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 CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

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

SJD
9/29/17

Sample Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-84791-1	BSA-MW-5D-0917	Water	09/07/17 09:26	09/09/17 09:30
240-84791-2	BSA-MW-5D-F(0.2)-0917	Water	09/07/17 09:26	09/09/17 09:30
240-84791-3	BSA-MW-4D-0917	Water	09/07/17 12:20	09/09/17 09:30
240-84791-4	BSA-MW-4D-F(0.2)-0917	Water	09/07/17 12:20	09/09/17 09:30
240-84791-5	BSA-MW-3D-0917	Water	09/07/17 13:40	09/09/17 09:30
240-84791-6	BSA-MW-3D-F(0.2)-0917	Water	09/07/17 13:40	09/09/17 09:30
240-84791-7	BSA-MW-3D-0917-EB	Water	09/07/17 14:30	09/09/17 09:30
240-84791-8	CPA-MW-4D-0917	Water	09/07/17 10:45	09/09/17 09:30
240-84791-9	CPA-MW-4D-F(0.2)-0917	Water	09/07/17 10:45	09/09/17 09:30
240-84791-10	CPA-MW-3D-0917	Water	09/07/17 15:17	09/09/17 09:30
240-84791-11	CPA-MW-3D-F(0.2)-0917	Water	09/07/17 15:17	09/09/17 09:30
240-84791-12	CPA-MW-3D-0917-AD	Water	09/07/17 15:17	09/09/17 09:30
240-84791-13	3Q17 LTM TRIP BLANK #3	Water	09/07/17 00:00	09/09/17 09:30

SJD
9/29/17

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-5D-0917 — Lab Sample ID: 240-84791-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	110	D	5.0		ug/L	5		8260B	Total/NA
Methane	5700	D	2.5		ug/L	5		RSK-175	Total/NA
Ethane	12	D	2.5		ug/L	5		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.26		0.010		mg/L	1		6010C	Total Recoverable
Chloride	160	D	5.0		mg/L	5		325.2-1978	Total/NA
Total Organic Carbon	8.3		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	660		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	19		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: BSA-MW-5D-F(0.2)-0917 — Lab Sample ID: 240-84791-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	12		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.26		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.2		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: BSA-MW-4D-0917 — Lab Sample ID: 240-84791-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	22	D	20		ug/L	20		8260B	Total/NA
Chlorobenzene	2300	D	20		ug/L	20		8260B	Total/NA
1,2-Dichlorobenzene	29	D	20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	97	D	20		ug/L	20		8260B	Total/NA
1,4-Dioxane	13		9.9		ug/L	1		8270D	Total/NA
2-Chlorophenol	16		9.9		ug/L	1		8270D	Total/NA
Methane	56		0.50		ug/L	1		RSK-175	Total/NA
Ethane	2.8		0.50		ug/L	1		RSK-175	Total/NA
Iron	8.2		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.59		0.010		mg/L	1		6010C	Total Recoverable
Chloride	330	D	10		mg/L	10		325.2-1978	Total/NA
Sulfate	120	D	25		mg/L	5		375.4-1978	Total/NA
Total Organic Carbon	4.9		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	560		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	17		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: BSA-MW-4D-F(0.2)-0917 — Lab Sample ID: 240-84791-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.1		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.57		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.0		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: BSA-MW-3D-0917 — Lab Sample ID: 240-84791-5

This Detection Summary does not include radiochemical test results.

SSD 9/29/17

TestAmerica Canton

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-3D-0917 (Continued)

Lab Sample ID: 240-84791-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	590	D	20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	140	D	20		ug/L	20		8260B	Total/NA
Methane	160		0.50		ug/L	1		RSK-175	Total/NA
Ethane	0.60		0.50		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.3		0.010		mg/L	1		6010C	Total Recoverable
Chloride	220	D	5.0		mg/L	5		325.2-1978	Total/NA
Total Organic Carbon	5.5		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	750		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	30		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: BSA-MW-3D-F(0.2)-0917

Lab Sample ID: 240-84791-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.1		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: BSA-MW-3D-0917-EB

Lab Sample ID: 240-84791-7

No Detections.

Client Sample ID: CPA-MW-4D-0917

Lab Sample ID: 240-84791-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	150		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.9		1.0		ug/L	1		8260B	Total/NA
4-Chloroaniline	140		20		ug/L	1		8270D	Total/NA
Methane	12000	D	5.0		ug/L	10		RSK-175	Total/NA
Ethane	16		0.50		ug/L	1		RSK-175	Total/NA
Iron	17		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.44		0.010		mg/L	1		6010C	Total Recoverable
Chloride	220	D	5.0		mg/L	5		325.2-1978	Total/NA
Total Organic Carbon	8.0		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	680		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	26		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: CPA-MW-4D-F(0.2)-0917

Lab Sample ID: 240-84791-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	16		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.42		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.4		1.0		mg/L	1		415.1-1974	Dissolved

This Detection Summary does not include radiochemical test results.

SJD
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TestAmerica Canton

Detection Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-3D-0917 — Lab Sample ID: 240-84791-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	460	D	5.0		ug/L	5		8260B	Total/NA
1,4-Dichlorobenzene	7.4	D	5.0		ug/L	5		8260B	Total/NA
Methane	1900		0.50		ug/L	1		RSK-175	Total/NA
Ethane	6.9		0.50		ug/L	1		RSK-175	Total/NA
Iron	10		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.57		0.010		mg/L	1		6010C	Total Recoverable
Chloride	79	D	2.0		mg/L	2		325.2-1978	Total/NA
Total Organic Carbon	6.4		1.0		mg/L	1		415.1-1974	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	570		5.0		mg/L	1		310.1-1978	Total/NA
Carbon Dioxide, Free	17		5.0		mg/L	1		310.1-1978	Total/NA

Client Sample ID: CPA-MW-3D-F(0.2)-0917 — Lab Sample ID: 240-84791-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	9.6		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.55		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.7		1.0		mg/L	1		415.1-1974	Dissolved

Client Sample ID: CPA-MW-3D-0917-AD — Lab Sample ID: 240-84791-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	480	D	5.0		ug/L	5		8260B	Total/NA
1,4-Dichlorobenzene	7.1	D	5.0		ug/L	5		8260B	Total/NA

Client Sample ID: 3Q17 LTM TRIP BLANK #3 — Lab Sample ID: 240-84791-13

No Detections.

This Detection Summary does not include radiochemical test results.

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-5D-0917

Date Collected: 09/07/17 09:26
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.0	U	5.0		ug/L			09/19/17 12:57	5
Chlorobenzene	**110**	D	5.0		ug/L			09/19/17 12:57	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			09/19/17 12:57	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			09/19/17 12:57	5
1,4-Dichlorobenzene	5.0	U	5.0		ug/L			09/19/17 12:57	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/19/17 12:57*	*5*
1,2-Dichloroethane-d4 (Surr)	*104*		*73 - 131*		*09/19/17 12:57*	*5*
Dibromofluoromethane (Surr)	*104*		*80 - 122*		*09/19/17 12:57*	*5*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*09/19/17 12:57*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.8	U	9.8		ug/L		09/14/17 14:04	09/15/17 22:32	1
1,4-Dioxane	9.8	U	9.8		ug/L		09/14/17 14:04	09/15/17 22:32	1
2-Chlorophenol	9.8	U	9.8		ug/L		09/14/17 14:04	09/15/17 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*80*		*39 - 124*	*09/14/17 14:04*	*09/15/17 22:32*	*1*
2-Fluorobiphenyl	*68*		*32 - 113*	*09/14/17 14:04*	*09/15/17 22:32*	*1*
2-Fluorophenol	*62*		*26 - 109*	*09/14/17 14:04*	*09/15/17 22:32*	*1*
Terphenyl-d14	*36*		*10 - 126*	*09/14/17 14:04*	*09/15/17 22:32*	*1*
Phenol-d5	*65*		*27 - 110*	*09/14/17 14:04*	*09/15/17 22:32*	*1*
Nitrobenzene-d5	*60*		*32 - 118*	*09/14/17 14:04*	*09/15/17 22:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**5700**	D	2.5		ug/L			09/20/17 16:32	5
Ethane	**12**	D	2.5		ug/L			09/20/17 16:32	5
Ethylene	2.5	U	2.5		ug/L			09/20/17 16:32	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*86*		*76 - 121*		*09/20/17 16:32*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12**		0.050		mg/L		09/14/17 13:00	09/16/17 02:58	1
Manganese	**0.26**		0.010		mg/L		09/14/17 13:00	09/16/17 02:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**	D	5.0		mg/L			09/20/17 11:13	5
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:46	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:26	1
Total Organic Carbon	**8.3**		1.0		mg/L			09/21/17 02:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**660**		5.0		mg/L			09/14/17 20:29	1
Carbon Dioxide, Free	**19**		5.0		mg/L			09/14/17 20:29	1

SJD
9/29/17

TestAmerica Canton

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-5D-F(0.2)-0917
Date Collected: 09/07/17 09:26
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-2
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		09/14/17 13:44	09/16/17 04:37	1
Manganese, Dissolved	0.26		0.010		mg/L		09/14/17 13:44	09/16/17 04:37	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.2		1.0		mg/L			09/20/17 17:11	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-4D-0917

Date Collected: 09/07/17 12:20
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**22**	D	20		ug/L			09/18/17 19:25	20
Chlorobenzene	**2300**	D	20		ug/L			09/18/17 19:25	20
1,2-Dichlorobenzene	**29**	D	20		ug/L			09/18/17 19:25	20
1,3-Dichlorobenzene	20	U	20		ug/L			09/18/17 19:25	20
1,4-Dichlorobenzene	**97**	D	20		ug/L			09/18/17 19:25	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*09/18/17 19:25*	*20*
1,2-Dichloroethane-d4 (Surr)	*105*		*73 - 131*		*09/18/17 19:25*	*20*
Dibromofluoromethane (Surr)	*104*		*80 - 122*		*09/18/17 19:25*	*20*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*09/18/17 19:25*	*20*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.9	U	9.9		ug/L		09/14/17 14:04	09/15/17 22:56	1
1,4-Dioxane	**13**		9.9		ug/L		09/14/17 14:04	09/15/17 22:56	1
2-Chlorophenol	**16**		9.9		ug/L		09/14/17 14:04	09/15/17 22:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*76*		*39 - 124*	*09/14/17 14:04*	*09/15/17 22:56*	*1*
2-Fluorobiphenyl	*63*		*32 - 113*	*09/14/17 14:04*	*09/15/17 22:56*	*1*
2-Fluorophenol	*60*		*26 - 109*	*09/14/17 14:04*	*09/15/17 22:56*	*1*
Terphenyl-d14	*33*		*10 - 126*	*09/14/17 14:04*	*09/15/17 22:56*	*1*
Phenol-d5	*61*		*27 - 110*	*09/14/17 14:04*	*09/15/17 22:56*	*1*
Nitrobenzene-d5	*58*		*32 - 118*	*09/14/17 14:04*	*09/15/17 22:56*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**56**		0.50		ug/L			09/19/17 17:41	1
Ethane	**2.8**		0.50		ug/L			09/19/17 17:41	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*84*		*76 - 121*		*09/19/17 17:41*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**8.2**		0.050		mg/L		09/14/17 13:00	09/16/17 03:31	1
Manganese	**0.59**		0.010		mg/L		09/14/17 13:00	09/16/17 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**330**	D	10		mg/L			09/20/17 12:20	10
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:51	1
Sulfate	**120**	D	25		mg/L			09/16/17 14:36	5
Total Organic Carbon	**4.9**		1.0		mg/L			09/21/17 02:21	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**560**		5.0		mg/L			09/14/17 20:54	1
Carbon Dioxide, Free	**17**		5.0		mg/L			09/14/17 20:54	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-4D-F(0.2)-0917
Date Collected: 09/07/17 12:20
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.1		0.050		mg/L		09/14/17 13:44	09/16/17 05:10	1
Manganese, Dissolved	0.57		0.010		mg/L		09/14/17 13:44	09/16/17 05:10	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.0		1.0		mg/L			09/20/17 17:27	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-3D-0917

Date Collected: 09/07/17 13:40
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-5

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			09/18/17 15:47	20
Chlorobenzene	**590**	D	20		ug/L			09/18/17 15:47	20
1,2-Dichlorobenzene	20	U	20		ug/L			09/18/17 15:47	20
1,3-Dichlorobenzene	20	U	20		ug/L			09/18/17 15:47	20
1,4-Dichlorobenzene	**140**	D	20		ug/L			09/18/17 15:47	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*09/18/17 15:47*	*20*
1,2-Dichloroethane-d4 (Surr)	*108*		*73 - 131*		*09/18/17 15:47*	*20*
Dibromofluoromethane (Surr)	*106*		*80 - 122*		*09/18/17 15:47*	*20*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*09/18/17 15:47*	*20*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	10	U	10		ug/L		09/14/17 14:04	09/15/17 23:20	1
1,4-Dioxane	10	U	10		ug/L		09/14/17 14:04	09/15/17 23:20	1
2-Chlorophenol	10	U	10		ug/L		09/14/17 14:04	09/15/17 23:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*77*		*39 - 124*	*09/14/17 14:04*	*09/15/17 23:20*	*1*
2-Fluorobiphenyl	*64*		*32 - 113*	*09/14/17 14:04*	*09/15/17 23:20*	*1*
2-Fluorophenol	*56*		*26 - 109*	*09/14/17 14:04*	*09/15/17 23:20*	*1*
Terphenyl-d14	*27*		*10 - 126*	*09/14/17 14:04*	*09/15/17 23:20*	*1*
Phenol-d5	*57*		*27 - 110*	*09/14/17 14:04*	*09/15/17 23:20*	*1*
Nitrobenzene-d5	*58*		*32 - 118*	*09/14/17 14:04*	*09/15/17 23:20*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**160**		0.50		ug/L			09/19/17 17:58	1
Ethane	**0.60**		0.50		ug/L			09/19/17 17:58	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*83*		*76 - 121*		*09/19/17 17:58*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12**		0.050		mg/L		09/14/17 13:00	09/16/17 03:36	1
Manganese	**2.3**		0.010		mg/L		09/14/17 13:00	09/16/17 03:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**	D	5.0		mg/L			09/20/17 11:13	5
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:52	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:26	1
Total Organic Carbon	**5.5**		1.0		mg/L			09/21/17 02:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**750**		5.0		mg/L			09/14/17 20:17	1
Carbon Dioxide, Free	**30**		5.0		mg/L			09/14/17 20:17	1

SJD
9/20/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-3D-F(0.2)-0917
Date Collected: 09/07/17 13:40
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-6
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		09/14/17 13:44	09/16/17 05:15	1
Manganese, Dissolved	2.3		0.010		mg/L		09/14/17 13:44	09/16/17 05:15	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.1		1.0		mg/L			09/20/17 17:44	1

SSD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-3D-0917-EB

Date Collected: 09/07/17 14:30
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-7

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			09/18/17 16:30	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:30	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:30	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:30	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*09/18/17 16:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/18/17 16:30*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 122*		*09/18/17 16:30*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 16:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.9	U	9.9		ug/L		09/14/17 14:04	09/15/17 23:44	1
2-Chlorophenol	9.9	U	9.9		ug/L		09/14/17 14:04	09/15/17 23:44	1
4-Chloroaniline	20	U	20		ug/L		09/14/17 14:04	09/15/17 23:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*67*		*39 - 124*	*09/14/17 14:04*	*09/15/17 23:44*	*1*
2-Fluorobiphenyl	*51*		*32 - 113*	*09/14/17 14:04*	*09/15/17 23:44*	*1*
2-Fluorophenol	*47*		*26 - 109*	*09/14/17 14:04*	*09/15/17 23:44*	*1*
Terphenyl-d14	*42*		*10 - 126*	*09/14/17 14:04*	*09/15/17 23:44*	*1*
Phenol-d5	*46*		*27 - 110*	*09/14/17 14:04*	*09/15/17 23:44*	*1*
Nitrobenzene-d5	*46*		*32 - 118*	*09/14/17 14:04*	*09/15/17 23:44*	*1*

SSD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-4D-0917

Date Collected: 09/07/17 10:45
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-8

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			09/18/17 16:52	1
Chlorobenzene	**150**		1.0		ug/L			09/18/17 16:52	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:52	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 16:52	1
1,4-Dichlorobenzene	**1.9**		1.0		ug/L			09/18/17 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/18/17 16:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*73 - 131*		*09/18/17 16:52*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 122*		*09/18/17 16:52*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 16:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	10	U	10		ug/L		09/14/17 14:04	09/16/17 00:08	1
2-Chlorophenol	10	U	10		ug/L		09/14/17 14:04	09/16/17 00:08	1
4-Chloroaniline	**140**		20		ug/L		09/14/17 14:04	09/16/17 00:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*39 - 124*	*09/14/17 14:04*	*09/16/17 00:08*	*1*
2-Fluorobiphenyl	*68*		*32 - 113*	*09/14/17 14:04*	*09/16/17 00:08*	*1*
2-Fluorophenol	*57*		*26 - 109*	*09/14/17 14:04*	*09/16/17 00:08*	*1*
Terphenyl-d14	*50*		*10 - 126*	*09/14/17 14:04*	*09/16/17 00:08*	*1*
Phenol-d5	*64*		*27 - 110*	*09/14/17 14:04*	*09/16/17 00:08*	*1*
Nitrobenzene-d5	*59*		*32 - 118*	*09/14/17 14:04*	*09/16/17 00:08*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**12000**	D	5.0		ug/L			09/20/17 16:50	10
Ethane	**16**		0.50		ug/L			09/19/17 18:15	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*80*		*76 - 121*		*09/19/17 18:15*	*1*
1,1,1-Trifluoroethane	*84*		*76 - 121*		*09/20/17 16:50*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**17**		0.050		mg/L		09/14/17 13:00	09/16/17 03:40	1
Manganese	**0.44**		0.010		mg/L		09/14/17 13:00	09/16/17 03:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**	D	5.0		mg/L			09/20/17 11:13	5
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:53	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:26	1
Total Organic Carbon	**8.0**		1.0		mg/L			09/21/17 03:01	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**680**		5.0		mg/L			09/14/17 18:42	1
Carbon Dioxide, Free	**26**		5.0		mg/L			09/14/17 18:42	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-4D-F(0.2)-0917
Date Collected: 09/07/17 10:45
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-9
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	16		0.050		mg/L		09/14/17 13:44	09/16/17 05:20	1
Manganese, Dissolved	0.42		0.010		mg/L		09/14/17 13:44	09/16/17 05:20	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.4		1.0		mg/L			09/20/17 18:12	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-3D-0917

Date Collected: 09/07/17 15:17
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-10

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.0	U	5.0		ug/L			09/18/17 16:12	5
Chlorobenzene	**460**	D	5.0		ug/L			09/18/17 16:12	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			09/18/17 16:12	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			09/18/17 16:12	5
1,4-Dichlorobenzene	**7.4**	D	5.0		ug/L			09/18/17 16:12	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/18/17 16:12*	*5*
1,2-Dichloroethane-d4 (Surr)	*107*		*73 - 131*		*09/18/17 16:12*	*5*
Dibromofluoromethane (Surr)	*107*		*80 - 122*		*09/18/17 16:12*	*5*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/18/17 16:12*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.7	U	9.7		ug/L		09/14/17 14:04	09/16/17 00:32	1
2-Chlorophenol	9.7	U	9.7		ug/L		09/14/17 14:04	09/16/17 00:32	1
4-Chloroaniline	19	U	19		ug/L		09/14/17 14:04	09/16/17 00:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*75*		*39 - 124*	*09/14/17 14:04*	*09/16/17 00:32*	*1*
2-Fluorobiphenyl	*61*		*32 - 113*	*09/14/17 14:04*	*09/16/17 00:32*	*1*
2-Fluorophenol	*56*		*26 - 109*	*09/14/17 14:04*	*09/16/17 00:32*	*1*
Terphenyl-d14	*23*		*10 - 126*	*09/14/17 14:04*	*09/16/17 00:32*	*1*
Phenol-d5	*58*		*27 - 110*	*09/14/17 14:04*	*09/16/17 00:32*	*1*
Nitrobenzene-d5	*59*		*32 - 118*	*09/14/17 14:04*	*09/16/17 00:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1900**		0.50		ug/L			09/19/17 18:32	1
Ethane	**6.9**		0.50		ug/L			09/19/17 18:32	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*82*		*76 - 121*		*09/19/17 18:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**10**		0.050		mg/L		09/14/17 13:00	09/16/17 03:45	1
Manganese	**0.57**		0.010		mg/L		09/14/17 13:00	09/16/17 03:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**79**	D	2.0		mg/L			09/20/17 11:13	2
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:54	1
Sulfate	5.0	U	5.0		mg/L			09/16/17 14:26	1
Total Organic Carbon	**6.4**		1.0		mg/L			09/21/17 03:18	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**570**		5.0		mg/L			09/14/17 20:04	1
Carbon Dioxide, Free	**17**		5.0		mg/L			09/14/17 20:04	1

SJD
9/29/17

TestAmerica Canton

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-3D-F(0.2)-0917
Date Collected: 09/07/17 15:17
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-11
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	9.6		0.050		mg/L		09/14/17 13:44	09/16/17 05:25	1
Manganese, Dissolved	0.55		0.010		mg/L		09/14/17 13:44	09/16/17 05:25	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.7		1.0		mg/L			09/20/17 18:32	1

SJD
9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-3D-0917-AD

Date Collected: 09/07/17 15:17
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-12

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.0	U	5.0		ug/L			09/18/17 16:36	5
Chlorobenzene	**480**	D	5.0		ug/L			09/18/17 16:36	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			09/18/17 16:36	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			09/18/17 16:36	5
1,4-Dichlorobenzene	**7.1**	D	5.0		ug/L			09/18/17 16:36	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*09/18/17 16:36*	*5*
1,2-Dichloroethane-d4 (Surr)	*108*		*73 - 131*		*09/18/17 16:36*	*5*
Dibromofluoromethane (Surr)	*108*		*80 - 122*		*09/18/17 16:36*	*5*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/18/17 16:36*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	9.5	U	9.5		ug/L		09/14/17 14:04	09/16/17 00:56	1
2-Chlorophenol	9.5	U	9.5		ug/L		09/14/17 14:04	09/16/17 00:56	1
4-Chloroaniline	19	U	19		ug/L		09/14/17 14:04	09/16/17 00:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*77*		*39 - 124*	*09/14/17 14:04*	*09/16/17 00:56*	*1*
2-Fluorobiphenyl	*63*		*32 - 113*	*09/14/17 14:04*	*09/16/17 00:56*	*1*
2-Fluorophenol	*59*		*26 - 109*	*09/14/17 14:04*	*09/16/17 00:56*	*1*
Terphenyl-d14	*26*		*10 - 126*	*09/14/17 14:04*	*09/16/17 00:56*	*1*
Phenol-d5	*63*		*27 - 110*	*09/14/17 14:04*	*09/16/17 00:56*	*1*
Nitrobenzene-d5	*58*		*32 - 118*	*09/14/17 14:04*	*09/16/17 00:56*	*1*

SJD 9/29/17

Client Sample Results

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: 3Q17 LTM TRIP BLANK #3

Date Collected: 09/07/17 00:00
Date Received: 09/09/17 09:30

Lab Sample ID: 240-84791-13

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			09/18/17 12:31	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:31	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:31	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:31	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*09/18/17 12:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/18/17 12:31*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 122*		*09/18/17 12:31*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/18/17 12:31*	*1*

SJD
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TestAmerica Canton

Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

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	(80-120)	(73-131)	(80-122)	(80-120)
240-84791-1	BSA-MW-5D-0917	100	104	104	97
240-84791-1 MS	BSA-MW-5D-0917	110	113	111	97
240-84791-1 MSD	BSA-MW-5D-0917	101	98	99	95
240-84791-3	BSA-MW-4D-0917	102	105	104	103
240-84791-5	BSA-MW-3D-0917	101	108	106	99
240-84791-7	BSA-MW-3D-0917-EB	101	90	96	102
240-84791-8	CPA-MW-4D-0917	104	89	93	102
240-84791-10	CPA-MW-3D-0917	100	107	107	98
240-84791-12	CPA-MW-3D-0917-AD	102	108	108	98
240-84791-13	3Q17 LTM TRIP BLANK #3	106	90	95	104
LCS 680-494993/3	Lab Control Sample	106	90	95	99
LCS 680-494998/3	Lab Control Sample	102	96	99	95
LCS 680-495121/4	Lab Control Sample	102	103	101	95
LCSD 680-494993/4	Lab Control Sample Dup	105	90	95	99
LCSD 680-494998/4	Lab Control Sample Dup	101	98	99	95
LCSD 680-495121/5	Lab Control Sample Dup	102	103	103	96
MB 680-494993/8	Method Blank	100	90	94	102
MB 680-494998/8	Method Blank	99	92	97	95
MB 680-495121/9	Method Blank	99	90	97	98

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)					
		TBP	FBP	2FP	TPH	PHL	NBZ
Lab Sample ID	Client Sample ID	(39-124)	(32-113)	(26-109)	(10-126)	(27-110)	(32-118)
240-84791-1	BSA-MW-5D-0917	80	68	62	36	65	60
240-84791-1 MS	BSA-MW-5D-0917	86	70	59	54	64	63
240-84791-1 MSD	BSA-MW-5D-0917	76	59	52	32	55	55
240-84791-3	BSA-MW-4D-0917	76	63	60	33	61	58
240-84791-5	BSA-MW-3D-0917	77	64	56	27	57	58
240-84791-7	BSA-MW-3D-0917-EB	67	51	47	42	46	46
240-84791-8	CPA-MW-4D-0917	82	68	57	50	64	59
240-84791-10	CPA-MW-3D-0917	75	61	56	23	58	59
240-84791-12	CPA-MW-3D-0917-AD	77	63	59	26	63	58
LCS 680-494731/19-A	Lab Control Sample	78	63	52	68	56	58
MB 680-494731/18-A	Method Blank	82	60	57	79	58	58

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
TPH = Terphenyl-d14
PHL = Phenol-d5

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Surrogate Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

NBZ = Nitrobenzene-d5

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	rifluoroet (76-121)
240-84791-1	BSA-MW-5D-0917	86
240-84791-3	BSA-MW-4D-0917	84
240-84791-5	BSA-MW-3D-0917	83
240-84791-8	CPA-MW-4D-0917	80
240-84791-8	CPA-MW-4D-0917	84
240-84791-10	CPA-MW-3D-0917	82
LCS 240-295392/5	Lab Control Sample	87
LCS 240-295550/5	Lab Control Sample	82
LCSD 240-295392/6	Lab Control Sample Dup	84
LCSD 240-295550/6	Lab Control Sample Dup	79
MB 240-295392/4	Method Blank	91
MB 240-295550/4	Method Blank	84

Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

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

Lab Sample ID: MB 680-494993/8
Matrix: Water
Analysis Batch: 494993

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			09/18/17 11:45	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 11:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/18/17 11:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/18/17 11:45*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 122*		*09/18/17 11:45*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/18/17 11:45*	*1*

Lab Sample ID: LCS 680-494993/3
Matrix: Water
Analysis Batch: 494993

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	44.7		ug/L		89	80 - 120
Chlorobenzene	50.0	46.7		ug/L		93	80 - 120
1,2-Dichlorobenzene	50.0	48.3		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120
1,4-Dichlorobenzene	50.0	47.1		ug/L		94	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*
Dibromofluoromethane (Surr)	*95*		*80 - 122*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 680-494993/4
Matrix: Water
Analysis Batch: 494993

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	44.3		ug/L		89	80 - 120	1	20
Chlorobenzene	50.0	46.1		ug/L		92	80 - 120	1	20
1,2-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120	0	20
1,3-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120	1	20
1,4-Dichlorobenzene	50.0	47.7		ug/L		95	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*
Dibromofluoromethane (Surr)	*95*		*80 - 122*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

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

Lab Sample ID: MB 680-494998/8
Matrix: Water
Analysis Batch: 494998

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			09/18/17 12:03	1
Chlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:03	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:03	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:03	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/18/17 12:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/18/17 12:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*73 - 131*		*09/18/17 12:03*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 122*		*09/18/17 12:03*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*09/18/17 12:03*	*1*

Lab Sample ID: LCS 680-494998/3
Matrix: Water
Analysis Batch: 494998

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	51.5		ug/L		103	80 - 120
Chlorobenzene	50.0	49.6		ug/L		99	80 - 120
1,2-Dichlorobenzene	50.0	48.4		ug/L		97	80 - 120
1,3-Dichlorobenzene	50.0	49.6		ug/L		99	80 - 120
1,4-Dichlorobenzene	50.0	50.1		ug/L		100	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*73 - 131*
Dibromofluoromethane (Surr)	*99*		*80 - 122*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

Lab Sample ID: LCSD 680-494998/4
Matrix: Water
Analysis Batch: 494998

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	50.9		ug/L		102	80 - 120	1	20
Chlorobenzene	50.0	49.4		ug/L		99	80 - 120	0	20
1,2-Dichlorobenzene	50.0	48.4		ug/L		97	80 - 120	0	20
1,3-Dichlorobenzene	50.0	49.9		ug/L		100	80 - 120	1	20
1,4-Dichlorobenzene	50.0	49.8		ug/L		100	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*73 - 131*
Dibromofluoromethane (Surr)	*99*		*80 - 122*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

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

Lab Sample ID: MB 680-495121/9
Matrix: Water
Analysis Batch: 495121

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			09/19/17 11:29	1
Chlorobenzene	1.0	U	1.0		ug/L			09/19/17 11:29	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			09/19/17 11:29	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			09/19/17 11:29	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			09/19/17 11:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/19/17 11:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*73 - 131*		*09/19/17 11:29*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 122*		*09/19/17 11:29*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*09/19/17 11:29*	*1*

Lab Sample ID: LCS 680-495121/4
Matrix: Water
Analysis Batch: 495121

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	51.9		ug/L		104	80 - 120
Chlorobenzene	50.0	49.5		ug/L		99	80 - 120
1,2-Dichlorobenzene	50.0	49.6		ug/L		99	80 - 120
1,3-Dichlorobenzene	50.0	50.1		ug/L		100	80 - 120
1,4-Dichlorobenzene	50.0	50.5		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*73 - 131*
Dibromofluoromethane (Surr)	*101*		*80 - 122*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

Lab Sample ID: LCSD 680-495121/5
Matrix: Water
Analysis Batch: 495121

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	51.8		ug/L		104	80 - 120	0	20
Chlorobenzene	50.0	49.3		ug/L		99	80 - 120	0	20
1,2-Dichlorobenzene	50.0	49.4		ug/L		99	80 - 120	0	20
1,3-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120	2	20
1,4-Dichlorobenzene	50.0	50.8		ug/L		102	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*73 - 131*
Dibromofluoromethane (Surr)	*103*		*80 - 122*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*

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

Lab Sample ID: 240-84791-1 MS
Matrix: Water
Analysis Batch: 495121

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	5.0	U	250	278		ug/L		111	80 - 120
Chlorobenzene	110		250	372		ug/L		104	80 - 120
1,2-Dichlorobenzene	5.0	U	250	255		ug/L		102	80 - 120
1,3-Dichlorobenzene	5.0	U	250	251		ug/L		100	80 - 120
1,4-Dichlorobenzene	5.0	U	250	254		ug/L		102	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*110*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 131*
Dibromofluoromethane (Surr)	*111*		*80 - 122*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: 240-84791-1 MSD
Matrix: Water
Analysis Batch: 495121

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	5.0	U	250	255		ug/L		102	80 - 120	9	20
Chlorobenzene	110		250	350		ug/L		95	80 - 120	6	20
1,2-Dichlorobenzene	5.0	U	250	245		ug/L		98	80 - 120	4	20
1,3-Dichlorobenzene	5.0	U	250	244		ug/L		97	80 - 120	3	20
1,4-Dichlorobenzene	5.0	U	250	249		ug/L		99	80 - 120	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*73 - 131*
Dibromofluoromethane (Surr)	*99*		*80 - 122*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

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

Lab Sample ID: MB 680-494731/18-A
Matrix: Water
Analysis Batch: 494934

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 494731

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1
1,4-Dioxane	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1
2-Chlorophenol	10	U	10		ug/L		09/14/17 14:04	09/15/17 19:45	1
4-Chloroaniline	20	U	20		ug/L		09/14/17 14:04	09/15/17 19:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*82*		*39 - 124*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
2-Fluorobiphenyl	*60*		*32 - 113*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
2-Fluorophenol	*57*		*26 - 109*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
Terphenyl-d14	*79*		*10 - 126*	*09/14/17 14:04*	*09/15/17 19:45*	*1*
Phenol-d5	*58*		*27 - 110*	*09/14/17 14:04*	*09/15/17 19:45*	*1*

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

Lab Sample ID: MB 680-494731/18-A
Matrix: Water
Analysis Batch: 494934

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 494731

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	58		32 - 118	09/14/17 14:04	09/15/17 19:45	1

Lab Sample ID: LCS 680-494731/19-A
Matrix: Water
Analysis Batch: 494934

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494731

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	100	60.0		ug/L		60	33 - 130
1,4-Dioxane	100	45.8		ug/L		46	22 - 130
2-Chlorophenol	100	62.2		ug/L		62	39 - 130
4-Chloroaniline	100	55.7		ug/L		56	42 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	78		39 - 124
2-Fluorobiphenyl	63		32 - 113
2-Fluorophenol	52		26 - 109
Terphenyl-d14	68		10 - 126
Phenol-d5	56		27 - 110
Nitrobenzene-d5	58		32 - 118

Lab Sample ID: 240-84791-1 MS
Matrix: Water
Analysis Batch: 494934

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total/NA
Prep Batch: 494731

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	9.8	U	96.0	60.1		ug/L		63	33 - 130
1,4-Dioxane	9.8	U	96.0	49.9		ug/L		52	22 - 130
2-Chlorophenol	9.8	U	96.0	67.2		ug/L		69	39 - 130
4-Chloroaniline	54	F1	96.0	68.1	F1	ug/L		14	42 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol	86		39 - 124
2-Fluorobiphenyl	70		32 - 113
2-Fluorophenol	59		26 - 109
Terphenyl-d14	54		10 - 126
Phenol-d5	64		27 - 110
Nitrobenzene-d5	63		32 - 118

Lab Sample ID: 240-84791-1 MSD
Matrix: Water
Analysis Batch: 494934

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total/NA
Prep Batch: 494731

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	9.8	U	97.2	56.2		ug/L		58	33 - 130	7	50
1,4-Dioxane	9.8	U	97.2	44.4		ug/L		46	22 - 130	12	50
2-Chlorophenol	9.8	U	97.2	62.6		ug/L		63	39 - 130	7	50
4-Chloroaniline	54	F1	97.2	60.0	F1	ug/L		6	42 - 130	13	50

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

Lab Sample ID: 240-84791-1 MSD
Matrix: Water
Analysis Batch: 494934

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total/NA
Prep Batch: 494731

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*76*		*39 - 124*
2-Fluorobiphenyl	*59*		*32 - 113*
2-Fluorophenol	*52*		*26 - 109*
Terphenyl-d14	*32*		*10 - 126*
Phenol-d5	*55*		*27 - 110*
Nitrobenzene-d5	*55*		*32 - 118*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-295392/4
Matrix: Water
Analysis Batch: 295392

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/19/17 14:13	1
Ethane	0.50	U	0.50		ug/L			09/19/17 14:13	1
Ethylene	0.50	U	0.50		ug/L			09/19/17 14:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*91*		*76 - 121*		*09/19/17 14:13*	*1*

Lab Sample ID: LCS 240-295392/5
Matrix: Water
Analysis Batch: 295392

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	201		ug/L		101	80 - 130
Ethane	374	398		ug/L		107	76 - 131
Ethylene	349	371		ug/L		106	79 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*87*		*76 - 121*

Lab Sample ID: LCSD 240-295392/6
Matrix: Water
Analysis Batch: 295392

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	199	197		ug/L		99	80 - 130	2	35
Ethane	374	390		ug/L		104	76 - 131	2	35
Ethylene	349	362		ug/L		104	79 - 132	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*84*		*76 - 121*

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

Lab Sample ID: MB 240-295550/4
Matrix: Water
Analysis Batch: 295550

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.50	U	0.50		ug/L			09/20/17 14:48	1
Ethane	0.50	U	0.50		ug/L			09/20/17 14:48	1
Ethylene	0.50	U	0.50		ug/L			09/20/17 14:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*84*		*76 - 121*		*09/20/17 14:48*	*1*

Lab Sample ID: LCS 240-295550/5
Matrix: Water
Analysis Batch: 295550

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	198		ug/L		100	80 - 130
Ethane	374	386		ug/L		103	76 - 131
Ethylene	349	360		ug/L		103	79 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*82*		*76 - 121*

Lab Sample ID: LCSD 240-295550/6
Matrix: Water
Analysis Batch: 295550

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	199	199		ug/L		100	80 - 130	1	35
Ethane	374	389		ug/L		104	76 - 131	1	35
Ethylene	349	354		ug/L		102	79 - 132	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*79*		*76 - 121*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-494735/1-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		09/14/17 12:59	09/16/17 02:49	1
Manganese	0.010	U	0.010		mg/L		09/14/17 12:59	09/16/17 02:49	1

Lab Sample ID: LCS 680-494735/2-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.44		mg/L		109	80 - 120

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

Lab Sample ID: LCS 680-494735/2-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	0.500	0.548		mg/L		110	80 - 120

Lab Sample ID: 240-84791-1 MS
Matrix: Water
Analysis Batch: 495053

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	12		5.00	17.1		mg/L		107	75 - 125
Manganese	0.26		0.500	0.800		mg/L		108	75 - 125

Lab Sample ID: 240-84791-1 MSD
Matrix: Water
Analysis Batch: 495053

Client Sample ID: BSA-MW-5D-0917
Prep Type: Total Recoverable
Prep Batch: 494735

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	12		5.00	16.9		mg/L		103	75 - 125	1	20
Manganese	0.26		0.500	0.790		mg/L		106	75 - 125	1	20

Lab Sample ID: MB 680-494750/1-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 494750

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		09/14/17 13:44	09/16/17 04:28	1
Manganese, Dissolved	0.010	U	0.010		mg/L		09/14/17 13:44	09/16/17 04:28	1

Lab Sample ID: LCS 680-494750/2-A
Matrix: Water
Analysis Batch: 495053

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 494750

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	5.00	5.44		mg/L		109	80 - 120
Manganese, Dissolved	0.500	0.546		mg/L		109	80 - 120

Lab Sample ID: 240-84791-2 MS
Matrix: Water
Analysis Batch: 495053

Client Sample ID: BSA-MW-5D-F(0.2)-0917
Prep Type: Dissolved
Prep Batch: 494750

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	12		5.00	17.2		mg/L		110	75 - 125
Manganese, Dissolved	0.26		0.500	0.805		mg/L		109	75 - 125

Lab Sample ID: 240-84791-2 MSD
Matrix: Water
Analysis Batch: 495053

Client Sample ID: BSA-MW-5D-F(0.2)-0917
Prep Type: Dissolved
Prep Batch: 494750

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	12		5.00	17.1		mg/L		107	75 - 125	1	20
Manganese, Dissolved	0.26		0.500	0.800		mg/L		108	75 - 125	1	20

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Method: 310.1-1978 - Alkalinity

Lab Sample ID: MB 680-494830/7
Matrix: Water
Analysis Batch: 494830

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			09/14/17 17:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			09/14/17 17:53	1

Lab Sample ID: LCS 680-494830/8
Matrix: Water
Analysis Batch: 494830

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	260		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-494830/34
Matrix: Water
Analysis Batch: 494830

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	264		mg/L		106	80 - 120	1	30

Method: 325.2-1978 - Chloride

Lab Sample ID: MB 680-495356/17
Matrix: Water
Analysis Batch: 495356

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			09/20/17 10:56	1

Lab Sample ID: LCS 680-495356/18
Matrix: Water
Analysis Batch: 495356

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	26.9		mg/L		108	85 - 115

Lab Sample ID: LCSD 680-495356/20
Matrix: Water
Analysis Batch: 495356

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
Chloride	25.0	26.9		mg/L		108	85 - 115	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 240-294909/4
Matrix: Water
Analysis Batch: 294909

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.050	U	0.050		mg/L			09/14/17 14:37	1

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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 240-294909/5
Matrix: Water
Analysis Batch: 294909

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.22	1.23		mg/L		101	90 - 110

Method: 375.4-1978 - Sulfate

Lab Sample ID: MB 680-495124/4
Matrix: Water
Analysis Batch: 495124

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			09/16/17 14:09	1

Lab Sample ID: LCS 680-495124/5
Matrix: Water
Analysis Batch: 495124

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

Lab Sample ID: LCSD 680-495124/7
Matrix: Water
Analysis Batch: 495124

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
Sulfate	20.0	20.1		mg/L		100	75 - 125	1	30

Method: 415.1-1974 - DOC

Lab Sample ID: MB 680-495462/2
Matrix: Water
Analysis Batch: 495462

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			09/20/17 08:10	1

Lab Sample ID: LCS 680-495462/4
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	20.0		mg/L		100	80 - 120

Lab Sample ID: LCSD 680-495462/5
Matrix: Water
Analysis Batch: 495462

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	20.0	19.8		mg/L		99	80 - 120	1	20

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Method: 415.1-1974 - TOC

Lab Sample ID: MB 680-495460/2
Matrix: Water
Analysis Batch: 495460

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			09/20/17 20:13	1

Lab Sample ID: LCS 680-495460/3
Matrix: Water
Analysis Batch: 495460

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	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: LCSD 680-495460/4
Matrix: Water
Analysis Batch: 495460

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
Total Organic Carbon	20.0	21.0		mg/L		105	80 - 120	1	25

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GC/MS VOA

Analysis Batch: 494993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	8260B	
240-84791-7	BSA-MW-3D-0917-EB	Total/NA	Water	8260B	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	8260B	
240-84791-13	3Q17 LTM TRIP BLANK #3	Total/NA	Water	8260B	
MB 680-494993/8	Method Blank	Total/NA	Water	8260B	
LCS 680-494993/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494993/4	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 494998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	8260B	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	8260B	
240-84791-12	CPA-MW-3D-0917-AD	Total/NA	Water	8260B	
MB 680-494998/8	Method Blank	Total/NA	Water	8260B	
LCS 680-494998/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-494998/4	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 495121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	8260B	
MB 680-495121/9	Method Blank	Total/NA	Water	8260B	
LCS 680-495121/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-495121/5	Lab Control Sample Dup	Total/NA	Water	8260B	
240-84791-1 MS	BSA-MW-5D-0917	Total/NA	Water	8260B	
240-84791-1 MSD	BSA-MW-5D-0917	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 494731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	3520C	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	3520C	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	3520C	
240-84791-7	BSA-MW-3D-0917-EB	Total/NA	Water	3520C	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	3520C	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	3520C	
240-84791-12	CPA-MW-3D-0917-AD	Total/NA	Water	3520C	
MB 680-494731/18-A	Method Blank	Total/NA	Water	3520C	
LCS 680-494731/19-A	Lab Control Sample	Total/NA	Water	3520C	
240-84791-1 MS	BSA-MW-5D-0917	Total/NA	Water	3520C	
240-84791-1 MSD	BSA-MW-5D-0917	Total/NA	Water	3520C	

Analysis Batch: 494934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	8270D	494731
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	8270D	494731
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	8270D	494731
240-84791-7	BSA-MW-3D-0917-EB	Total/NA	Water	8270D	494731
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	8270D	494731
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	8270D	494731

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GC/MS Semi VOA (Continued)

Analysis Batch: 494934 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-12	CPA-MW-3D-0917-AD	Total/NA	Water	8270D	494731
MB 680-494731/18-A	Method Blank	Total/NA	Water	8270D	494731
LCS 680-494731/19-A	Lab Control Sample	Total/NA	Water	8270D	494731
240-84791-1 MS	BSA-MW-5D-0917	Total/NA	Water	8270D	494731
240-84791-1 MSD	BSA-MW-5D-0917	Total/NA	Water	8270D	494731

GC VOA

Analysis Batch: 295392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	RSK-175	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	RSK-175	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	RSK-175	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	RSK-175	
MB 240-295392/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295392/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-295392/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 295550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	RSK-175	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	RSK-175	
MB 240-295550/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-295550/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-295550/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 494735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total Recoverable	Water	3005A	
240-84791-3	BSA-MW-4D-0917	Total Recoverable	Water	3005A	
240-84791-5	BSA-MW-3D-0917	Total Recoverable	Water	3005A	
240-84791-8	CPA-MW-4D-0917	Total Recoverable	Water	3005A	
240-84791-10	CPA-MW-3D-0917	Total Recoverable	Water	3005A	
MB 680-494735/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494735/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-84791-1 MS	BSA-MW-5D-0917	Total Recoverable	Water	3005A	
240-84791-1 MSD	BSA-MW-5D-0917	Total Recoverable	Water	3005A	

Prep Batch: 494750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-2	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	3005A	
240-84791-4	BSA-MW-4D-F(0.2)-0917	Dissolved	Water	3005A	
240-84791-6	BSA-MW-3D-F(0.2)-0917	Dissolved	Water	3005A	
240-84791-9	CPA-MW-4D-F(0.2)-0917	Dissolved	Water	3005A	
240-84791-11	CPA-MW-3D-F(0.2)-0917	Dissolved	Water	3005A	
MB 680-494750/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 680-494750/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-84791-2 MS	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	3005A	

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Metals (Continued)

Prep Batch: 494750 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-2 MSD	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	3005A	

Analysis Batch: 495053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total Recoverable	Water	6010C	494735
240-84791-2	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84791-3	BSA-MW-4D-0917	Total Recoverable	Water	6010C	494735
240-84791-4	BSA-MW-4D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84791-5	BSA-MW-3D-0917	Total Recoverable	Water	6010C	494735
240-84791-6	BSA-MW-3D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84791-8	CPA-MW-4D-0917	Total Recoverable	Water	6010C	494735
240-84791-9	CPA-MW-4D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84791-10	CPA-MW-3D-0917	Total Recoverable	Water	6010C	494735
240-84791-11	CPA-MW-3D-F(0.2)-0917	Dissolved	Water	6010C	494750
MB 680-494735/1-A	Method Blank	Total Recoverable	Water	6010C	494735
MB 680-494750/1-A	Method Blank	Total Recoverable	Water	6010C	494750
LCS 680-494735/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494735
LCS 680-494750/2-A	Lab Control Sample	Total Recoverable	Water	6010C	494750
240-84791-1 MS	BSA-MW-5D-0917	Total Recoverable	Water	6010C	494735
240-84791-1 MSD	BSA-MW-5D-0917	Total Recoverable	Water	6010C	494735
240-84791-2 MS	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	6010C	494750
240-84791-2 MSD	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	6010C	494750

General Chemistry

Analysis Batch: 294909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	353.2	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	353.2	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	353.2	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	353.2	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	353.2	
MB 240-294909/4	Method Blank	Total/NA	Water	353.2	
LCS 240-294909/5	Lab Control Sample	Total/NA	Water	353.2	

Analysis Batch: 494830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	310.1-1978	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	310.1-1978	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	310.1-1978	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	310.1-1978	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	310.1-1978	
MB 680-494830/7	Method Blank	Total/NA	Water	310.1-1978	
LCS 680-494830/8	Lab Control Sample	Total/NA	Water	310.1-1978	
LCSD 680-494830/34	Lab Control Sample Dup	Total/NA	Water	310.1-1978	

Analysis Batch: 495124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	375.4-1978	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	375.4-1978	

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General Chemistry (Continued)

Analysis Batch: 495124 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	375.4-1978	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	375.4-1978	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	375.4-1978	
MB 680-495124/4	Method Blank	Total/NA	Water	375.4-1978	
LCS 680-495124/5	Lab Control Sample	Total/NA	Water	375.4-1978	
LCSD 680-495124/7	Lab Control Sample Dup	Total/NA	Water	375.4-1978	

Analysis Batch: 495356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	325.2-1978	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	325.2-1978	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	325.2-1978	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	325.2-1978	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	325.2-1978	
MB 680-495356/17	Method Blank	Total/NA	Water	325.2-1978	
LCS 680-495356/18	Lab Control Sample	Total/NA	Water	325.2-1978	
LCSD 680-495356/20	Lab Control Sample Dup	Total/NA	Water	325.2-1978	

Analysis Batch: 495460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-1	BSA-MW-5D-0917	Total/NA	Water	415.1-1974	
240-84791-3	BSA-MW-4D-0917	Total/NA	Water	415.1-1974	
240-84791-5	BSA-MW-3D-0917	Total/NA	Water	415.1-1974	
240-84791-8	CPA-MW-4D-0917	Total/NA	Water	415.1-1974	
240-84791-10	CPA-MW-3D-0917	Total/NA	Water	415.1-1974	
MB 680-495460/2	Method Blank	Total/NA	Water	415.1-1974	
LCS 680-495460/3	Lab Control Sample	Total/NA	Water	415.1-1974	
LCSD 680-495460/4	Lab Control Sample Dup	Total/NA	Water	415.1-1974	

Analysis Batch: 495462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-84791-2	BSA-MW-5D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84791-4	BSA-MW-4D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84791-6	BSA-MW-3D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84791-9	CPA-MW-4D-F(0.2)-0917	Dissolved	Water	415.1-1974	
240-84791-11	CPA-MW-3D-F(0.2)-0917	Dissolved	Water	415.1-1974	
MB 680-495462/2	Method Blank	Dissolved	Water	415.1-1974	
LCS 680-495462/4	Lab Control Sample	Dissolved	Water	415.1-1974	
LCSD 680-495462/5	Lab Control Sample Dup	Dissolved	Water	415.1-1974	

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Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-5D-0917

Lab Sample ID: 240-84791-1
Matrix: Water

Date Collected: 09/07/17 09:26
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	495121	09/19/17 12:57	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 22:32	KNW	TAL SAV
Total/NA	Analysis	RSK-175		5	295550	09/20/17 16:32	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 02:58	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 20:29	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495356	09/20/17 11:13	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:46	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:26	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 02:04	KLD	TAL SAV

Client Sample ID: BSA-MW-5D-F(0.2)-0917

Lab Sample ID: 240-84791-2
Matrix: Water

Date Collected: 09/07/17 09:26
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 04:37	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 17:11	KLD	TAL SAV

Client Sample ID: BSA-MW-4D-0917

Lab Sample ID: 240-84791-3
Matrix: Water

Date Collected: 09/07/17 12:20
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	494993	09/18/17 19:25	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 22:56	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 17:41	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 03:31	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 20:54	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		10	495356	09/20/17 12:20	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:51	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		5	495124	09/16/17 14:36	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 02:21	KLD	TAL SAV

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9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: BSA-MW-4D-F(0.2)-0917

Lab Sample ID: 240-84791-4
Matrix: Water
Date Collected: 09/07/17 12:20
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:10	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 17:27	KLD	TAL SAV

Client Sample ID: BSA-MW-3D-0917

Lab Sample ID: 240-84791-5
Matrix: Water
Date Collected: 09/07/17 13:40
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	494998	09/18/17 15:47	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 23:20	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 17:58	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 03:36	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 20:17	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495356	09/20/17 11:13	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:52	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:26	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 02:41	KLD	TAL SAV

Client Sample ID: BSA-MW-3D-F(0.2)-0917

Lab Sample ID: 240-84791-6
Matrix: Water
Date Collected: 09/07/17 13:40
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:15	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 17:44	KLD	TAL SAV

Client Sample ID: BSA-MW-3D-0917-EB

Lab Sample ID: 240-84791-7
Matrix: Water
Date Collected: 09/07/17 14:30
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494993	09/18/17 16:30	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/15/17 23:44	KNW	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-4D-0917

Lab Sample ID: 240-84791-8
Date Collected: 09/07/17 10:45
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494993	09/18/17 16:52	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/16/17 00:08	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 18:15	BPM	TAL CAN
Total/NA	Analysis	RSK-175		10	295550	09/20/17 16:50	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 03:40	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 18:42	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		5	495356	09/20/17 11:13	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:53	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:26	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 03:01	KLD	TAL SAV

Client Sample ID: CPA-MW-4D-F(0.2)-0917

Lab Sample ID: 240-84791-9
Date Collected: 09/07/17 10:45
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:20	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 18:12	KLD	TAL SAV

Client Sample ID: CPA-MW-3D-0917

Lab Sample ID: 240-84791-10
Date Collected: 09/07/17 15:17
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	494998	09/18/17 16:12	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/16/17 00:32	KNW	TAL SAV
Total/NA	Analysis	RSK-175		1	295392	09/19/17 18:32	BPM	TAL CAN
Total Recoverable	Prep	3005A			494735	09/14/17 13:00	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	495053	09/16/17 03:45	BCB	TAL SAV
Total/NA	Analysis	310.1-1978		1	494830	09/14/17 20:04	JEC	TAL SAV
Total/NA	Analysis	325.2-1978		2	495356	09/20/17 11:13	ALG	TAL SAV
Total/NA	Analysis	353.2		1	294909	09/14/17 14:54	JESW	TAL CAN
Total/NA	Analysis	375.4-1978		1	495124	09/16/17 14:26	ALG	TAL SAV
Total/NA	Analysis	415.1-1974		1	495460	09/21/17 03:18	KLD	TAL SAV

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9/29/17

Lab Chronicle

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Client Sample ID: CPA-MW-3D-F(0.2)-0917

Lab Sample ID: 240-84791-11
Matrix: Water
Date Collected: 09/07/17 15:17
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			494750	09/14/17 13:44	BJB	TAL SAV
Dissolved	Analysis	6010C		1	495053	09/16/17 05:25	BCB	TAL SAV
Dissolved	Analysis	415.1-1974		1	495462	09/20/17 18:32	KLD	TAL SAV

Client Sample ID: CPA-MW-3D-0917-AD

Lab Sample ID: 240-84791-12
Matrix: Water
Date Collected: 09/07/17 15:17
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	494998	09/18/17 16:36	CMB	TAL SAV
Total/NA	Prep	3520C			494731	09/14/17 14:04	CEW	TAL SAV
Total/NA	Analysis	8270D		1	494934	09/16/17 00:56	KNW	TAL SAV

Client Sample ID: 3Q17 LTM TRIP BLANK #3

Lab Sample ID: 240-84791-13
Matrix: Water
Date Collected: 09/07/17 00:00
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	494993	09/18/17 12:31	CMB	TAL SAV

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

SSD
9/29/17 TestAmerica Canton

Accreditation/Certification Summary

Client: Solutia Inc.
Project/Site: 3Q17 LTM GW Sampling - 1403345

TestAmerica Job ID: 240-84791-1
SDG: KPS199

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Illinois	NELAP	5	200022	11-30-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
8270D	3520C	Water	1,4-Dioxane

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
310.1-1978		Water	Alkalinity
310.1-1978		Water	Carbon Dioxide, Free
325.2-1978		Water	Chloride
375.4-1978		Water	Sulfate
415.1-1974		Water	Dissolved Organic Carbon
415.1-1974		Water	Total Organic Carbon

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

SJD
9/29/17
TestAmerica Canton

1.8/C1.8 9/B
1.4/C1.4 } 9/9
1.2/C1.2

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: Samantha DiCenso	Date: 9/7/17	COC No
Golder Associates Inc	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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 ____			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-0917	9/7/17	0926	G	W	16	N		3	2	1	1	1	3	2	3			
BSA-MW-5D-F(0.2)-0917		0926			4	Y										1	3	
BSA-MW-5D-0917-MS		0926			5	N		3	2									
BSA-MW-5D-0917-MSD		0926			5	N		3	2									
BSA-MW-4D-0917		1220			16	N		3	2	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)0917		1220			4	Y										1	3	
BSA-MW-3D-0917		1340			16	N		3	2	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0917		1340			4	Y										1	3	
BSA-MW-3D-0917-EB		1430			5	N		3	2									
CPA-MW-4D-0917		1045			16	N		3	2	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0917		1045			4	Y										1	3	
CPA-MW-3D-0917		1517			16	N		3	2	1	1	1	3	2	3			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____								2	1	4	1	1	2	1,3	3	4	3	

240-84791 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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	9/7/17 1730	Terry Bruno	TA Can	9/9/17 0930
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

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SSD 9/20/17

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: Samantha DiCenso	Date: 9/7/17	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Kathy Smith	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			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 3Q17 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No:
P O # 42262863	☐ 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)	VOCs by 8260	SVOCs by 8270	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-F(0.2)-0917	9/7/17	1517	G	W	4	Y										1	3	
CPA-MW-3D-0917-AD		1517	L	L	5	N		3	2									
3Q17 LTM Trip Blank #3	—	—	—		2			2										
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	1	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:

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

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Samantha DiCenso	Golder	9/7/17 1730	Jerry Burns	TA Car	9/8/17 0930
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

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3D 9/12/17

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 84791**
Canton Facility

Client Golder Assoc Site Name _____ Cooler unpacked by: Terry Burns

Cooler Received on 9/9/17 Opened on 9/9/17

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other Multiple

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☒ See Multiple Cooler Form
   - ~~IR GUN# IR-8 (CF +0 °C)~~ Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   - IR GUN #36 (CF +0.3°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 each (Yes) No
   - Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   - Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)

If yes, Questions 11-15 have been checked at the originating laboratory.

11. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# HC697954
12. Were VOAs on the COC? (Yes) No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes (No) NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #covered (Yes) No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

All diss samples + all other bottles except VOC's + SVOC's rec'd 9/8/17. All VOCs + SVOCs rec'd 9/9/17.

17. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

TestAmerica Multiple Cooler Receipt Form/Narrative **Login # :** 811791

Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant	
Client	8	1.8	1.8	ice	9/8
"	1	1.4	1.4	"	9/9
"	1	1.2	1.2	"	1

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
BSA-MW-5D-0917	240-84791-S-1	Plastic 250ml - with Sulfuric Acid	<2		
BSA-MW-5D-0917	240-84791-T-1	Plastic 250ml - with Nitric Acid			
BSA-MW-5D-F(0.2)-0917	240-84791-D-2	Plastic 250ml - w/nitric - dis	<2		
BSA-MW-4D-0917	240-84791-M-3	Plastic 250ml - with Sulfuric Acid	<2		
BSA-MW-4D-0917	240-84791-N-3	Plastic 250ml - with Nitric Acid	<2		
BSA-MW-4D-F(0.2)-0917	240-84791-D-4	Plastic 250ml - w/nitric - dis	<2		
BSA-MW-3D-0917	240-84791-M-5	Plastic 250ml - with Sulfuric Acid	<2		
BSA-MW-3D-0917	240-84791-N-5	Plastic 250ml - with Nitric Acid	<2		
BSA-MW-3D-F(0.2)-0917	240-84791-D-6	Plastic 250ml - w/nitric - dis	<2		
CPA-MW-4D-0917	240-84791-M-8	Plastic 250ml - with Sulfuric Acid	<2		
CPA-MW-4D-0917	240-84791-N-8	Plastic 250ml - with Nitric Acid	<2		
CPA-MW-4D-F(0.2)-0917	240-84791-D-9	Plastic 250ml - w/nitric - dis	<2		
CPA-MW-3D-0917	240-84791-M-10	Plastic 250ml - with Sulfuric Acid	<2		
CPA-MW-3D-0917	240-84791-N-10	Plastic 250ml - with Nitric Acid	<2		
CPA-MW-3D-F(0.2)-0917	240-84791-D-11	Plastic 250ml - w/nitric - dis	<2		

SJD
9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84791-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404	PO #:			
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	WO #:			
Email:	Project #: 68001754			
Project Name: WGK Long Term Monitoring (LTM)	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCl	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	325.2/ Chloride	375.4/ Sulfate	415.1	310.1/ Alkalinity & CO2, Free	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Sublist Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV def)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	415.1_Diss/FIELD_FLTRD DOC (FF)					Total Number of containers	Special Instructions/Note:
			Preservation Code:																		
BSA-MW-5D-0917 (240-84791-1)	9/7/17	09:26 Central		Water			X	X	X	X	X	X	X								22	
BSA-MW-5D-0917 (240-84791-1MS)	9/7/17	09:26 Central	MS	Water								X	X								1	
BSA-MW-5D-0917 (240-84791-1MSD)	9/7/17	09:26 Central	MSD	Water								X	X								1	
BSA-MW-5D-F(0.2)-0917 (240-84791-2)	9/7/17	09:26 Central		Water										X	X						4	
BSA-MW-4D-0917 (240-84791-3)	9/7/17	12:20 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-4D-F(0.2)-0917 (240-84791-4)	9/7/17	12:20 Central		Water										X	X						4	
BSA-MW-3D-0917 (240-84791-5)	9/7/17	13:40 Central		Water			X	X	X	X	X	X	X								12	
BSA-MW-3D-F(0.2)-0917 (240-84791-6)	9/7/17	13:40 Central		Water										X	X						4	
BSA-MW-3D-0917-EB (240-84791-7)	9/7/17	14:30 Central		Water								X	X								5	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		9-13-17 1430	240		9-14-17 935	
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by: 1-2/1-5	Date/Time	Company

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3D 9/29/17

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kersey, Michele R	Carrier Tracking No(s):	COC No: 240-76702.2
Client Contact: Shipping/Receiving	Phone	E-Mail: michele.kersey@testamericainc.com	State of Origin: Illinois	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 240-84791-1
Address: 5102 LaRoche Avenue.	Due Date Requested: 9/21/2017			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #			
Email:	WO #			
Project Name: WGK Long Term Monitoring (LTM)	Project #: 68001754			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastekd, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	325.2/ Chloride	375.4/ Sulfate	415.1	310.1/ Alkalinity & CO2, Free	6010C/3005A Metals, Total (Fe/Mn)	8260B/5030B (MOD) Custom Subset Template (HCl)	8270D/3520C (MOD) TCL (same as TCL-SV-QV det)	6010C/FIELD_FLTRD Metals, Dissolved (Fe/ & Mn)	415.1_Diss/FIELD_FLTRD DOC (FF)	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
CPA-MW-4D-0917 (240-84791-8)	9/7/17	10:45 Central		Water			X	X	X	X	X	X	X			12	
CPA-MW-4D-F(0.2)-0917 (240-84791-9)	9/7/17	10:45 Central		Water										X	X	4	
CPA-MW-3D-0917 (240-84791-10)	9/7/17	15:17 Central		Water			X	X	X	X	X	X	X			12	
CPA-MW-3D-F(0.2)-0917 (240-84791-11)	9/7/17	15:17 Central		Water										X	X	4	
CPA-MW-3D-0917-AD (240-84791-12)	9/7/17	15:17 Central		Water								X	X			5	
3Q17 LTM TRIP BLANK #3 (240-84791-13)	9/7/17	Central		Water								X				2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	9-13-17 1430	240		9-14-17 935	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2/1.5

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SSD 9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84791-1
SDG Number: KPS199

Login Number: 84791
List Number: 2
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 11:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SJD
9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84791-1
SDG Number: KPS199

Login Number: 84791
List Number: 3
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 11:25 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SJD
9/29/17

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 240-84791-1
SDG Number: KPS199

Login Number: 84791
List Number: 4
Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah
List Creation: 09/14/17 01:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

SJD
9/29/17

APPENDIX E
MICROBIAL INSIGHTS DATA PACKAGE

(On CD)

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Samantha Dicenso
Golder Associates Inc.
820 S. Main Street
Suite 100
St. Charles, MO 63301

Phone:

Fax:

Identifier: 006OI **Date Rec:** 09/01/2017 **Report Date:** 10/25/2017

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: **006OI**
Date Received: 09/01/2017

Sample Information

Sample Name:	**BSA-MW-1S-0917**	**BSA-MW-2D-0917**	**BSA-MW-3D-0917**	**BSA-MW-4D-0917**	**BSA-MW-5D-0917**
Sample Date:	08/31/2017	08/31/2017	08/31/2017	08/31/2017	08/31/2017
Sample Matrix:	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst/Reviewer:	KH	KH	KH	KH	KH

Biomass Concentrations

Total Biomass (cells/bead)	**2.47E+05**	**1.30E+05**	**6.76E+04**	**2.60E+04**	**5.40E+04**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**11.42**	**6.81**	**12.23**	**7.10**	**15.66**
Proteobacteria (Monos)	**69.93**	**66.63**	**43.70**	**53.08**	**47.02**
Anaerobic metal reducers (BrMonos)	**0.42**	**1.16**	**0.00**	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**0.51**	**1.54**	**0.00**	**0.00**	**0.00**
General (Nsats)	**17.41**	**14.69**	**25.01**	**34.18**	**27.30**
Eukaryotes (polyenoics)	**0.29**	**9.17**	**19.06**	**5.66**	**10.00**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.30**	**0.18**	**0.59**	**0.32**	**0.24**
Decreased Permeability	**2.93**	**0.31**	**0.12**	**0.14**	**0.19**

Legend:
NA = Not Analyzed NS = Not Sampled

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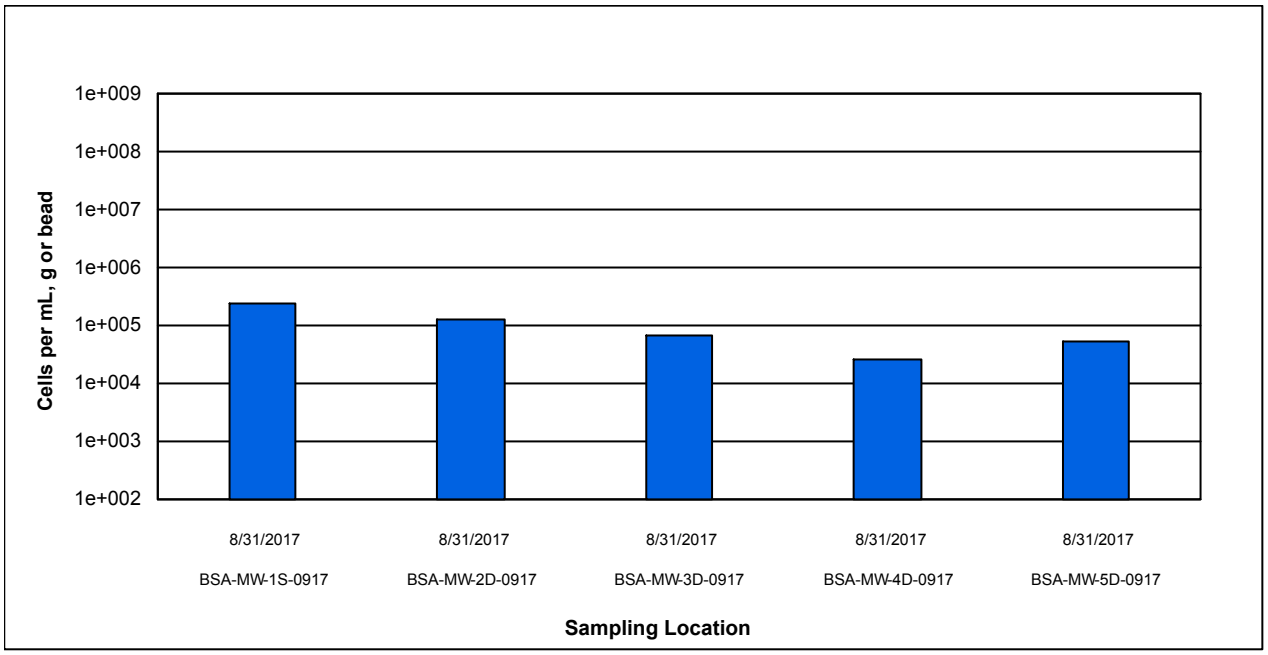

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

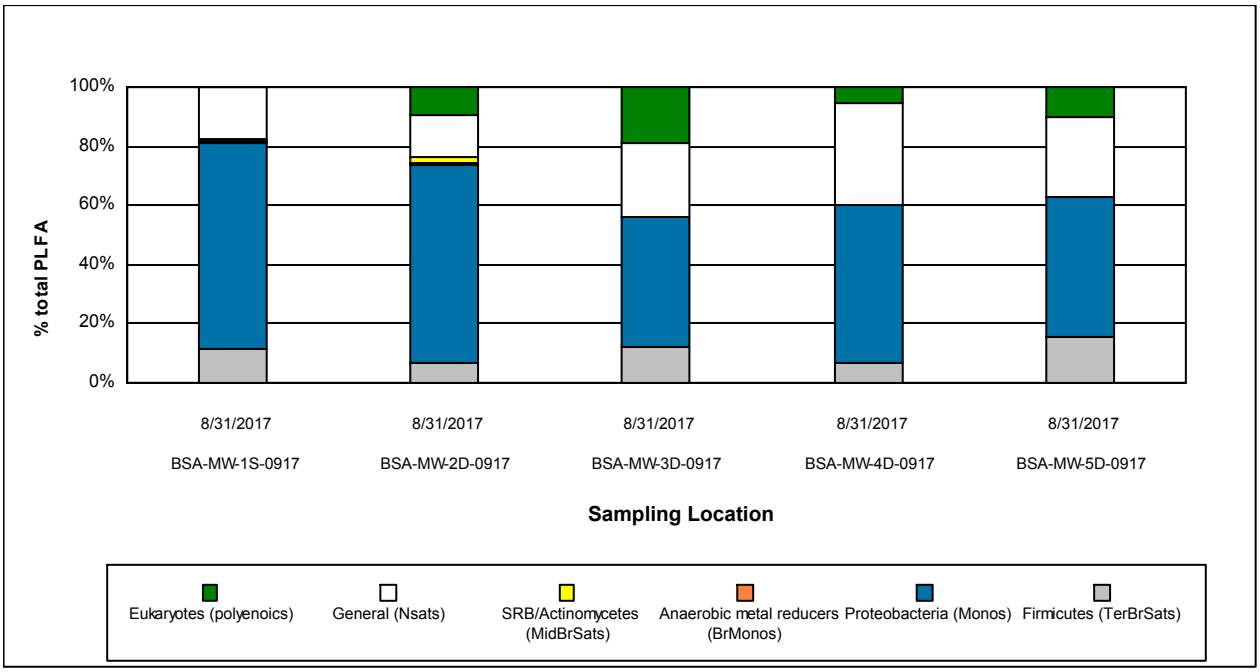

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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PLFA

Client: **Golder Associates Inc.**
Project: W.G. Krummrich

MI Project Number: **006OI**
Date Received: 09/01/2017

Sample Information

Sample Name:	**CPA-MW-1D-0917**	**CPA-MW-2D-0917**	**CPA-MW-3D-0917**	**CPA-MW-4D-0917**	**CPA-MW-5D-0917**
Sample Date:	08/31/2017	08/31/2017	08/31/2017	08/31/2017	08/31/2017
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst/Reviewer:	KH	KH	KH	KH	KH

Biomass Concentrations

Total Biomass (cells/bead)	**1.63E+05**	**7.09E+04**	**5.32E+04**	**4.01E+04**	**1.51E+05**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**6.68**	**8.80**	**13.33**	**24.25**	**13.33**
Proteobacteria (Monos)	**70.39**	**49.78**	**64.09**	**40.11**	**56.11**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**	**1.93**	**0.00**	**1.85**
SRB/Actinomycetes (MidBrSats)	**0.44**	**0.00**	**0.00**	**15.19**	**0.51**
General (Nsats)	**21.36**	**27.08**	**17.59**	**13.66**	**24.55**
Eukaryotes (polyenoics)	**1.14**	**14.34**	**3.07**	**6.78**	**3.66**

Physiological Status (Proteobacteria only)

Slowed Growth	**1.20**	**0.70**	**0.34**	**0.79**	**0.80**
Decreased Permeability	**0.08**	**0.09**	**0.16**	**0.23**	**0.04**

Legend:
NA = Not Analyzed NS = Not Sampled

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PLFA

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Date Received: 09/01/2017

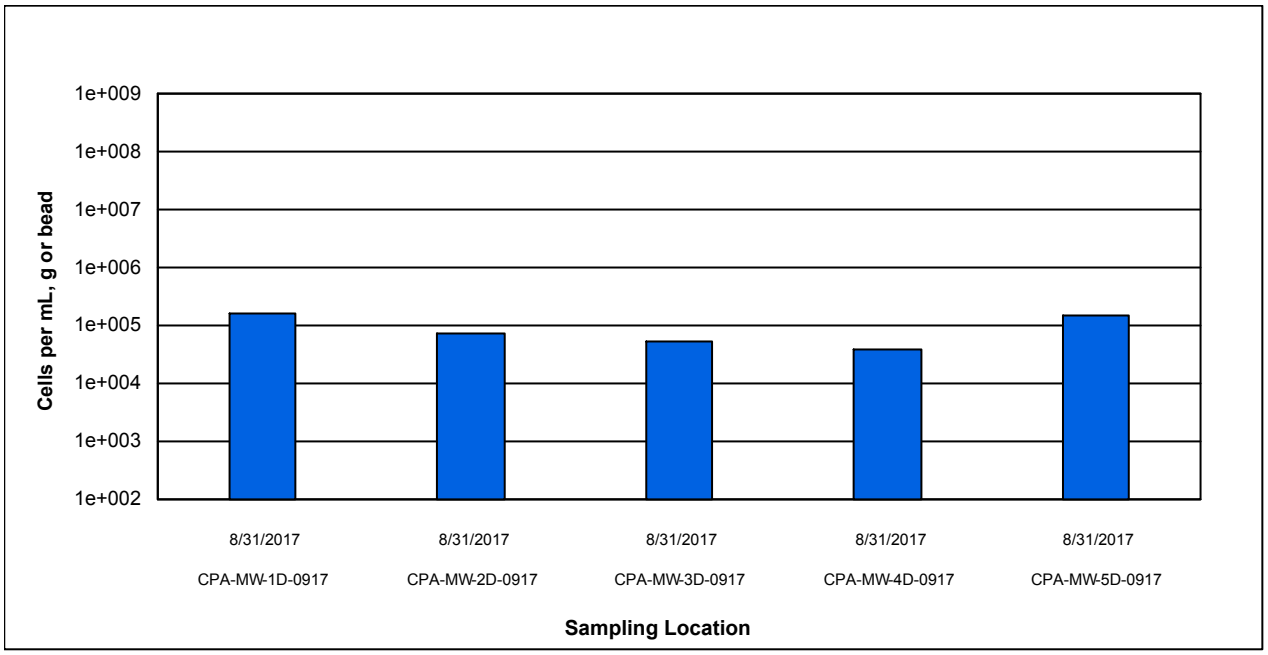

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

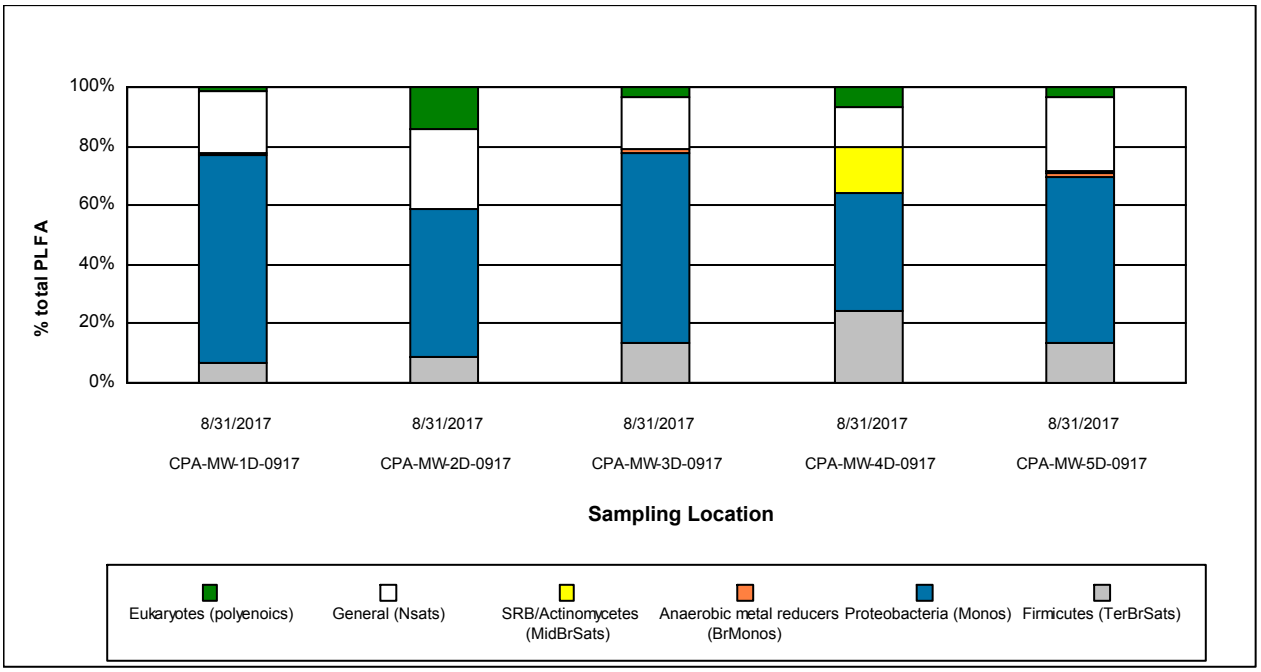

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

Quality Assurance/Quality Control Data

Samples Received **9/1/2017**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
PLFA	09/01/2017	10/25/2017	6 °C	97%	non-detect	non-detect

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Identifier: 006OI **Date Rec:** 09/01/2017 **Report Date:** 10/25/2017

Client Project #: 1403345 **Client Project Name:** W.G. Krummrich

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Comments: Please note results for sample BSA-MW-4D-0917, BSA-MW-5D-0917, CPA-MW-3D-0917 and CPA-MW-4D-0917 fell between reporting and detection limits 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.

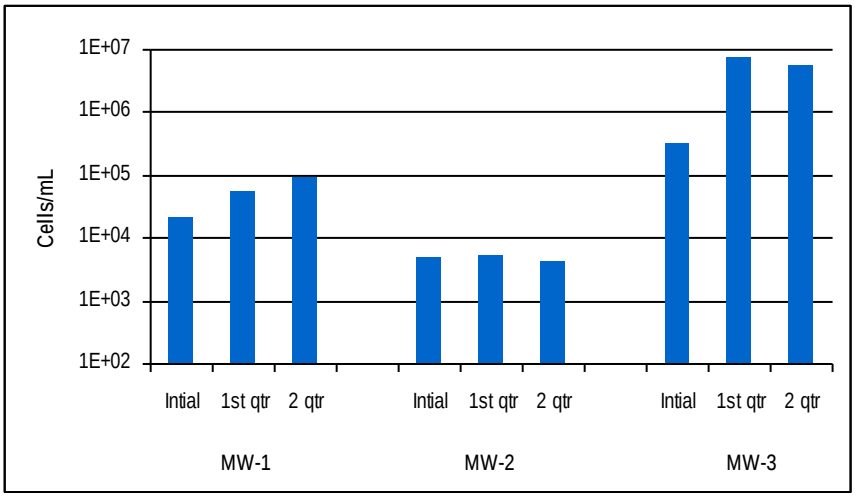

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

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:

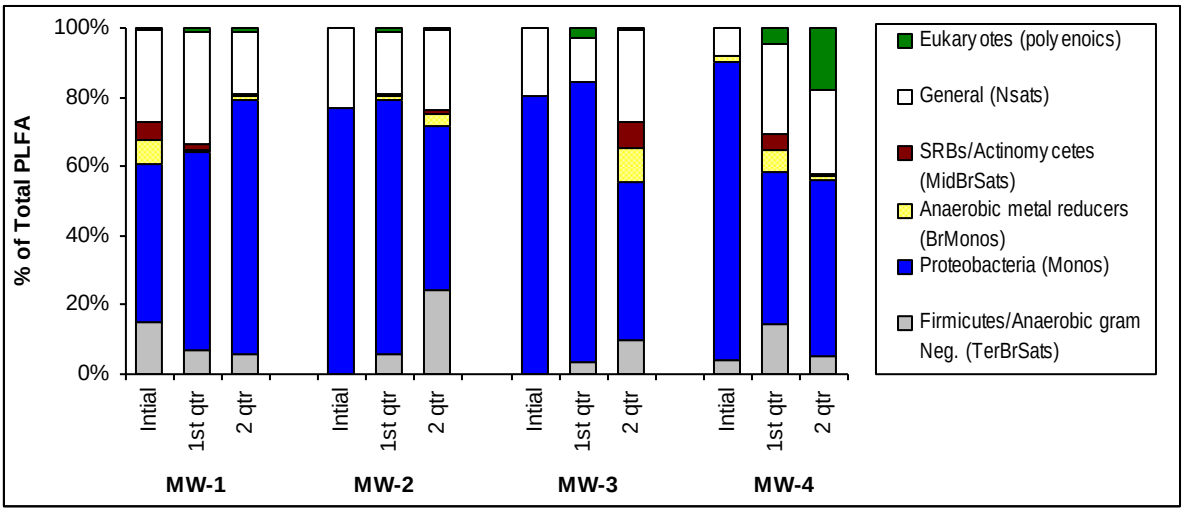

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **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.

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SITE LOGIC Report

Stable Isotope Probing (SIP) Study

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MI Identifier: 006OI

Report Date: October 25, 2017

Project: WG 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-0917 and CPA-MW-3D-0917, respectively. Following a 64-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)

- The detection of ^{13}C-enriched biomass and DIC confirmed that benzene biodegradation had occurred at BSA-MW-2D-0917 during the deployment period.
    - Total PLFA biomass for well BSA-MW-2D-0917 (1.30E+05 cells/bead) was in the moderate range.
    - The average PLFA $\delta^{13}C$ value was 1,400‰, indicating a high level of incorporation of ^{13}C-labeled benzene into microbial biomass.
    - The average DIC $\delta^{13}C$ value was 1,079‰, indicating that substantial benzene mineralization occurred during the deployment period.
    - The PLFA community structure was primarily composed of monoenoics (66.63%) followed by normal saturates (14.69%) and eukaryotes (9.17%). Indicators of firmicutes, anaerobic metal reducers, and actinomycetes were also detected.

- The detection of ^{13}C-enriched biomass and DIC confirmed that chlorobenzene biodegradation had occurred at CPA-MW-3D-0917 during the deployment period.
    - Total PLFA biomass for well CPA-MW-3D-0917 (5.32E+04 cells/bead) fell between the reporting and detection limits for PLFA.
    - The average PLFA $\delta^{13}C$ value was 302‰, indicating a moderate level of incorporation of ^{13}C-labeled chlorobenzene into microbial biomass.
    - The average DIC $\delta^{13}C$ value was 5.1‰, indicating that some chlorobenzene mineralization occurred during the deployment period.
    - The PLFA community structure was primarily composed of monoenoics (64.09%) followed by normal saturates (17.59%) and firmicutes (13.33%). Indicators of eukaryotes and anaerobic metal reducers were also detected.

PLFA Analysis - Standard Bio-Traps

- Total biomass concentrations in the standard BSA bio-traps fell within the low to moderate range (10^4 to 10^5 cells/bead). Total biomass in BSA-MW-4D-0917 and BSA-MW-5D-0917 fell between the reporting and detection limits for PLFA
- The community structures in the standard BSA bio-traps indicated that monoenoics and normal saturates were the most abundant groups.
- In the CPA wells, total PLFA biomass concentrations fell within fell within the low to moderate range (10^4 to 10^5 cells/bead). Total biomass in CPA-MW-3D-0917 and CPA-MW-4D-0917 fell between the reporting and detection limits for PLFA.

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- The microbial community structures in CPA-MW-1D-0917, CPA-MW-2D-517, CPA-MW-3D-0917, and CPA-MW-5D-0917 were primarily composed of a large portion of monoenoics followed by normal saturates. In well CPA-MW-4D-0917, the microbial community structures were primarily composed of a large portion of monoenoics followed by firmicutes, actinomycetes, and normal saturates.

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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-0917	CPA-MW-3D-0917
Sample Date	**8/31/17**	**8/31/17**
^{13}C Contaminant Loss		
^{13}C Benzene Pre-deployment (µg/bead)	**178 ± 6**	**---**
^{13}C Benzene Post-deployment (µg/bead)	**161 ± 6**	**---**
^{13}C Chlorobenzene Pre-deployment (µg/bead)	**---**	**261 ± 3**
^{13}C Chlorobenzene Post-deployment (µg/bead)	**---**	**289 ± 20**
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bead)	**1.30E+05**	**5.32E+04 (J)**
^{13}C Enriched Biomass (Cells/bead)	**3.10E+03**	**4.80E+02**
Average PLFA Delta (‰)	**1,400**	**302**
Maximum PLFA Delta (‰)	**2,618**	**587**
^{13}C Mineralization		
DIC Delta (‰)	**1,079**	**5.1**
% ^{13}C	**2.3**	**1.1**
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	**6.81**	**13.33**
Proteobacteria (Monos)	**66.63**	**64.09**
Anaerobic metal reducers (BrMonos)	**1.16**	**1.93**
Actinomycetes (MidBrSats)	**1.54**	0.00
General (Nsats)	**14.69**	**17.59**
Eukaryotes (Polyenoics)	**9.17**	**3.07**
Physiological Status (Proteobacteria only)		
Slowed Growth	**0.18**	**0.34**
Decreased Permeability	**0.31**	**0.16**

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

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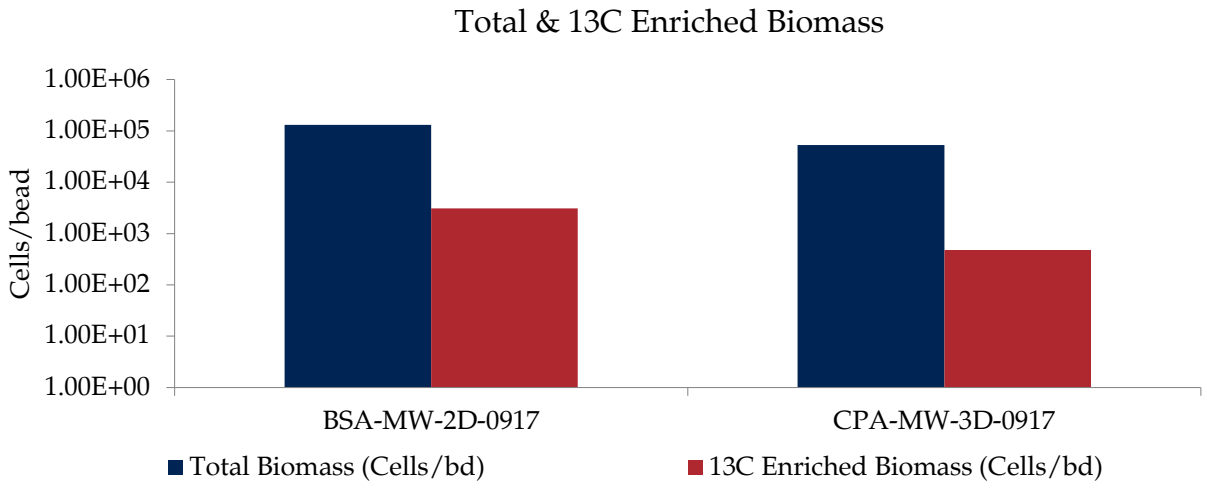

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

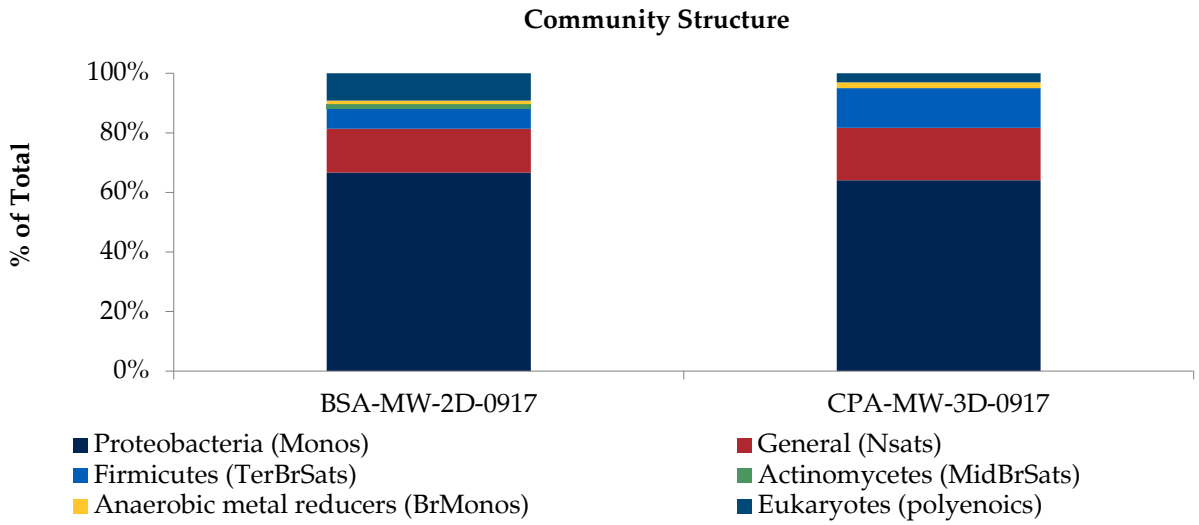

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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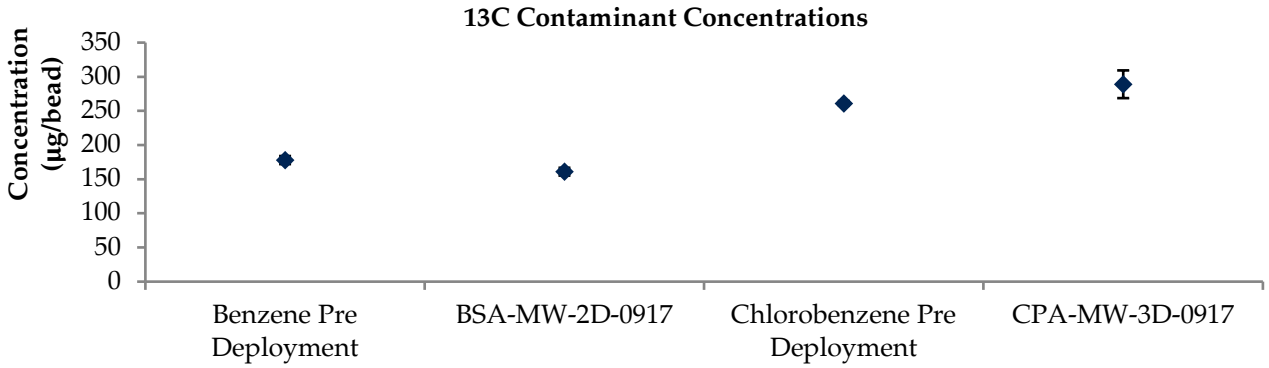

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

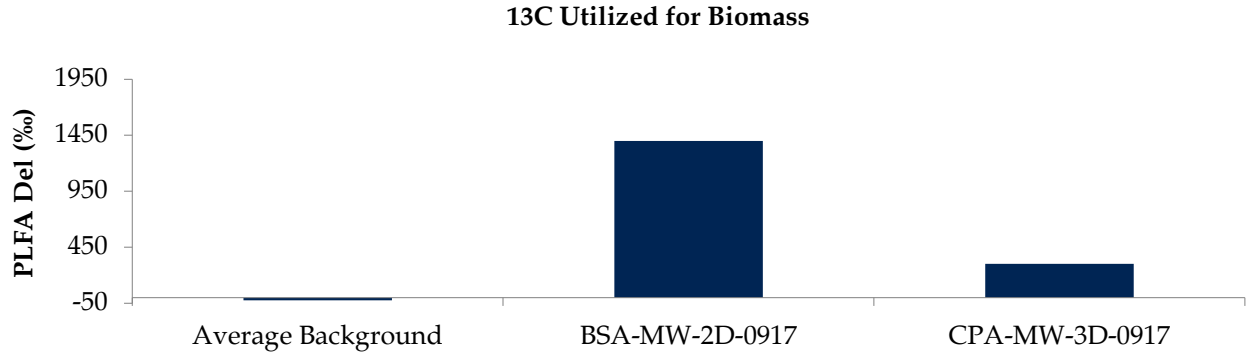

Figure 4. Comparison of the average Delta value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Delta observed in samples not exposed to ^{13}C enriched compounds.

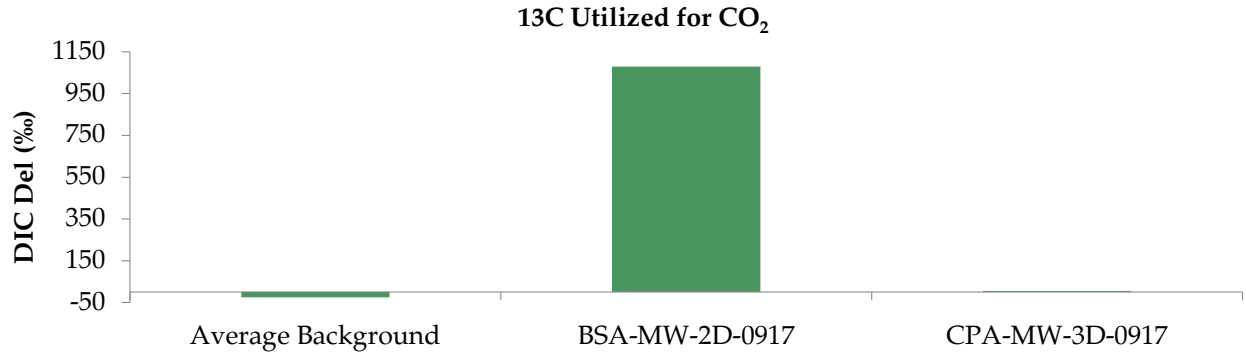

Figure 5. Comparison of the Delta value obtained from DIC from each Bio-Trap® unit to the average background Delta observed in samples not exposed to ^{13}C enriched compounds.

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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	BSA-MW-2D	BSA-MW-3D	BSA-MW-4D	BSA-MW-5D
Sample Date	08/31/17	08/31/17	08/31/17	08/31/17	08/31/17
Biomass Concentration					
Total Biomass (Cells/bead)	**2.47E+05**	**1.30E+05**	**6.76E+04**	**2.60E+04 (J)**	**5.40E+04 (J)**
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	**11.42**	**6.81**	**12.23**	**7.10**	**15.66**
Proteobacteria (Monos)	**69.93**	**66.63**	**43.70**	**53.08**	**47.02**
Anaerobic metal reducers (BrMonos)	**0.42**	**1.16**	0.00	0.00	0.00
Actinomycetes (MidBrSats)	**0.51**	**1.54**	0.00	0.00	0.00
General (Nsats)	**17.41**	**14.69**	**25.01**	**34.18**	**27.30**
Eukaryotes (Polyenoics)	**0.29**	**9.17**	**19.06**	**5.66**	**10.00**
Physiological Status (Proteobacteria only)					
Slowed Growth	**0.30**	**0.18**	**0.59**	**0.32**	**0.24**
Decreased Permeability	**2.93**	**0.31**	**0.12**	**0.14**	**0.19**

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

Table 3. Summary of the PLFA results for the chlorobenzene wells obtained from the Bio-Trap® Units.

Sample Name	CPA-MW-1D	CPA-MW-2D	CPA-MW-3D	CPA-MW-4D	CPA-MW-5D
Sample Date	08/31/17	08/31/17	08/31/17	08/31/17	08/31/17
Biomass Concentration					
Total Biomass (Cells/bead)	**1.63E+05**	**7.09E+04**	**5.32E+04 (J)**	**4.01E+04 (J)**	**1.51E+05**
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	**6.68**	**8.80**	**13.33**	**24.25**	**13.33**
Proteobacteria (Monos)	**70.39**	**49.78**	**64.09**	**40.11**	**56.11**
Anaerobic metal reducers (BrMonos)	0.00	0.00	**1.93**	0.00	**1.85**
Actinomycetes (MidBrSats)	**0.44**	0.00	0.00	**15.19**	**0.51**
General (Nsats)	**21.36**	**27.08**	**17.59**	**13.66**	**24.55**
Eukaryotes (Polyenoics)	**1.14**	**14.34**	**3.07**	**6.78**	**3.66**
Physiological Status (Proteobacteria only)					
Slowed Growth	**1.20**	**0.70**	**0.34**	**0.79**	**0.80**
Decreased Permeability	**0.08**	**0.09**	**0.16**	**0.23**	**0.04**

Legend: ND= Non Detect J = Estimated value between detection limit and reporting limit

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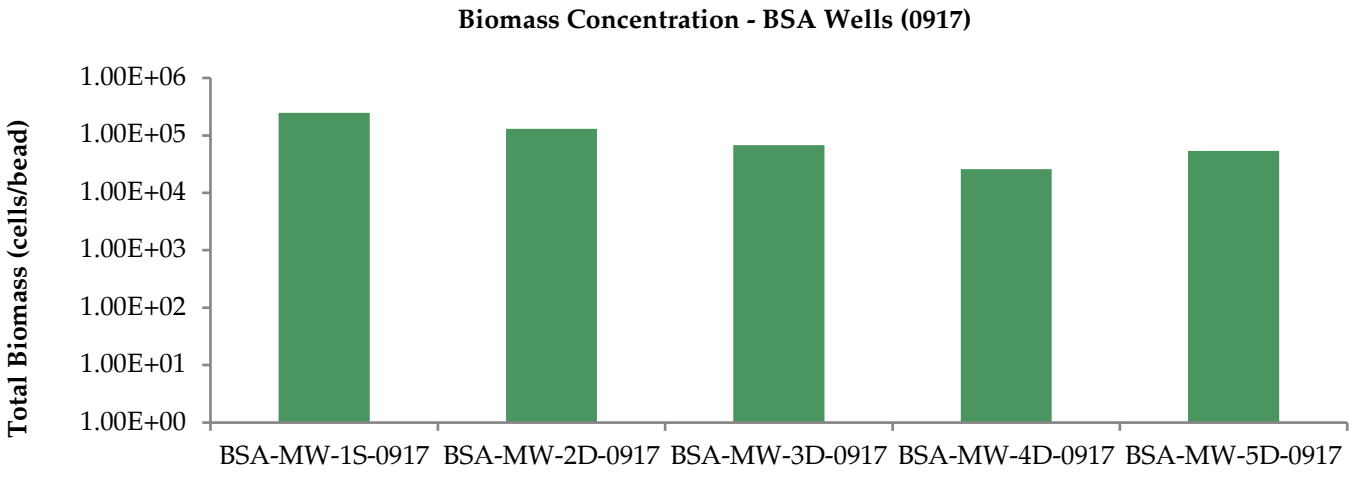

Figure 6. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

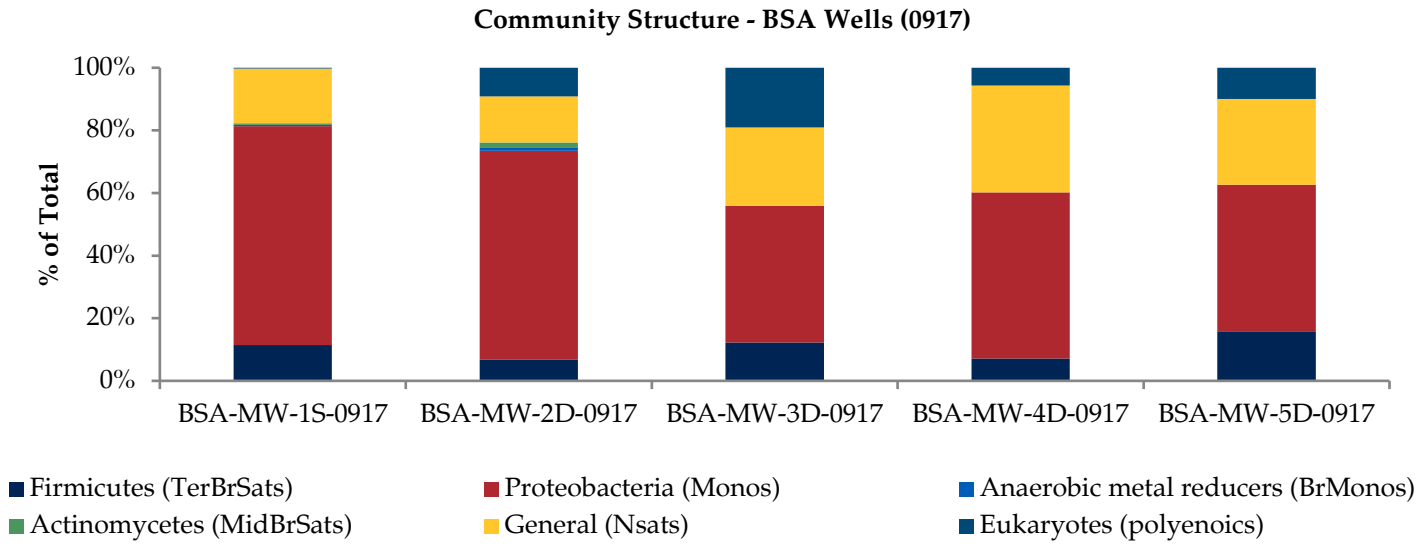

Figure 7. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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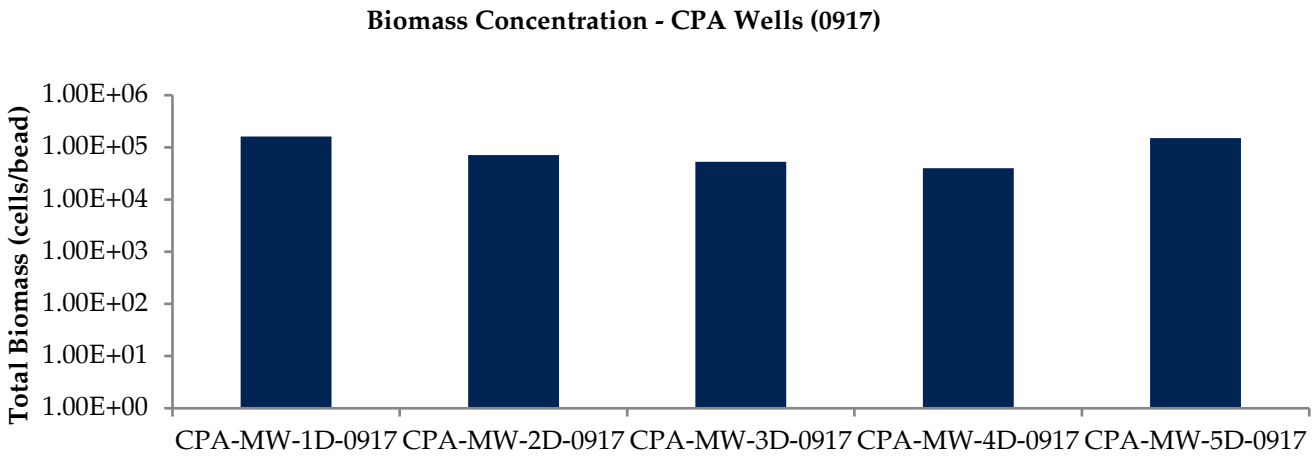

Figure 8. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

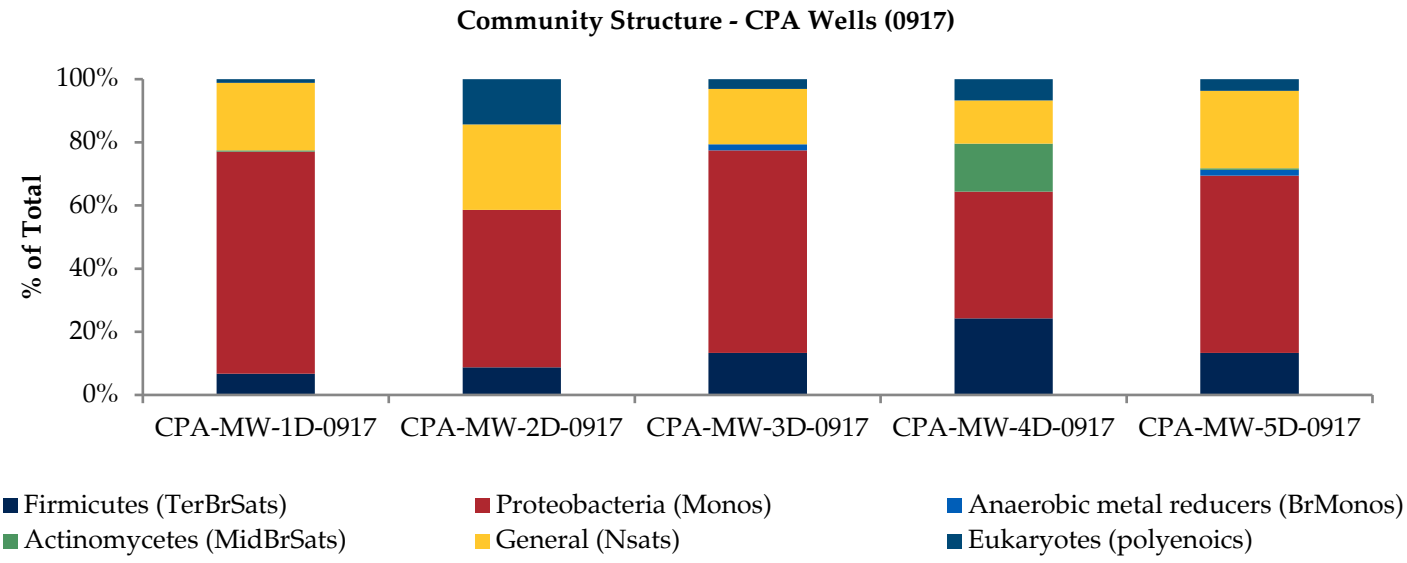

Figure 9. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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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 delta value. The delta 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 delta 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 delta values greater than under natural conditions. Typical PLFA delta values are provided below.

PLFA Delta (‰)		
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 delta 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 delta value. As with PLFA, delta 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) Delta 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.

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Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

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

Delta (δ): A Delta 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 ‰).

$$Delta = (R_x - R_{std})/R_{std} \times 1000$$

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