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

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gmrina@eastman.com

July 13, 2015

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

Re: Long-Term Monitoring Program
2nd Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Ms. Bury:

Enclosed please find the Long-Term Monitoring Program 2nd Quarter 2015 Data Report for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. Results from supplemental piezometers GWE-1D, 2D, 3D, 5S, and 5M and supplemental wells GWE-5D; ESL-MW-A, C1, and D1; and PM1M and PM1D are also included in this report.

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
2nd Quarter 2015 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

USEPA

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

Solutia

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

GSI Environmental (CD only)

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

GROUNDWATER MONITORING REPORT

LONG-TERM MONITORING PROGRAM
SOLUTIA INC., W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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

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

July 2015 **140-3345**

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Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) is pleased to submit this report summarizing the 2nd Quarter 2015 (2Q15) Long-Term Monitoring Program (LTMP) groundwater sampling activities at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility (Site) in Sauget, Illinois. The facility is located at 500 Monsanto Avenue, Sauget, Illinois as shown on Figure 1.

The 2Q15 sampling event was performed in general accordance with the Revised LTMP Work Plan (Work Plan) (Solutia 2009). Work conducted during the LTMP is designed to evaluate the effectiveness of monitored natural attenuation (MNA). The effectiveness of MNA at the Site, is shown by the following:

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

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

In addition to the monitoring wells specified in the Work Plan, the USEPA has also requested that groundwater samples be collected from eleven (11) additional monitoring wells and piezometers approximately 1.0 to 1.5 miles north of the Site.

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

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

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

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

During the quarterly sampling events, monitoring wells and piezometers are sampled for the following volatile organic compound (VOC) analytes: benzene; chlorobenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; and 1,4-dichlorobenzene. 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.

2.0 FIELD ACTIVITIES

Golder conducted 2Q15 sampling events between May 4 and May 7, 2015. Activities were performed in general accordance with the Work Plan.

2.1 Water Level Measurement

Prior to sampling during the 2Q15 event, Golder performed a synoptic round of water level measurements at 77 monitoring wells and piezometers on April 30 and May 1, 2015. The following monitoring well and piezometer series are included in the LTMP:

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

An oil/water interface probe was used to measure the water level (to 0.01 feet) and, if present, detect and measure the thickness of non-aqueous phase liquid (NAPL). During the 2Q15 sampling event, NAPL was not detected in monitoring wells or piezometers. Total depths are measured during the 1st quarter of each year. The 2Q15 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 2Q15 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
- 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 sample bottles were filled first followed by gas sensitive parameters and general chemistry parameters. Ferrous iron was field analyzed with a HACH 890 Colorimeter and HACH AccuVac® ampules. Samples collected for ferrous iron and dissolved analyses were field filtered using an in-line 0.2 micron disposable filter. Groundwater purging and sampling forms are included in Appendix A.

2.3 Quality Assurance and Sample Handling

Three (3) analytical duplicates (AD), three (3) equipment blanks (EB) and two (2) matrix spike/matrix spike duplicate (MS/MSD) pairs were collected during the 2Q15 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.: May (2nd quarter), 2015 (0515)
- **"QA/QC"** denotes QA/QC sample
  - **AD** – Analytical Duplicate
  - **EB** – Equipment Blank
  - **MS or MSD** – Matrix Spike or Matrix Spike Duplicate

Samples that were field filtered with an in-line 0.2 micron filter include “F(0.2)” prior to the “MMYY” portion of the sample identification. Sample information was recorded on a chain-of-custody (COC) that included project identification, sample identification, date and time of sample collection, analysis requested, preservative used, sample matrix and type, number of sample containers, sampler signature, and date COC was completed. Copies of the COCs are included in Appendix B.

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

2.4 Biodegradation Sampling

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

Bio-Trap® samplers and Stable Isotope Probing samplers (SIPs), provided by Microbial Insights, Inc. in Rockford, Tennessee, were deployed on April 1, 2015 in monitoring wells downgradient of the former Chlorobenzene Process Area (CPA-MW-1D through CPA-MW-5D) and downgradient of the former Benzene Storage Area (BSA-MW-1S and BSA-MW-2D through BSA-MW-5D) for PLFA 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 April 30, 2015, Bio-Trap® samplers and SIPs were collected from the wells, placed in laboratory provided bags, labeled with appropriate well identification, placed in a cooler with ice, properly sealed, and shipped overnight to the Microbial Insights, Inc. facility in Rockford, Tennessee for analysis.

2.5 Decontamination and Investigation Derived Waste

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

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

3.0 QUALITY ASSURANCE

Sample results were provided by TestAmerica in electronic format and reviewed for quality and completeness by Golder in accordance with the Work Plan. Sample results are included in Appendix D. Results were submitted in four (4) sample delivery groups (SDGs) as follows:

Sample Delivery Group (SDG)	Sample Identification
KPS141	PM1M-0515
	PM1D-0515
	PM1D-0515-AD
	ESL-MW-A-0515
	ESL-MW-C1-0515
	ESL-MW-C1-0515-EB
	ESL-MW-D1-0515
	2Q15 LTM Trip Blank #1
KPS142	GWE-2D-0515
	GWE-3D-0515
	GWE-5S-0515
	GWE-5M-0515
	GWE-5D-0515
	2Q15 LTM Trip Blank #2
KPS143	GWE-1D-0515
	BSA-MW-3D-0515
	BSA-MW-3D-0515-EB
	CPA-MW-1D-0515
	CPA-MW-2D-0515
	CPA-MW-2D-0515-AD
	CPA-MW-5D-0515
	2Q15 LTM Trip Blank #3
KPS144	BSA-MW-1S-0515
	BSA-MW-1S-0515-EB
	BSA-MW-2D-0515
	BSA-MW-4D-0515
	BSA-MW-5D-0515
	CPA-MW-3D-0515
	CPA-MW-3D-0515-AD
	CPA-MW-4D-0515
	2Q15 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 were deemed usable. The completeness for the data set was 100%.

4.0 OBSERVATIONS

Groundwater analytical data for VOCs and MNA parameters are discussed below and presented in Table 2 and 3, respectively.

4.1 Benzene

Benzene was detected in eleven (11) of the twenty-one (21) monitoring wells and piezometers at concentrations ranging from 2.6 µg/L (GWE-5D) to 850,000 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 850,000 µg/L.
- Downgradient of Former Benzene Storage Area: Benzene was detected in four (4) of four (4) wells downgradient of the former Benzene Storage Area with concentrations ranging from 20 µg/L (BSA-MW-4D), in the DHU north of the GMCS, to 41,000 µg/L (BSA-MW-2D).
- Former Chlorobenzene Process Area: Benzene was detected in the former Chlorobenzene Process Area source area well (CPA-MW-1D) at a concentration of 4,700 µg/L.
- Downgradient of Former Chlorobenzene Process Area: Benzene was detected in two (2) of four (4) wells downgradient of the former Chlorobenzene Process Area at concentrations of 48 µg/L / 42 µg/L (CPA-MW-3D and AD) and 410 µg/L / 430 µg/L (CPA-MW-2D and AD) .
- North of the Site: Benzene was detected in three (3) of eleven (11) wells and piezometers north of the Site at concentrations of 2.6 µg/L (GWE-5D), 21 µg/L (ESL-MW-D1) and 34 µg/L (GWE-3D).

4.2 Chlorobenzenes (Total)

Total chlorobenzenes (i.e., sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene) were detected in fifteen (15) of the twenty-one (21) wells at concentrations ranging from 2.4 µg/L (GWE-1D) to 40,200 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 160 µg/L (BSA-MW-5D) to 1,659 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 40,200 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 99 µg/L / 100 µg/L (CPA-MW-3D and AD) to 38,640 / 40,050 µg/L (CPA-MW-2D and AD). Total chlorobenzenes were detected at a concentration of 1,600 µg/L (CPA-MW-5D) north of the GMCS.
- North of the Site: Total chlorobenzenes were detected in seven (7) of eleven (11) wells and piezometers north of the Site with concentrations ranging from 2.4 µg/L (GWE-1D) to 1,620 µg/L (GWE-3D).

4.3 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-0515 during the deployment period” and “Evidence for biodegradation of chlorobenzene in CPA-MW-3D-0515 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit”. Dissolved inorganic carbon (DIC) data for BSA-MW-2D-0515 show “substantial benzene mineralization.” Although DIC data for CPA-MW-3D-0515 indicate that “little or no chlorobenzene had been mineralized,” the community structure contains contaminant-reducing bacteria. The PLFA analysis in the remaining BSA and CPA wells also show a community structure containing contaminant-reducing bacteria.

5.0 CLOSING

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

Sincerely,

GOLDER ASSOCIATES INC.

Lori A. Bindner
Geological Engineer

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

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

6.0 REFERENCES

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

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

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

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

FIGURES

FORMER CHLOROBENZENE PROCESS AREA

STERLING STEEL

SITE H

SITE L

SITE M

SITE I

DEAD CREEK

SITE G

CERRO COPPER

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

KINDER MORGAN

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 FACILITY
SAUGET, ILLINOIS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-05-27
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
2ND QUARTER 2015 DATA REPORT

TITLE
SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
140-3345	0017	0	1

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

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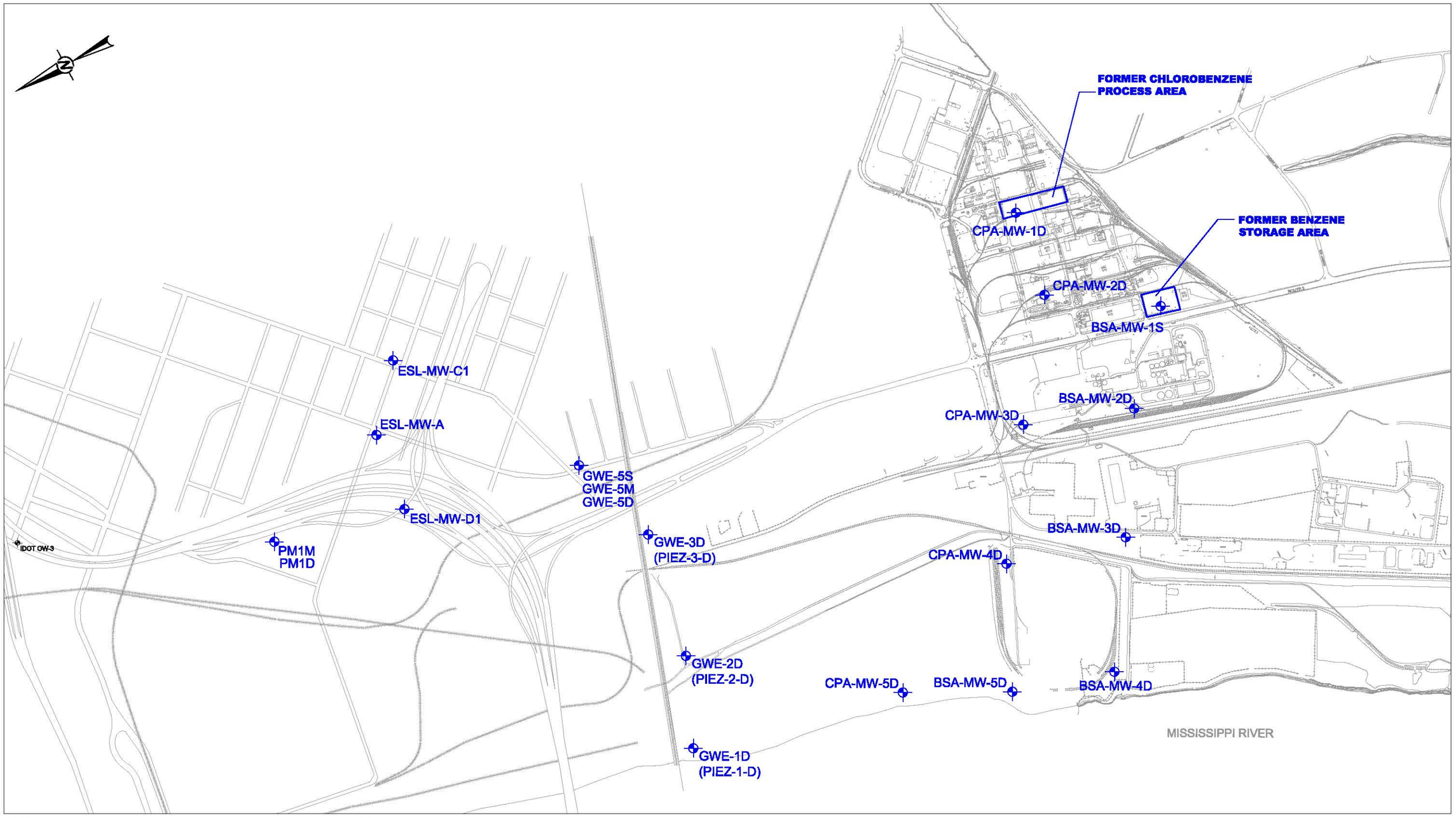

LEGEND

LONG-TERM MONITORING WELL LOCATION

NOTES

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

0 500 1000
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-05-27
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
2ND QUARTER 2015 DATA REPORT

TITLE
LONG-TERM MONITORING PROGRAM WELL LOCATIONS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0017	0	2

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

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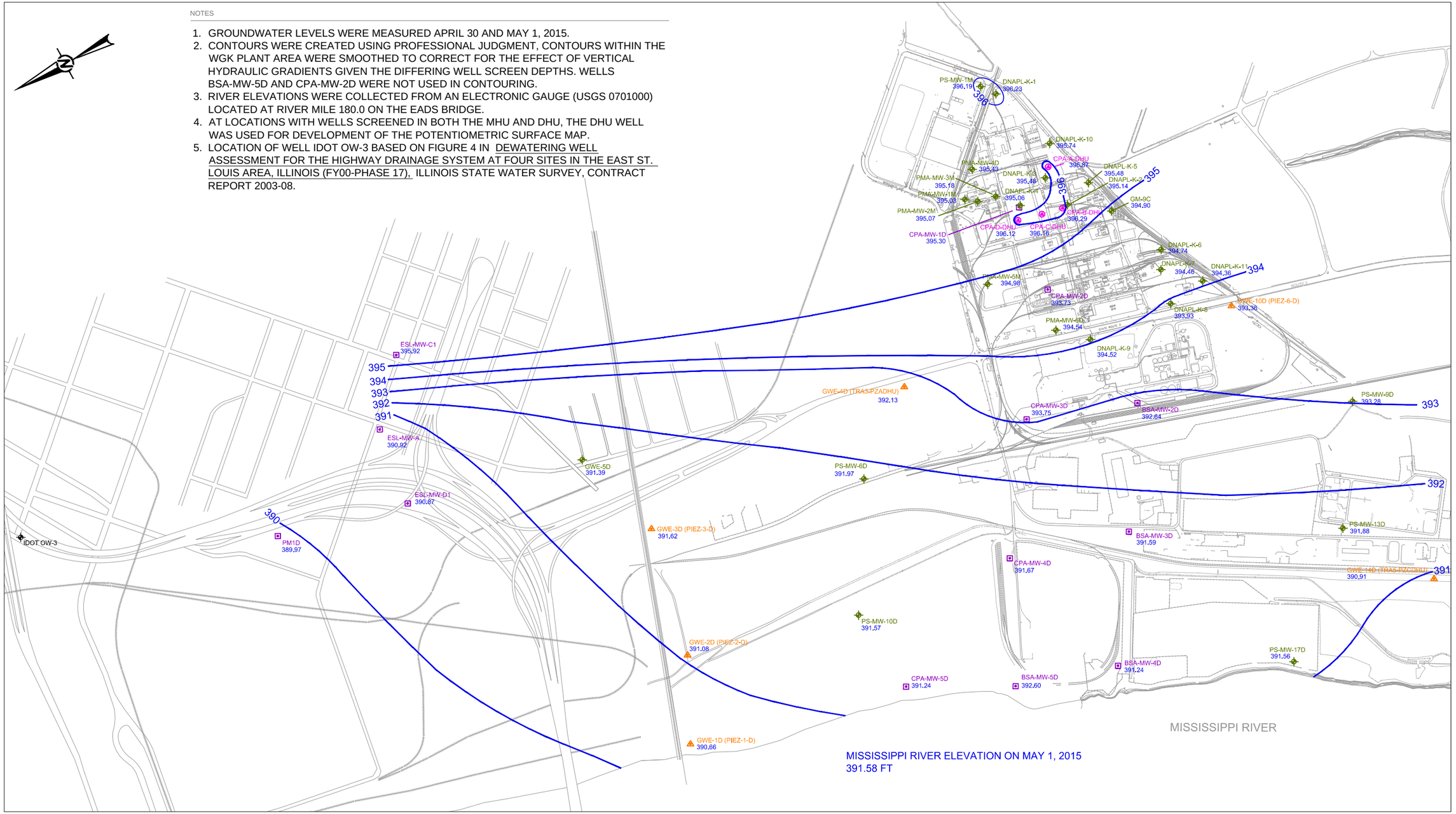
NOTES

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



LEGEND

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

0 500 1000
SCALE FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-05-22
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
2ND QUARTER 2015 DATA REPORT

TITLE
POTENTIOMETRIC SURFACE MAP
MIDDLE/DEEP HYDROGEOLOGIC UNIT

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0017	0	3

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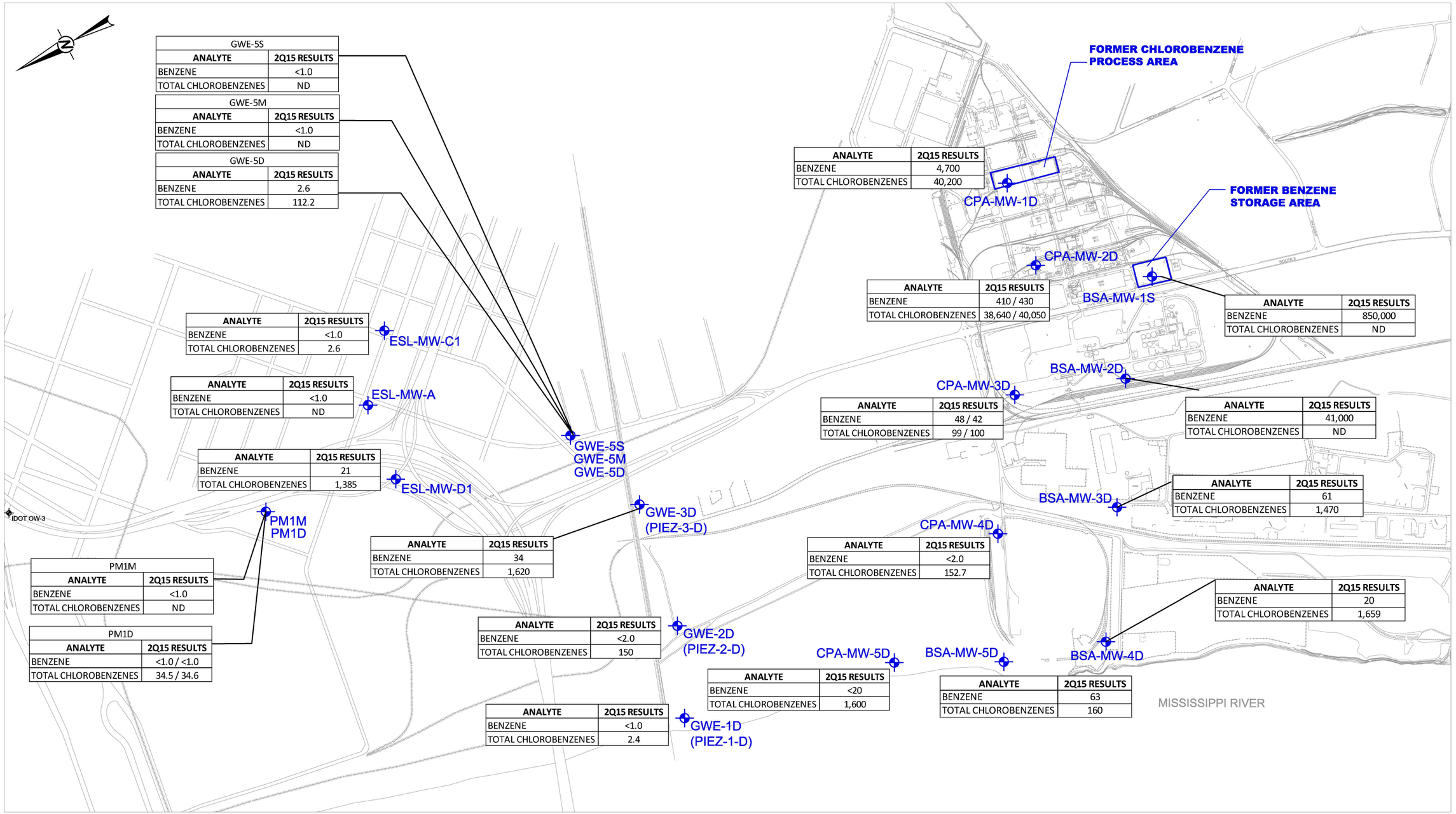

LEGEND

LONG-TERM MONITORING WELL LOCATION

NOTES

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

SCALE 0 500 1000 FEET

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

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-06-11
PREPARED	LAB
DESIGN	LAB
REVIEW	AWD
APPROVED	MNH

PROJECT
LONG-TERM MONITORING PROGRAM
2ND QUARTER 2015 DATA REPORT

TITLE
BENZENE AND TOTAL CHLOROBENZENES RESULTS

PROJECT No.	PHASE:	Rev.	FIGURE:
140-3345	0017	0	4

TABLES

Table 1
Monitoring Well Gauging Information
2Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Well Identification	Monitoring Well Construction Data						2Q15 -April 30 and May 1, 2015			
	Ground Surface Elevation[1] (ft)	Top of Casing Elevation[1] (ft)	Top of Screen Depth (ft bgs)	Bottom of Screen Depth (ft bgs)	Top of Screen Elevation[1] (ft)	Bottom of Screen Elevation[1] (ft)	Water Level (ft btoc)	Depth to NAPL (ft btoc)	Total Depth[2] (ft btoc)	Water Level Elevation[1] (ft)
SHU 395-380 ft NAVD 88										
BSA-MW-1S	409.49	412.31	19.68	24.68	389.81	384.81	18.41	NP	27.31	393.90
GWE-5S	408.47	408.05	17.91	27.91	390.56	380.56	16.54	NP	27.79	391.51
MHU 380-350 ft NAVD 88										
GWE-5M	408.59	408.20	48.10	58.10	360.49	350.49	16.74	NP	58.03	391.46
PMA-MW-1M	410.32	410.08	54.54	59.54	355.78	350.78	15.05	NP	59.60	395.03
PMA-MW-2M	412.26	411.93	56.87	61.87	355.39	350.39	16.86	NP	61.27	395.07
PMA-MW-3M	412.36	412.10	57.07	62.07	355.29	350.29	16.92	NP	61.81	395.18
PMA-MW-5M	411.27	410.97	52.17	57.17	359.10	354.10	15.99	NP	56.98	394.98
PS-MW-1M	409.37	412.59	37.78	42.78	371.59	366.59	16.40	NP	46.05	396.19
PM1M	413.07	412.80	51.64	61.41	361.43	351.66	22.86	NP	60.59	389.94
DHU 350 ft NAVD 88 - Bedrock										
BSA-MW-2D	412.00	415.13	68.92	73.92	343.08	338.08	22.49	NP	77.00	392.64
BSA-MW-3D	412.91	415.74	107.02	112.02	305.89	300.89	24.15	NP	114.75	391.59
BSA-MW-4D	425.00	424.69	118.54	123.54	306.46	301.46	33.45	NP	123.12	391.24
BSA-MW-5D	420.80	420.49	115.85	120.82	304.95	299.95	27.89	NP	120.89	392.60
CPA-A-DHU	413.95	416.24	108.00	113.30	305.95	300.65	19.37	NP	115.15	396.87
CPA-B-DHU	409.12	408.68	101.00	106.50	308.12	302.62	12.39	NP	105.51	396.29
CPA-C-DHU	408.92	408.57	101.00	106.00	307.92	302.92	12.41	NP	105.44	396.16
CPA-D-DHU	409.63	412.20	101.00	105.90	308.63	303.73	16.08	NP	108.24	396.12
CPA-MW-1D	408.62	412.23	66.12	71.12	342.50	337.50	16.93	NP	74.69	395.30
CPA-MW-2D	408.51	408.20	99.96	104.96	308.55	303.55	14.47	NP	104.56	393.73
CPA-MW-3D	410.87	410.67	108.20	113.20	302.67	297.67	16.92	NP	112.76	393.75
CPA-MW-4D	421.57	421.20	116.44	121.44	305.13	300.13	29.53	NP	120.98	391.67
CPA-MW-5D	411.03	413.15	107.63	112.63	303.40	298.40	21.91	NP	114.64	391.24
DNAPL-K-1	413.07	415.56	108.20	123.20	304.87	289.87	19.33	NP	123.10	396.23
DNAPL-K-2	407.94	407.72	97.63	112.63	310.31	295.31	12.58	NP	112.40	395.14
DNAPL-K-3	412.13	415.91	104.80	119.80	307.33	292.33	20.43	NP	123.28	395.48
DNAPL-K-4	409.48	412.53	102.55	117.55	306.93	291.93	17.47	NP	118.21	395.06
DNAPL-K-5	412.27	411.91	102.15	117.15	310.12	295.12	16.43	NP	116.54	395.48
DNAPL-K-6	410.43	410.09	102.47	117.47	307.96	292.96	15.35	NP	116.87	394.74
DNAPL-K-7	408.32	407.72	100.40	115.40	307.92	292.92	13.26	NP	115.31	394.46
DNAPL-K-8	408.56	411.38	102.65	117.65	305.91	290.91	17.45	NP	117.56	393.93
DNAPL-K-9	406.45	405.97	97.42	112.42	309.03	294.03	11.45	NP	111.05	394.52
DNAPL-K-10	413.50	413.25	105.43	120.43	308.07	293.07	17.51	NP	120.26	395.74
DNAPL-K-11	412.20	411.78	105.46	120.46	306.74	291.74	17.42	NP	120.18	394.36
GM-9C	409.54	411.21	88.00	108.00	321.54	301.54	16.31	NP	108.23	394.90
GWE-1D	412.80	415.60	117.00	127.00	295.80	285.80	24.94	NP	128.22	390.66
GWE-2D	417.45	417.14	127.00	137.00	290.45	280.45	26.06	NP	136.59	391.08
GWE-3D	415.03	417.66	104.60	114.60	313.06	303.06	26.04	NP	114.88	391.62
GWE-4D	406.05	405.74	74.00	80.00	332.05	326.05	13.61	NP	78.75	392.13
GWE-5D	408.79	408.38	100.43	105.43	308.36	303.36	16.99	NP	105.14	391.39
GWE-10D	410.15	412.87	102.50	112.50	307.65	297.65	19.51	NP	114.81	393.36
GWE-14D	420.47	422.90	90.00	96.00	330.47	324.47	31.99	NP	97.00	390.91
ESL-MW-A	412.93	412.59	105.50	110.50	307.43	302.43	21.67	NP	108.63	390.92
ESL-MW-C1	410.09	409.79	104.00	109.00	306.09	301.09	13.87	NP	109.87	395.92
ESL-MW-D1	416.38	416.04	114.00	119.00	302.38	297.38	25.17	NP	119.22	390.87
PMA-MW-4D	411.22	410.88	68.84	73.84	342.38	337.38	15.45	NP	73.38	395.43
PMA-MW-6D	407.63	407.32	96.49	101.49	311.14	306.14	12.78	NP	101.22	394.54
PS-MW-6D	404.11	406.63	102.32	107.32	304.31	299.31	14.66	NP	109.81	391.97
PS-MW-9D	403.92	403.52	100.40	105.40	303.52	298.52	10.24	NP	105.00	393.28
PS-MW-10D	409.63	412.18	103.78	108.78	308.40	303.40	20.61	NP	111.25	391.57
PS-MW-13D	405.80	405.53	106.08	111.08	299.72	294.72	13.65	NP	110.55	391.88
PS-MW-17D	420.22	423.26	121.25	126.25	298.97	293.97	31.70	NP	133.90	391.56
SA2-MW-1D	403.79	406.03	105.01	115.01	301.02	291.02	22.49	NP	102.24	383.54
PM1D	413.41	412.78	101.42	106.45	311.99	306.96	22.81	NP	106.61	389.97

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

Prepared By: LAB 5/22/2015
Checked By: EPW 5/27/2015
Reviewed By: AWD 6/25/2015

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

Sample Identification	Sample Date	VOCs (µg/L)				
		Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene
Benzene Storage Area						
BSA-MW-1S-0515	5/7/2015	**850,000 D**	<10,000	<10,000	<10,000	<10,000
BSA-MW-2D-0515	5/7/2015	**41,000 D**	<1,000	<1,000	<1,000	<1,000
BSA-MW-3D-0515	5/6/2015	**61 D**	**1,200 D**	<20	<20	**270 D**
BSA-MW-4D-0515	5/7/2015	**20 D**	**1,600 D**	<20	<20	**59 D**
BSA-MW-5D-0515	5/7/2015	**63 D**	**160 D**	<2.0	<2.0	<2.0
Chlorobenzene Process Area						
CPA-MW-1D-0515	5/6/2015	**4,700 D**	**16,000 D**	**13,000 D**	**1,200 D**	**10,000 D**
CPA-MW-2D-0515	5/6/2015	**410 D**	**29,000 D**	**270 D**	**370 D**	**9,000 D**
CPA-MW-2D-0515-AD	5/6/2015	**430 D**	**30,000 D**	**280 D**	**370 D**	**9,400 D**
CPA-MW-3D-0515	5/7/2015	**48**	**95**	**1.4**	<1.0	**2.6**
CPA-MW-3D-0515-AD	5/7/2015	**42**	**96**	**1.4**	<1.0	**2.6**
CPA-MW-4D-0515	5/7/2015	<2.0	**150 D**	<2.0	<2.0	**2.7 D**
CPA-MW-5D-0515	5/6/2015	<20	**1,600 D**	<20	<20	<20
North of W.G. Krummrich Facility						
ESL-MW-A-0515	5/4/2015	<1.0	<1.0	<1.0	<1.0	<1.0
ESL-MW-C1-0515	5/4/2015	<1.0	<1.0	**1.3**	<1.0	**1.3**
ESL-MW-D1-0515	5/4/2015	**21 D**	**1,300 D**	<10	<10	**85 D**
GWE-1D-0515	5/6/2015	<1.0	<1.0	**1.2**	<1.0	**1.2**
GWE-2D-0515	5/5/2015	<2.0	**150 D**	<2.0	<2.0	<2.0
GWE-3D-0515	5/5/2015	**34 D**	**1,500 D**	<20	<20	**120 D**
GWE-5S-0515	5/5/2015	<1.0	<1.0	<1.0	<1.0	<1.0
GWE-5M-0515	5/5/2015	<1.0	<1.0	<1.0	<1.0	<1.0
GWE-5D-0515	5/5/2015	**2.6 D**	**97 D**	**2.2 D**	<2.0	**13 D**
PM1M-0515	5/4/2015	<1.0	<1.0	<1.0	<1.0	<1.0
PM1D-0515	5/4/2015	<1.0	**33**	<1.0	<1.0	**1.5**
PM1D-0515-AD	5/4/2015	<1.0	**33**	<1.0	<1.0	**1.6**

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
NA - sample not analyzed for select analyte
Bold - indicates concentration greater than reporting limit

Prepared By: LAB 5/26/2015
Checked By: EPW 5/29/2015
Reviewed By: AWD 6/25/2015

Table 3
Monitored Natural Attenuation Results
2Q15 Long-Term Monitoring Program
Solutia Inc., W.G. Krummrich Facility
Sauget, Illinois

Sample Identification	Sample Date	Monitored Natural Attenuation Parameters																
		Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethylene (ug/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (ug/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO4 (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	ORP (mV)
Benzene Storage Area																		
BSA-MW-1S-0515	5/7/2015	910	42	120 D	0.06	<1.1	<1.0	-	9.3	-	1.0	-	11,000	<0.050	120 D	30 D	-	-127.57
BSA-MW-1S-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	8.9	-	1.1	-	-	-	-	23 D	-
BSA-MW-2D-0515	5/7/2015	630	30	150 D	0.08	18	<1.0	-	4.6	-	0.68	-	24,000	<0.050	<5.0	7.9	-	-110.22
BSA-MW-2D-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	4.5	-	0.67	-	-	-	-	7.6	-
BSA-MW-3D-0515	5/6/2015	490	27	140 D	0.15	4.5	2.9	-	9.7	-	0.60	-	1,500	<0.050	110 D	2.9	-	-84.21
BSA-MW-3D-F(0.2)-0515	5/6/2015	-	-	-	-	-	-	>3.30	-	9.4	-	0.60	-	-	-	-	3.1	-
BSA-MW-4D-0515	5/7/2015	530	32	97 D	0.11	4.6	<1.0	-	7.9	-	0.59	-	280	<0.050	130 D	4.3	-	-90.54
BSA-MW-4D-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	7.8	-	0.59	-	-	-	-	4.4	-
BSA-MW-5D-0515	5/7/2015	620	32	220 D	0.15	26	<1.0	-	11	-	0.31	-	18,000	<0.050	<5.0	8.2	-	-119.09
BSA-MW-5D-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	11	-	0.29	-	-	-	-	8.4	-
Chlorobenzene Process Area																		
CPA-MW-1D-0515	5/6/2015	920	<5.0	87 D	0.06	22	<1.0	-	0.40	-	0.071	-	18,000	<0.050	<5.0	10	-	-81.87
CPA-MW-1D-F(0.2)-0515	5/6/2015	-	-	-	-	-	-	0.00	-	0.16	-	0.052	-	-	-	-	12	-
CPA-MW-2D-0515	5/6/2015	500	27	52 D	0.12	1.4	<1.0	-	9.6	-	0.47	-	1,100	<0.050	57 D	7.3	-	-101.38
CPA-MW-2D-F(0.2)-0515	5/6/2015	-	-	-	-	-	-	>3.30	-	9.4	-	0.47	-	-	-	-	6.6	-
CPA-MW-3D-0515	5/7/2015	650	50	270 D	0.06	38	<1.0	-	14	-	0.78	-	20,000 D	<0.050	<5.0	7.3	-	-103.26
CPA-MW-3D-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	14	-	0.79	-	-	-	-	7.8	-
CPA-MW-4D-0515	5/7/2015	660	40	240 D	0.07	32	<1.0	-	16	-	0.46	-	33,000	<0.050	<5.0	8.0	-	-127.26
CPA-MW-4D-F(0.2)-0515	5/7/2015	-	-	-	-	-	-	>3.30	-	16	-	0.46	-	-	-	-	7.7	-
CPA-MW-5D-0515	5/6/2015	610	53	270 D	0.10	7.2	<1.0	-	18	-	0.62	-	750	<0.050	61 D	4.9	-	-72.80
CPA-MW-5D-F(0.2)-0515	5/6/2015	-	-	-	-	-	-	>3.30	-	19	-	0.68	-	-	-	-	5.1	-
North of W.G. Krummrich Facility																		
ESL-MW-A-0515	5/4/2015	330	17	78 D	0.58	<1.1	<1.0	-	12	-	0.38	-	6.3	0.34	470 D	2.7	-	-79.80
ESL-MW-A-F(0.2)-0515	5/4/2015	-	-	-	-	-	-	>3.30	-	11	-	0.36	-	-	-	-	3.1	-
ESL-MW-C1-0515	5/4/2015	420	25	99 D	0.10	<1.1	<1.0	-	12	-	0.48	-	4.3	<0.050	660 D	4.0	-	-95.24
ESL-MW-C1-F(0.2)-0515	5/4/2015	-	-	-	-	-	-	>3.30	-	12	-	0.45	-	-	-	-	3.8	-
ESL-MW-D1-0515	5/4/2015	400	26	120 D	0.10	<1.1	<1.0	-	14	-	0.43	-	45	<0.050	500 D	2.7	-	-70.85
ESL-MW-D1-F(0.2)-0515	5/4/2015	-	-	-	-	-	-	>3.30	-	14	-	0.42	-	-	-	-	2.8	-
GWE-1D-0515	5/6/2015	510	32	72 D	0.10	<1.1	<1.0	-	22	-	0.66	-	9.3	<0.050	260 D	3.1	-	-127.72
GWE-1D-F(0.2)-0515	5/6/2015	-	-	-	-	-	-	>3.30	-	22	-	0.67	-	-	-	-	2.8	-
GWE-2D-0515	5/5/2015	410	40	730 D	0.05	<1.1	<1.0	-	23	-	0.56	-	29	<0.050	620 D	3.8	-	-105.11
GWE-2D-F(0.2)-0515	5/5/2015	-	-	-	-	-	-	>3.30	-	24	-	0.58	-	-	-	-	3.5	-
GWE-3D-0515	5/5/2015	420	41	800 D	0.08	<1.1	<1.0	-	25	-	0.78	-	110	<0.050	250 D	4.4	-	-109.32
GWE-3D-F(0.2)-0515	5/5/2015	-	-	-	-	-	-	>3.30	-	25	-	0.80	-	-	-	-	4.1	-
GWE-5S-0515	5/5/2015	450	40	47 D	0.09	<1.1	<1.0	-	0.070	-	0.42	-	2.5	<0.050	110 D	2.6	-	28.16
GWE-5S-F(0.2)-0515	5/5/2015	-	-	-	-	-	-	0.00	-	<0.050	-	0.37	-	-	-	-	2.4	-
GWE-5M-0515	5/5/2015	500	45	54 D	0.10	<1.1	<1.0	-	27	-	1.4	-	85	<0.050	120 D	2.0	-	-116.23
GWE-5M-F(0.2)-0515	5/5/2015	-	-	-	-	-	-	>3.30	-	2.6	-	1.3	-	-	-	-	2.0	-
GWE-5D-0515	5/5/2015	390	30	90 D	0.12	<1.1	<1.0	-	14	-	0.42	-	44	<0.050	340 D	2.5	-	-89.64
GWE-5D-F(0.2)-0515	5/5/2015	-	-	-	-	-	-	>3.30	-	14	-	0.42	-	-	-	-	2.6	-
PM1M-0515	5/4/2015	560	44	400 D	0.06	<1.1	<1.0	-	3.4	-	2.3	-	9.2	<0.050	150 D	1.6	-	-33.48
PM1M-F(0.2)-0515	5/4/2015	-	-	-	-	-	-	2.84	-	3.3	-	2.3	-	-	-	-	1.7	-
PM1D-0515	5/4/2015	410	25	91 D	0.10	<1.1	<1.0	-	13	-	0.41	-	52	<0.050	310 D	2.4	-	-119.22
PM1D-F(0.2)-0515	5/4/2015	-	-	-	-	-	-	>3.30	-	12	-	0.39	-	-	-	-	2.5	-

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

Prepared By: LAB 5/26/2015
Checked By: EPW 5/29/2015
Reviewed By: AWD 6/25/2015

APPENDIX A
GROUNDWATER PURGING AND SAMPLING FORMS

In-Situ Inc.

SmartTroll
5/7/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-1S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	363 mL
Well Total Depth	27.31 ft	Calculated Sample Rate	72 sec
Depth to Top of Screen	22.31 ft	Sample Rate	72 sec
Screen Length	5 ft	Stabilized Drawdown	0.25 ft
Depth to Water	18.20 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	14:49:22	19.02	7.21	2040.03	39.70	0.06	-118.85
	14:50:34	18.97	7.20	2036.89	25.80	0.06	-121.60
	14:51:46	19.05	7.19	2033.34	21.00	0.06	-124.07
	14:52:58	19.07	7.19	2027.41	16.50	0.06	-126.10
	14:54:10	19.03	7.19	2029.66	14.00	0.06	-127.57
Variance in Last 3 Readings		0.08	-0.01	-3.55	-4.80	0.00	-2.47
		0.02	0.00	-5.93	-4.50	0.00	-2.03
		-0.04	0.00	2.25	-2.50	0.00	-1.47

Notes:

In-Situ Inc.

SmartTroll
5/7/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-2D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	639 mL
Well Total Depth	77.00 ft	Calculated Sample Rate	127 sec
Depth to Top of Screen	72.00 ft	Sample Rate	127 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	22.48 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:37:51	18.25	7.17	1589.09	2.37	0.11	-102.65
	13:39:58	18.16	7.14	1611.81	1.45	0.11	-105.70
	13:42:05	18.03	7.12	1607.46	1.48	0.09	-107.61
	13:44:12	18.07	7.11	1604.24	1.12	0.08	-109.09
	13:46:20	18.04	7.11	1614.82	1.11	0.08	-110.22
Variance in Last 3 Readings		-0.13	-0.02	-4.35	0.03	-0.02	-1.91
		0.04	-0.01	-3.22	-0.36	-0.01	-1.48
		-0.03	0.00	10.58	-0.01	0.00	-1.13

Notes:

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Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-3D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	850 mL
Well Total Depth	114.75 ft	Calculated Sample Rate	169 sec
Depth to Top of Screen	109.75 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	24.66 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	14:43:36	19.66	7.13	1500.16	2.94	0.21	-83.55
	14:46:25	19.14	7.04	1520.86	3.29	0.15	-83.61
	14:49:14	19.35	6.98	1534.71	2.24	0.14	-84.37
	14:52:04	20.30	6.96	1516.57	2.00	0.15	-85.16
	14:54:53	20.35	6.94	1499.92	1.79	0.15	-84.21
Variance in Last 3 Readings		0.21	-0.06	13.85	-1.05	-0.01	-0.76
		0.95	-0.02	-18.14	-0.24	0.01	-0.79
		0.05	-0.02	-16.65	-0.21	0.00	0.95

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	897 mL
Well Total Depth	123.12 ft	Calculated Sample Rate	179 sec
Depth to Top of Screen	118.12 ft	Sample Rate	179 sec
Screen Length	5 ft	Stabilized Drawdown	0.03 ft
Depth to Water	34.82 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	11:04:14	18.63	7.14	1438.24	7.42	0.22	-82.67
	11:07:13	18.22	7.06	1450.24	4.12	0.16	-85.67
	11:10:12	18.16	7.02	1447.70	2.79	0.13	-87.64
	11:13:11	18.12	7.01	1446.42	1.86	0.12	-89.27
	11:16:10	18.15	7.00	1446.47	1.53	0.11	-90.54
Variance in Last 3 Readings		-0.06	-0.04	-2.54	-1.33	-0.03	-1.97
		-0.04	-0.01	-1.28	-0.93	-0.01	-1.63
		0.03	-0.01	0.05	-0.33	-0.01	-1.27

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	BSA-MW-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	882 mL
Well Total Depth	120.89 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	115.89 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.03 ft
Depth to Water	30.22 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:01:07	18.25	6.93	1790.63	5.25	0.22	-107.00
	9:04:03	18.34	6.89	1784.76	4.36	0.21	-110.31
	9:06:59	18.20	6.88	1802.84	4.10	0.19	-114.02
	9:09:55	18.39	6.89	1807.21	3.12	0.16	-117.15
	9:12:51	18.49	6.90	1815.66	2.77	0.15	-119.09
Variance in Last 3 Readings		-0.14	-0.01	18.08	-0.26	-0.02	-3.71
		0.19	0.01	4.37	-0.98	-0.03	-3.13
		0.10	0.01	8.45	-0.35	-0.01	-1.94

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	599 mL
Well Total Depth	74.69 ft	Calculated Sample Rate	119 sec
Depth to Top of Screen	69.69 ft	Sample Rate	119 sec
Screen Length	5 ft	Stabilized Drawdown	0.05 ft
Depth to Water	16.98 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:11:37	18.92	8.04	1841.23	1.86	0.10	-60.35
	9:13:36	18.87	8.13	1855.11	1.32	0.09	-68.48
	9:15:35	18.88	8.26	1858.62	1.59	0.08	-73.54
	9:17:34	18.89	8.36	1867.42	1.55	0.07	-77.65
	9:19:33	18.92	8.41	1865.80	1.75	0.06	-81.87
Variance in Last 3 Readings		0.01	0.13	3.51	0.27	-0.01	-5.06
		0.01	0.10	8.80	-0.04	-0.01	-4.11
		0.03	0.05	-1.62	0.20	-0.01	-4.22

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-2D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	793 mL
Well Total Depth	104.56 ft	Calculated Sample Rate	158 sec
Depth to Top of Screen	99.56 ft	Sample Rate	158 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	14.49 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	10:12:54	19.22	7.04	1124.47	19.80	0.21	-94.73
	10:15:33	19.16	6.98	1138.37	13.60	0.17	-96.75
	10:18:11	19.18	6.96	1155.40	9.95	0.15	-98.56
	10:20:49	19.14	6.95	1168.35	8.91	0.13	-100.14
	10:23:27	19.14	6.94	1182.75	7.56	0.12	-101.38
Variance in Last 3 Readings		0.02	-0.02	17.03	-3.65	-0.02	-1.81
		-0.04	-0.01	12.95	-1.04	-0.02	-1.58
		0.00	-0.01	14.40	-1.35	-0.01	-1.24

Notes:
Conductivity slow to stabalize.

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-3D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	840 mL
Well Total Depth	112.76 ft	Calculated Sample Rate	167 sec
Depth to Top of Screen	107.76 ft	Sample Rate	167 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	17.08 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	12:46:19	19.21	6.95	1892.54	8.18	0.09	-96.54
	12:49:06	19.07	6.91	1891.50	4.64	0.10	-98.98
	12:51:53	18.88	6.90	1870.59	4.12	0.07	-100.64
	12:54:40	18.87	6.90	1880.29	3.50	0.06	-101.96
	12:57:27	18.87	6.89	1869.02	3.23	0.06	-103.26
Variance in Last 3 Readings		-0.19	-0.01	-20.91	-0.52	-0.03	-1.66
		-0.01	0.00	9.70	-0.62	-0.01	-1.32
		0.00	-0.01	-11.27	-0.27	0.00	-1.30

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-4D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	885 mL
Well Total Depth	120.98 ft	Calculated Sample Rate	176 sec
Depth to Top of Screen	115.98 ft	Sample Rate	176 sec
Screen Length	5 ft	Stabilized Drawdown	0.03 ft
Depth to Water	30.35 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:59:53	18.25	6.99	1837.79	3.64	0.18	-114.71
	10:05:45	18.02	6.98	1865.50	2.27	0.10	-122.39
	10:08:41	18.10	6.98	1857.94	1.62	0.08	-124.50
	10:11:37	17.98	6.98	1857.65	1.71	0.08	-125.96
	10:14:33	17.92	6.98	1865.52	1.61	0.07	-127.26
Variance in Last 3 Readings		0.08	0.00	-7.56	-0.65	-0.02	-2.11
		-0.12	0.00	-0.29	0.09	0.00	-1.46
		-0.06	0.00	7.87	-0.10	-0.01	-1.30

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	CPA-MW-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	849 mL
Well Total Depth	114.64 ft	Calculated Sample Rate	169 sec
Depth to Top of Screen	109.64 ft	Sample Rate	169 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	24.70 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	13:35:25	18.06	6.83	1963.19	2.16	0.26	-58.87
	13:38:14	17.89	6.77	1977.65	1.20	0.17	-65.47
	13:41:03	17.75	6.73	1988.72	1.30	0.15	-69.12
	13:43:52	17.74	6.72	1988.60	1.17	0.12	-71.28
	13:46:41	17.54	6.71	1995.25	0.82	0.10	-72.80
Variance in Last 3 Readings		-0.14	-0.04	11.07	0.10	-0.02	-3.65
		-0.01	-0.01	-0.12	-0.13	-0.03	-2.16
		-0.20	-0.01	6.65	-0.35	-0.02	-1.52

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-A	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	817 mL
Well Total Depth	108.63 ft	Calculated Sample Rate	163 sec
Depth to Top of Screen	103.63 ft	Sample Rate	163 sec
Screen Length	5 ft	Stabilized Drawdown	0.03 ft
Depth to Water	21.67 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	13:05:42	17.53	7.03	1775.60	37.20	0.29	-80.69
	13:08:25	17.44	7.03	1726.06	34.00	0.38	-81.09
	13:13:51	17.40	7.02	1665.21	20.70	0.54	-81.00
	13:16:36	17.33	7.02	1654.71	14.40	0.57	-80.47
	13:19:19	17.40	7.02	1644.27	12.30	0.58	-79.80
Variance in Last 3 Readings		-0.04	-0.01	-60.85	-13.30	0.16	0.09
		-0.07	0.00	-10.5	-6.30	0.03	0.53
		0.07	0.00	-10.44	-2.10	0.01	0.67

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-C1	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	810 mL
Well Total Depth	109.87 ft	Calculated Sample Rate	161 sec
Depth to Top of Screen	104.87 ft	Sample Rate	161 sec
Screen Length	5 ft	Stabilized Drawdown	0.04 ft
Depth to Water	18.28 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	11:45:27	17.18	7.30	2304.70	45.80	0.16	-99.03
	11:48:08	17.18	7.17	2313.59	28.80	0.14	-97.05
	11:50:49	17.09	7.10	2321.35	15.70	0.12	-96.03
	11:53:30	17.04	7.06	2326.77	12.90	0.11	-95.35
	11:56:13	17.04	7.04	2326.55	10.10	0.10	-95.24
Variance in Last 3 Readings		-0.09	-0.07	7.76	-13.10	-0.02	1.02
		-0.05	-0.04	5.42	-2.80	-0.01	0.68
		0.00	-0.02	-0.22	-2.80	-0.01	0.11

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	ESL-MW-D1	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	869 mL
Well Total Depth	119.22 ft	Calculated Sample Rate	173 sec
Depth to Top of Screen	114.22 ft	Sample Rate	173 sec
Screen Length	5 ft	Stabilized Drawdown	0.02 ft
Depth to Water	25.29 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	10:14:15	17.79	6.87	1774.25	1.28	0.16	-9.67
	10:17:08	17.66	6.89	1804.08	0.96	0.14	-37.44
	10:20:01	17.62	6.92	1828.23	0.98	0.12	-54.37
	10:22:54	17.53	6.93	1838.51	0.80	0.11	-64.53
	10:25:47	17.55	6.94	1841.65	0.65	0.10	-70.85
Variance in Last 3 Readings		-0.04	0.03	24.15	0.02	-0.02	-16.93
		-0.09	0.01	10.28	-0.18	-0.01	-10.16
		0.02	0.01	3.14	-0.15	-0.01	-6.32

Notes:

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

Well Information:		**Pumping Information:**	
Well Id	GWE-1D	Final Pumping Rate	200 mL/min
Well Diameter	1 in	System Volume	853 mL
Well Total Depth	128.22 ft	Calculated Sample Rate	255 sec
Depth to Top of Screen	118.22 ft	Sample Rate	255 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	28.19 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	12:06:36	17.82	6.99	1593.20	-	0.15	-124.70
	12:10:51	17.65	6.98	1591.30	-	0.13	-124.80
	12:26:04	18.27	6.96	1605.48	26.60	0.10	-127.39
	12:30:19	18.75	6.96	1617.19	13.50	0.10	-128.79
	12:34:35	18.83	6.96	1588.05	14.00	0.10	-127.72
Variance in Last 3 Readings		0.62	-0.02	14.18	-	-0.03	-2.59
		0.48	0.00	11.71	-13.10	0.00	-1.4
		0.08	0.00	-29.14	0.50	0.00	1.07

Notes:

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Project Information:		**Pump Information:**	
Operator Name	LAB	Pump Model/Type	Peristaltic
Company Name	Golder Associates	Tubing Type	LDPE
Project Name	W.G. Krummrich	Tubing Diameter	0.19 in
Site Name	LTM	Tubing Length	135.0 ft
		Pump Placement from TOC	110 ft

Well Information:		**Pumping Information:**	
Well Id	GWE-2D	Final Pumping Rate	100 mL/min
Well Diameter	1 in	System Volume	853 mL
Well Total Depth	136.59 ft	Calculated Sample Rate	511 sec
Depth to Top of Screen	126.59 ft	Sample Rate	511 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	28.12 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	15:31:55	21.81	7.01	2669.47	2.17	0.23	-129.17
	15:40:26	17.58	6.93	3351.48	4.94	0.06	-118.53
	15:49:09	17.68	6.92	3561.35	4.46	0.06	-109.83
	15:57:51	17.72	6.94	3610.86	3.46	0.06	-106.74
	16:06:22	17.58	6.94	3708.58	2.01	0.05	-105.11
Variance in Last 3 Readings		0.10	-0.01	209.87	-0.48	0.00	8.70
		0.04	0.02	49.51	-1.00	0.00	3.09
		-0.14	0.00	97.72	-1.45	-0.01	1.63

Notes:

In-Situ Inc.

SmartTroll
5/5/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	GWE-3D	Final Pumping Rate	150 mL/min
Well Diameter	1 in	System Volume	547mL
Well Total Depth	114.88 ft	Calculated Sample Rate	218 sec
Depth to Top of Screen	104.88 ft	Sample Rate	218 sec
Screen Length	10 ft	Stabilized Drawdown	0 ft
Depth to Water	26.62 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	13:08:49	17.85	6.92	3096.79	2.24	0.09	-112.42
	13:12:27	18.15	6.91	3189.24	2.25	0.08	-112.02
	13:16:05	18.01	6.92	3235.59	2.40	0.08	-110.52
	13:19:43	17.89	6.91	3299.34	1.66	0.08	-110.14
	13:23:21	17.82	6.91	3312.20	1.25	0.08	-109.32
Variance in Last 3 Readings		-0.14	0.01	46.35	0.15	0.00	1.50
		-0.12	-0.01	63.75	-0.74	0.00	0.38
		-0.07	0.00	12.86	-0.41	0.00	0.82

Notes:

In-Situ Inc.

SmartTroll
5/5/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	GWE-5S	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	349 mL
Well Total Depth	27.79 ft	Calculated Sample Rate	69 sec
Depth to Top of Screen	17.79 ft	Sample Rate	69 sec
Screen Length	10 ft	Stabilized Drawdown	0.00 ft
Depth to Water	16.70 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	10:41:00	18.98	6.93	1090.47	18.70	0.17	21.08
	10:42:09	18.69	6.91	1089.98	16.40	0.14	22.14
	10:43:18	18.51	6.88	1100.81	15.60	0.13	24.25
	10:44:27	18.43	6.87	1101.76	12.70	0.11	26.41
	10:45:36	18.32	6.86	1103.08	11.70	0.09	28.16
Variance in Last 3 Readings		-0.18	-0.03	10.83	-0.80	-0.01	2.11
		-0.08	-0.01	0.95	-2.90	-0.02	2.16
		-0.11	-0.01	1.32	-1.00	-0.02	1.75

Notes:

In-Situ Inc.

SmartTroll
5/5/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	GWE-5M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	517 mL
Well Total Depth	58.03 ft	Calculated Sample Rate	103 sec
Depth to Top of Screen	48.03 ft	Sample Rate	103 sec
Screen Length	10 ft	Stabilized Drawdown	0.01 ft
Depth to Water	16.89 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	10:02:10	17.09	6.92	1306.07	75.30	0.13	-110.63
	10:03:53	17.04	6.91	1306.44	70.50	0.12	-111.86
	10:05:36	17.31	6.91	1302.54	58.60	0.10	-113.61
	10:07:19	17.34	6.92	1299.82	49.30	0.10	-115.31
	10:09:02	17.19	6.91	1303.86	39.30	0.10	-116.23
Variance in Last 3 Readings		0.27	0.00	-3.90	-11.90	-0.02	-1.75
		0.03	0.01	-2.72	-9.30	0.00	-1.7
		-0.15	-0.01	4.04	-10.00	0.00	-0.92

Notes:

In-Situ Inc.

SmartTroll
5/5/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	GWE-5D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	795 mL
Well Total Depth	105.14 ft	Calculated Sample Rate	159 sec
Depth to Top of Screen	100.14 ft	Sample Rate	159 sec
Screen Length	5 ft	Stabilized Drawdown	0.00 ft
Depth to Water	17.25 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:15:31	16.59	6.95	1661.73	80.00	0.22	-68.40
	9:18:10	16.25	6.87	1665.54	78.30	0.18	-71.12
	9:20:49	16.14	6.84	1676.36	48.40	0.16	-76.68
	9:23:28	16.11	6.83	1679.14	29.70	0.14	-83.74
	9:26:07	16.10	6.83	1687.69	15.80	0.12	-89.64
Variance in Last 3 Readings		-0.11	-0.03	10.82	-29.90	-0.02	-5.56
		-0.03	-0.01	2.78	-18.70	-0.02	-7.06
		-0.01	0.00	8.55	-13.90	-0.02	-5.90

Notes:

In-Situ Inc.

SmartTroll
5/4/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	PM1M	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	564 mL
Well Total Depth	60.59 ft	Calculated Sample Rate	112 sec
Depth to Top of Screen	50.59 ft	Sample Rate	112 sec
Screen Length	10 ft	Stabilized Drawdown	0.01 ft
Depth to Water	22.89 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	9:20:41	17.44	6.74	2325.44	9.52	0.08	-33.92
	9:22:33	17.41	6.74	2319.99	8.21	0.07	-33.57
	9:24:25	17.39	6.73	2320.57	7.70	0.07	-33.36
	9:26:17	17.40	6.73	2320.29	6.43	0.06	-33.34
	9:28:10	17.38	6.73	2321.81	5.87	0.06	-33.48
Variance in Last 3 Readings		-0.02	-0.01	0.58	-0.51	0.00	0.21
		0.01	0.00	-0.28	-1.27	-0.01	0.02
		-0.02	0.00	1.52	-0.56	0.00	-0.14

Notes:

In-Situ Inc.

SmartTroll
5/4/2015

Low-Flow System
ISI Low-Flow Log

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

Well Information:		**Pumping Information:**	
Well Id	PM1D	Final Pumping Rate	300 mL/min
Well Diameter	2 in	System Volume	814 mL
Well Total Depth	106.61	Calculated Sample Rate	162 sec
Depth to Top of Screen	101.61	Sample Rate	162 sec
Screen Length	5 ft	Stabilized Drawdown	0.01 ft
Depth to Water	22.87 ft		

Low-Flow Sampling Stabilization Summary

	Time	Temp [C]	pH [pH]	Cond [µS/cm]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings			+/-0.2	+/-0.1 +/-3%	+/-1 +/-10%	+/-0.2 +/-10%	+/-20
Last 5 Readings	8:26:02	16.37	6.83	1600.52	7.24	0.14	-105.58
	8:28:44	16.32	6.83	1599.77	5.92	0.13	-109.39
	8:31:29	16.24	6.83	1601.08	5.03	0.12	-113.04
	8:34:11	16.25	6.83	1594.59	6.28	0.11	-116.37
	8:36:53	16.27	6.84	1593.94	6.21	0.10	-119.22
Variance in Last 3 Readings		-0.08	0.00	1.31	-0.89	-0.01	-3.65
		0.01	0.00	-6.49	1.25	-0.01	-3.33
		0.02	0.01	-0.65	-0.07	-0.01	-2.85

Notes:

APPENDIX B
CHAINS-OF-CUSTODY

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name. 2Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No.:
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	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-0515	5/4/15	0934	G	W	14	N		3	1	1	1	3	2	3			2 Coolers
PMID-F(0.2)-0515					4	Y									1	3	
PMID-0515-AD					3	N		3									
PMIM-0515		1027			14	N		3	1	1	1	3	2	3			
PMIM-F(0.2)-0515					4	Y									1	3	
ESL-MW-DI-0515		1125			14	N		3	1	1	1	3	2	3			
ESL-MW-DI-F(0.2)-0515					4	Y									1	3	
ESL-MW-CI-0515		1256			14	N		3	1	1	1	3	2	3			
ESL-MW-CI-F(0.2)-0515					4	Y									1	3	
ESL-MW-CI-0515-EB		1325			3	N		3									
ESL-MW-A-0515		1420			14	N		3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0515					4	Y									1	3	
								2	4	1	1	2	1	3	4	3	

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

680-112188 Chain of Custody

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112188 2.0/2.4(CF) 2.4/2.8C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531961 / 531962	Cooler Temp (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jen Brunner	Golder	5/4/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			[illegible]	SAV	05-05-15 0949

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
ESL-MW-A-0515-MS	5/4/15	1420	G	W	3	N		3									2 coolers
ESL-MW-A-0515-MSD	1	1	1	1	3	N		3									
2Q15 LTM Trip Blank #1	—	—	—	—	2	N		2									
								2	4	1	1	2	1,3	3	4	3	

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)

680-112188 2.0/2.4(CF)2.4/2.8c

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: 531961 / 531962 | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Lori Bindner	Golder	5/4/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			[signature]	SAV.	05-05-15 0949

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes
GWE-5D-0515	5/5/15	0925	G	W	14	N		3	1	1	1	3	2	3			2 Coolers
GWE-5D-F(0.2)-0515		1			4	Y									1	3	
GWE-5M-0515		1008			14	N		3	1	1	1	3	2	3			
GWE-5M-F(0.2)-0515		1			4	Y									1	3	
GWE-5S-0515		1045			14	N		3	1	1	1	3	2	3			
GWE-5S-F(0.2)-0515		1			4	Y									1	3	
GWE-3D-0515		1323			14	N		3	1	1	1	3	2	3			
GWE-3D-F(0.2)-0515		1			4	Y									1	3	
GWE-2D-0515		1606			14	N		3	1	1	1	3	2	3			
GWE-2D-F(0.2)-0515	1	1606	1	1	4	Y									1	3	
2Q15 LTM Trip Blank #2	—	—	—	—	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	

680-112212 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)

1.4°C 1.8CF / 2.0°C 2.4CF

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531963 / 531964	Cooler Temp. (°C) Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jen Bindner	Golder	5/5/15/1800		TA	5/6/15 9:33
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmeric
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/6/15	COC No.
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name. 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site. Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-1D-0515	5/6/15	0915	G	W	14	N		3	1	1	1	3	2	3			2 coolers
CPA-MW-1D-F(0.2)-0515	"	1	"	"	4	Y									1	3	*All samples
CPA-MW-2D-0515	"	1022	"	"	14	N		3	1	1	1	3	2	3			can be included
CPA-MW-2D-F(0.2)-0515	"	"	"	"	4	Y									1	3	on One ~~Chain~~ LAB
CPA-MW-2D-0515-AD	"	"	"	"	3	N		3									SDG.
CPA-MW-5D-0515	"	1346	"	"	14	N		3	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0515	"	1	"	"	4	Y									1	3	
GWE-1D-0515	"	1235	"	"	14	N		3	1	1	1	3	2	3			
GWE-1D-F(0.2)-0515	"	1	"	"	4	Y									1	3	
BSA-MW-3D-0515	"	1455	"	"	14	N		3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0515	"	1	"	"	4	Y									1	3	
BSA-MW-3D-0515-EB	"	1515	"	"	3	N		3									

680-112279 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)

680-112279 1.8/2.0(CF) 2.2/2.4°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531967/531968	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Lori Bindner	Golder	5/6/15 1700			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by:	Company	Date/Time
			PD Banda	SAV	050715 0904

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/6/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			Job / SDG No :
Site: Solutia WG Krummrich Facility	☐ 2 days			
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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:
2015 LTM Trip Blank #3	—	—	—		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	

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112279 1.8/2.0(CF) 2.2/2.4°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531967 / 531968	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time.
Jen Bindner	Golder	5/6/15 1700			
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company	Date/Time:
			C Banda	SAV.	050715 0904

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-5D-0515	5/7/15	0912	G	W	14	N		3	1	1	1	3	2	3			* 2 coolers
BSA-MW-5D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
BSA-MW-5D-0515-MS	"	"	"	"	3	N		3									
BSA-MW-5D-0515-MSD	"	"	"	"	3	N		3									
BSA-MW-4D-0515	"	1115	"	"	14	N		3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
BSA-MW-2D-0515	"	1346	"	"	14	N		3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
CPA-MW-4D-0515	"	1014	"	"	14	N		3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
CPA-MW-3D-0515	"	1257	"	"	14	N		3	1	1	1	3	2	3			
CPA-MW-3D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
Preservation Used: 1= Ice, 2=HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6=Other								2	4	1	1	2	1,3	3	4	3	

680-112363 Chain of Custody

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112363 1.0/2.4(CF)1.4/28°C

Custody Seals Intact. ☐ Yes ☐ No	Custody Seal No.: 531965 / 531966	Cooler Temp. (°C). Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
J Bindner	Golder	5/7/15/1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by	Company:	Date/Time:
			[signature]	SAV	05-08-15 0938

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310 1	Chloride by 325 2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353 2	TOC by 415 1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-3D-0515-AD	5/7/15	1257	G	W	3	N		3									# 2 coolers
2Q15 LTM Trip Blank #4	—	—	—	—	2	N		2									
BSA-MW-1S-0515	5/7/15	1454	G	W	14	N		3	1	1	1	3	2	3			
BSA-MW-1S-F(0.2)-0515	1	1	1	1	4	Y									1	3	
BSA-MW-1S-0515-EB	1	1515	1	1	3	N		3									

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

680-112363 1.0/2.4(CF)1.4/28°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531965/531966	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
J Bindner	Golder	5/7/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				SAV	05-08-15 0938

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

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APPENDIX C
QUALITY ASSURANCE REPORT

QUALITY ASSURANCE REPORT

LONG-TERM MONITORING PROGRAM
SOLUTIA INC. W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

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

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

July 2015 **140-3345**

A world of capabilities delivered locally

Golder Associates

Table of Contents

1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed a review of analytical data for the groundwater samples collected on between May 4 and May 7, 2015 at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) facility (Site) in Sauget, Illinois. Golder collected a total of thirty six (36) samples from groundwater monitoring wells and piezometers as part of the 2nd Quarter 2015 (2Q15) Long-Term Monitoring Program (LTMP). Twenty-one (21) groundwater samples, four (4) trip blanks, three (3) equipment blanks (EB), three (3) analytical duplicates (AD), and two (2) matrix spike/matrix spike duplicate (MS/MSD) pairs were prepared. Groundwater monitoring locations were located at the WGK facility or approximately 1.0 to 1.5 miles north of the Site. The samples were submitted to the TestAmerica Laboratories, Inc. (TestAmerica) facility located in Savannah, Georgia for analysis using United States Environmental Protection Agency (USEPA) methods, standard methods and USEPA SW-846 test methods. Samples submitted to TestAmerica were analyzed for volatile organic compounds (VOCs), 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
KPS141	PM1M-0515
	PM1D-0515
	PM1D-0515-AD
	ESL-MW-A-0515
	ESL-MW-C1-0515
	ESL-MW-C1-0515-EB
	ESL-MW-D1-0515
	2Q15 LTM Trip Blank #1
KPS142	GWE-2D-0515
	GWE-3D-0515
	GWE-5S-0515
	GWE-5M-0515
	GWE-5D-0515
	2Q15 LTM Trip Blank #2
KPS143	GWE-1D-0515
	BSA-MW-3D-0515
	BSA-MW-3D-0515-EB
	CPA-MW-1D-0515
	CPA-MW-2D-0515
	CPA-MW-2D-0515-AD
	CPA-MW-5D-0515
	2Q15 LTM Trip Blank #3

KPS144	BSA-MW-1S-0515
	BSA-MW-1S-0515-EB
	BSA-MW-2D-0515
	BSA-MW-4D-0515
	BSA-MW-5D-0515
	CPA-MW-3D-0515
	CPA-MW-3D-0515-AD
	CPA-MW-4D-0515
	2Q15 LTM Trip Blank #4

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, 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, three (3) EBs, three (3) ADs, and two (2) MS/MSD pairs were submitted and analyzed for VOC 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)
- Total and Dissolved Iron and Manganese were analyzed by USEPA SW-846 Method 6010C Inductively Coupled Plasma-Atomic Emission Spectrometry

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

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

Golder completed validation of the analytical data following the general guidelines in Section 4.4 Data Review and Validation of the Work Plan. The Work Plan specifies that the most recent versions of the national data validation guidelines be used for data review. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

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

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

- U – The analyte was analyzed for but not was not detected
- F1 – MS/MSD Recovery exceeds the control limits
- * - LCS or LCSD exceed the control limits

Golder data qualifiers are defined below:

- D – The analyte was analyzed at a dilution

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 4.0.

2.0 VOLATILE ORGANIC COMPOUNDS

Samples were collected from twenty-one (21) groundwater monitoring locations and analyzed for VOCs. Analytical duplicate samples were collected from three (3) sampling locations, PM1D, CPA-MW-2D and CPA-MW-3D. Three (3) EBs and 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 (KPS141, KPS142, KPS143, and KPS144) 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.

KPS142 and KPS144 – Samples were received at temperatures below the 4°C+/-2°C criteria. The samples were otherwise received in good condition and data qualification was not required.

2.2 Blanks

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

Four (4) laboratory prepared trip blanks, one (1) for each SDG, were shipped and analyzed for VOCs during the 2Q15 event to evaluate whether cross contamination occurred during sample shipment. Results for the trip blanks were non-detect.

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

Three (3) EBs were collected during the 2Q15 event to assess the effectiveness of the decontamination procedure. Detections were noted in the following EBs:

- BSA-MW-3D-0515-EB (SDG KPS143): chlorobenzene at 2.3 µg/L, 1,4-dichlorobenzene at 1.4 µg/L
- BSA-MW-1S-0515-EB (SDG KPS144): benzene at 250 µg/L

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

2.3 Surrogate Spike Recoveries

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

2.4 Laboratory Control Sample Recoveries

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

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

MS/MSD samples are analyzed to determine long term precision and accuracy of the analytical method on various matrices. One (1) MS/MSD pair is sampled for every twenty (20) field samples. Two (2) MS/MSD pairs were collected during the 2Q15 event associated with samples ESL-MW-A and 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. Three (3) ADs were collected during the 2Q15 event associated with samples PM1D,

CPA-MW-2D and CPA-MW-3D. The relative percent difference (RPD) between the samples and the associated ADs did not exceed 25%; therefore, data qualification was not required.

2.7 Internal Standard Responses

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

2.8 Results Reported From Dilutions

Several VOC samples required dilutions due to high levels of target analytes. Reporting limits were adjusted to reflect the dilution. Result qualifications are shown in Section 4.0.

3.0 INORGANICS AND GENERAL CHEMISTRY

Samples were collected from twenty-one (21) groundwater monitoring locations and analyzed for inorganics and general chemistry. The samples were submitted to TestAmerica, placed into four (4) data packages or SDGs (KPS141, KPS142, KPS143, and KPS144), 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.

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.

KPS141, KPS142, KPS143, and KPS144 – Samples were received at temperatures below the 4°C+/-2°C criteria. The samples were otherwise received in good condition and data qualification was not required.

3.2 Blanks

Laboratory 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.

3.3 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 with the exception of LCSD associated with methane in batch 382673. Data qualification was not required for associated samples.

3.4 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 PM1D, GWE-5S, GWE-5D, CPA-MW-1D, BSA-MW-5D, BSA-MW-1S for various analytes. Some MS/MSD data for these samples was outside acceptance criteria. Since MS/MSD data alone cannot be used to evaluate the precision and accuracy of data, data qualification was not required for associated samples.

3.5 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.

4.0 SUMMARY

Golder validated the data collected during the 2Q15 sampling event from the Solutia Inc. WGK facility in general accordance with the Work Plan and USEPA functional guidelines. Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. Where a positive result was qualified as estimated, the analyte should be considered present. Similarly, a result that was qualified as an estimated reporting limit should be considered not present for the purposes of this program, although the limit itself may not be precise. The completeness for the entire data set was 100%.

Qualification Summary Table

Quality Control Issue	Compound(s)	Qualifier	Samples Affected
Compounds analyzed at a dilution	Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chloride, Sulfate, TOC, and DOC	D	PM1M, PM1D, ESL-MW-A, ESL-MW-C1, ESL-MW-D1, GWE-1D, GWE-2D, GWE-3D, GWE-5D, GWE-5M, GWE-5S, BSA-MW-1S, BSA-MW-1S-EB, BSA-MW-2D, BSA-MW-3D, BSA-MW-4D, BSA-MW-5D, CPA-MW-1D, CPA-MW-2D, CPA-MW-2D-AD, CPA-MW-3D, CPA-MW-4D, and CPA-MW-5D

5.0 REFERENCES

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

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

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

APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
(INCLUDING DATA VALIDATION REPORTS)

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
2Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-2Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS141
Matrix: Water

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

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

Sample Names: PM1M-0515, PM1M-F(0.2)-0515, PM1D-0515, PM1D-0515-AD, PM1D-F(0.2)-0515, ESL-MW-A-0515, ESL-MW-A-F(0.2)-0515, ESL-MW-C1-0515, ESL-MW-C1-0515-EB, ESL-MW-C1-F(0.2)-0515, ESL-MW-D1-0515, ESL-MW-D1-F(0.2)-0515, 2Q15 LTM Trip Blank #1

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

Comments:

VOC: Sample ESL-MW-D1-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 382554.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples PM1M-0515, PM1D-0515, ESL-MW-A-0515, ESL-MW-C1-0515, and ESL-MW-D1-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples PM1M-0515, PM1D-0515, ESL-MW-A-0515, ESL-MW-C1-0515, and ESL-MW-D1-0515 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: None

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

Comments: Detections in diluted analysis were qualified.

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

Comments: None

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

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank ESL-MW-C1-0515-EB was submitted with SDG KPS141.

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: Duplicate sample PM1D-0515-AD was submitted with SDG KPS141.

Additional Comments: None

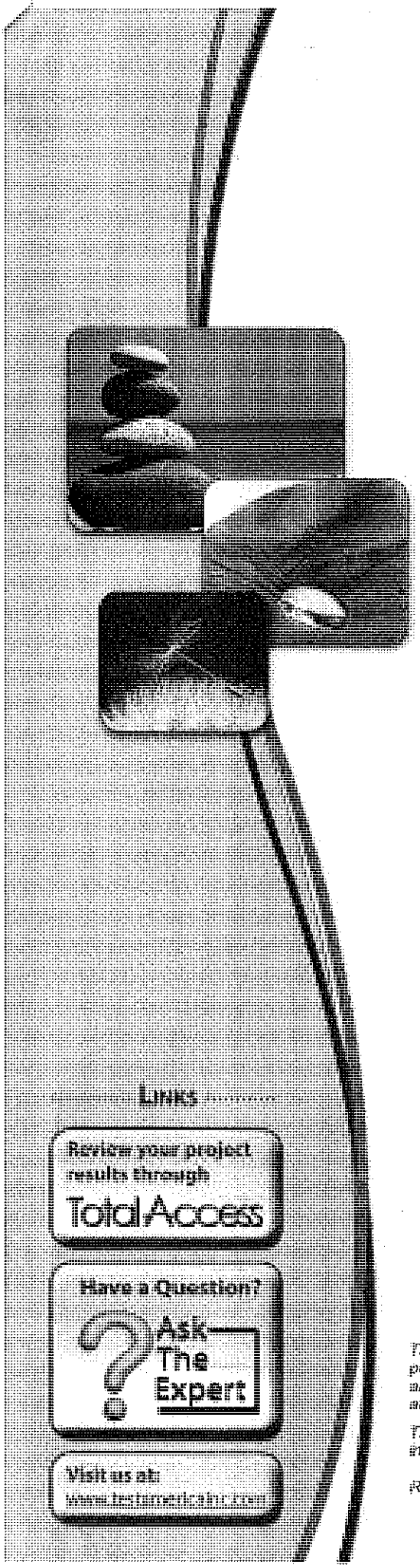
Qualifications:

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

SDG KPS141

Sample Results from:

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



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-112188-1
TestAmerica Sample Delivery Group: KPS141
Client Project/Site: 2Q15 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:
5/22/2015 3:14:04 PM

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

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

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

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

LAB 5/29/15

Table of Contents

LAB 5/29/15

Job ID: 680-112188-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 2Q15 LTM GW Sampling - 1403345

Report Number: 680-112188-1

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 05/05/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was C.
→ 2.4 /2.8°C

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples PM1D-0515 (680-112188-1), PM1D-0515-AD (680-112188-3), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8), ESL-MW-C1-0515-EB (680-112188-10), ESL-MW-A-0515 (680-112188-11) and 2Q15 LTM Trip Blank #1 (680-112188-13) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/06/2015.

Sample ESL-MW-D1-0515 (680-112188-6)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED GASES
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 05/11/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 382554.

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

METALS (ICP)
Samples PM1D-F(0.2)-0515 (680-112188-2), PM1M-F(0.2)-0515 (680-112188-5), ESL-MW-D1-F(0.2)-0515 (680-112188-7), ESL-MW-C1-F(0.2)-0515 (680-112188-9) and ESL-MW-A-F(0.2)-0515 (680-112188-12) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/07/2015 and analyzed on 05/08/2015.

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

METALS (ICP)
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/08/2015 and analyzed on 05/11/2015.

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

Job ID: 680-112188-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

ALKALINITY
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 05/06/2015.

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

CHLORIDE
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 05/06/2015.

Samples PM1D-0515 (680-112188-1)[2X], PM1M-0515 (680-112188-4)[10X], ESL-MW-D1-0515 (680-112188-6)[5X], ESL-MW-C1-0515 (680-112188-8)[2X] and ESL-MW-A-0515 (680-112188-11)[2X] 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-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/05/2015.

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

SULFATE
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 05/07/2015.

Samples PM1D-0515 (680-112188-1)[10X], PM1M-0515 (680-112188-4)[5X], ESL-MW-D1-0515 (680-112188-6)[20X], ESL-MW-C1-0515 (680-112188-8)[20X] and ESL-MW-A-0515 (680-112188-11)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples PM1D-0515 (680-112188-1), PM1M-0515 (680-112188-4), ESL-MW-D1-0515 (680-112188-6), ESL-MW-C1-0515 (680-112188-8) and ESL-MW-A-0515 (680-112188-11) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples PM1D-F(0.2)-0515 (680-112188-2), PM1M-F(0.2)-0515 (680-112188-5), ESL-MW-D1-F(0.2)-0515 (680-112188-7), ESL-MW-C1-F(0.2)-0515 (680-112188-9) and ESL-MW-A-F(0.2)-0515 (680-112188-12) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

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

Sample Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-112188-1	PM1D-0515	Water	05/04/15 09:34	05/05/15 09:49
680-112188-2	PM1D-F(0.2)-0515	Water	05/04/15 09:34	05/05/15 09:49
680-112188-3	PM1D-0515-AD	Water	05/04/15 09:34	05/05/15 09:49
680-112188-4	PM1M-0515	Water	05/04/15 10:27	05/05/15 09:49
680-112188-5	PM1M-F(0.2)-0515	Water	05/04/15 10:27	05/05/15 09:49
680-112188-6	ESL-MW-D1-0515	Water	05/04/15 11:25	05/05/15 09:49
680-112188-7	ESL-MW-D1-F(0.2)-0515	Water	05/04/15 11:25	05/05/15 09:49
680-112188-8	ESL-MW-C1-0515	Water	05/04/15 12:56	05/05/15 09:49
680-112188-9	ESL-MW-C1-F(0.2)-0515	Water	05/04/15 12:56	05/05/15 09:49
680-112188-10	ESL-MW-C1-0515-EB	Water	05/04/15 13:25	05/05/15 09:49
680-112188-11	ESL-MW-A-0515	Water	05/04/15 14:20	05/05/15 09:49
680-112188-12	ESL-MW-A-F(0.2)-0515	Water	05/04/15 14:20	05/05/15 09:49
680-112188-13	2Q15 LTM Trip Blank #1	Water	05/04/15 00:00	05/05/15 09:49

LAB 5/29/15

Method Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

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

Protocol References:

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

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

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

Laboratory References:

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

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

LAB 5/29/15

Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

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

Glossary

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

LAB 5/29/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: PM1D-0515 — Lab Sample ID: 680-112188-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	33		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.5		1.0		ug/L	1		8260B	Total/NA
Methane	52		0.58		ug/L	1		RSK-175	Total/NA
Iron	13		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.41		0.010		mg/L	1		6010C	Total Recoverable
Chloride	91		2.0		mg/L	2		325.2	Total/NA
Sulfate	310		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	2.4		1.0		mg/L	1		415.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Alkalinity	410		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	25		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1D-F(0.2)-0515 — Lab Sample ID: 680-112188-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	12		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.39		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: PM1D-0515-AD — Lab Sample ID: 680-112188-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	33		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.6		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: PM1M-0515 — Lab Sample ID: 680-112188-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	9.2		0.58		ug/L	1		RSK-175	Total/NA
Iron	3.4		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.3		0.010		mg/L	1		6010C	Total Recoverable
Chloride	400		10		mg/L	10		325.2	Total/NA
Sulfate	150		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	1.6		1.0		mg/L	1		415.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Alkalinity	560		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	44		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: PM1M-F(0.2)-0515 — Lab Sample ID: 680-112188-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	3.3		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	1.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-D1-0515 — Lab Sample ID: 680-112188-6

This Detection Summary does not include radiochemical test results.

LAB 5/29/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-D1-0515 (Continued)

Lab Sample ID: 680-112188-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	21		10		ug/L	10		8260B	Total/NA
Chlorobenzene	1300		10		ug/L	10		8260B	Total/NA
1,4-Dichlorobenzene	85		10		ug/L	10		8260B	Total/NA
Methane	45		0.58		ug/L	1		RSK-175	Total/NA
Iron	14		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.43		0.010		mg/L	1		6010C	Total Recoverable
Chloride	120		5.0		mg/L	5		325.2	Total/NA
Sulfate	500		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	2.7		1.0		mg/L	1		415.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Alkalinity	400		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	26		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-D1-F(0.2)-0515

Lab Sample ID: 680-112188-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.42		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-0515

Lab Sample ID: 680-112188-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichlorobenzene	1.3		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.3		1.0		ug/L	1		8260B	Total/NA
Methane	4.3		0.58		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.48		0.010		mg/L	1		6010C	Total Recoverable
Chloride	99		2.0		mg/L	2		325.2	Total/NA
Sulfate	660		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	4.0		1.0		mg/L	1		415.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	25		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-C1-F(0.2)-0515

Lab Sample ID: 680-112188-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	12		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.45		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: ESL-MW-C1-0515-EB

Lab Sample ID: 680-112188-10

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 5/29/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-A-0515 — Lab Sample ID: 680-112188-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	6.3		0.58		ug/L	1		RSK-175	Total/NA
Iron	12		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.38		0.010		mg/L	1		6010C	Total Recoverable
Chloride	78		2.0		mg/L	2		325.2	Total/NA
Nitrate as N	0.34		0.050		mg/L	1		353.2	Total/NA
Sulfate	470		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	2.7		1.0		mg/L	1		415.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	17		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: ESL-MW-A-F(0.2)-0515 — Lab Sample ID: 680-112188-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.36		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 2Q15 LTM Trip Blank #1 — Lab Sample ID: 680-112188-13

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 5/29/15

Client Sample ID: PM1D-0515

Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-1

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			05/06/15 14:34	1
Chlorobenzene	**33**		1.0		ug/L			05/06/15 14:34	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 14:34	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 14:34	1
1,4-Dichlorobenzene	**1.5**		1.0		ug/L			05/06/15 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/06/15 14:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*05/06/15 14:34*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*05/06/15 14:34*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*05/06/15 14:34*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 19:57	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 19:57	1
Methane	**52**		0.58		ug/L			05/11/15 19:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**13**		0.050		mg/L		05/08/15 09:01	05/11/15 21:17	1
Manganese	**0.41**		0.010		mg/L		05/08/15 09:01	05/11/15 21:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**91**	D	2.0		mg/L			05/06/15 11:51	2
Nitrate as N	0.050	U	0.050		mg/L			05/05/15 16:37	1
Sulfate	**310**	D	50		mg/L			05/07/15 13:27	10
Total Organic Carbon	**2.4**		1.0		mg/L			05/14/15 16:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**410**		5.0		mg/L			05/06/15 07:42	1
Carbon Dioxide, Free	**25**		5.0		mg/L			05/06/15 07:42	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: PM1D-F(0.2)-0515
Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-2
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		05/07/15 11:31	05/08/15 00:43	1
Manganese, Dissolved	0.39		0.010		mg/L		05/07/15 11:31	05/08/15 00:43	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.5		1.0		mg/L			05/14/15 19:21	1

LAB 5/29/15

Client Sample ID: PM1D-0515-AD

Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			05/06/15 14:55	1
Chlorobenzene	**33**		1.0		ug/L			05/06/15 14:55	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 14:55	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 14:55	1
1,4-Dichlorobenzene	**1.6**		1.0		ug/L			05/06/15 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/06/15 14:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*05/06/15 14:55*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*05/06/15 14:55*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*05/06/15 14:55*	*1*

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: PM1M-0515
Date Collected: 05/04/15 10:27
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			05/06/15 15:16	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:16	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:16	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:16	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*05/06/15 15:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*05/06/15 15:16*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*05/06/15 15:16*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*05/06/15 15:16*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 20:10	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 20:10	1
Methane	**9.2**		0.58		ug/L			05/11/15 20:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.4**		0.050		mg/L		05/08/15 09:01	05/11/15 21:39	1
Manganese	**2.3**		0.010		mg/L		05/08/15 09:01	05/11/15 21:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	400	D	10		mg/L			05/06/15 12:08	10
Nitrate as N	0.050	U	0.050		mg/L			05/05/15 16:41	1
Sulfate	**150**	D	25		mg/L			05/07/15 12:29	5
Total Organic Carbon	**1.6**		1.0		mg/L			05/14/15 17:03	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	560		5.0		mg/L			05/06/15 07:52	1
Carbon Dioxide, Free	**44**		5.0		mg/L			05/06/15 07:52	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: PM1M-F(0.2)-0515

Date Collected: 05/04/15 10:27
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-5

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	3.3		0.050		mg/L		05/07/15 11:31	05/08/15 00:48	1
Manganese, Dissolved	2.3		0.010		mg/L		05/07/15 11:31	05/08/15 00:48	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.7		1.0		mg/L			05/14/15 19:37	1

LAB 5/29/15

Client Sample ID: ESL-MW-D1-0515

Date Collected: 05/04/15 11:25
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**21**	D	10		ug/L			05/06/15 14:13	10
Chlorobenzene	**1300**	D	10		ug/L			05/06/15 14:13	10
1,2-Dichlorobenzene	10	U	10		ug/L			05/06/15 14:13	10
1,3-Dichlorobenzene	10	U	10		ug/L			05/06/15 14:13	10
1,4-Dichlorobenzene	**85**	D	10		ug/L			05/06/15 14:13	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/06/15 14:13*	*10*
1,2-Dichloroethane-d4 (Surr)	*123*		*70 - 130*		*05/06/15 14:13*	*10*
Dibromofluoromethane (Surr)	*112*		*70 - 130*		*05/06/15 14:13*	*10*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*05/06/15 14:13*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 20:23	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 20:23	1
Methane	**45**		0.58		ug/L			05/11/15 20:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**14**		0.050		mg/L		05/08/15 09:01	05/11/15 21:44	1
Manganese	**0.43**		0.010		mg/L		05/08/15 09:01	05/11/15 21:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**	D	5.0		mg/L			05/06/15 12:08	5
Nitrate as N	0.050	U	0.050		mg/L			05/05/15 16:42	1
Sulfate	**500**	D	100		mg/L			05/07/15 13:33	20
Total Organic Carbon	**2.7**		1.0		mg/L			05/14/15 17:12	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**400**		5.0		mg/L			05/06/15 08:02	1
Carbon Dioxide, Free	**26**		5.0		mg/L			05/06/15 08:02	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-D1-F(0.2)-0515

Date Collected: 05/04/15 11:25
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-7

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		05/07/15 11:31	05/08/15 00:57	1
Manganese, Dissolved	0.42		0.010		mg/L		05/07/15 11:31	05/08/15 00:57	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.8		1.0		mg/L			05/14/15 19:42	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-C1-0515
Date Collected: 05/04/15 12:56
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-8
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			05/06/15 15:38	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:38	1
1,2-Dichlorobenzene	**1.3**		1.0		ug/L			05/06/15 15:38	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:38	1
1,4-Dichlorobenzene	**1.3**		1.0		ug/L			05/06/15 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*05/06/15 15:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*05/06/15 15:38*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*05/06/15 15:38*	*1*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*		*05/06/15 15:38*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 20:36	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 20:36	1
Methane	**4.3**		0.58		ug/L			05/11/15 20:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12**		0.050		mg/L		05/08/15 09:01	05/11/15 21:48	1
Manganese	**0.48**		0.010		mg/L		05/08/15 09:01	05/11/15 21:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**99**	D	2.0		mg/L			05/06/15 11:52	2
Nitrate as N	0.050	U	0.050		mg/L			05/05/15 16:43	1
Sulfate	**660**	D	100		mg/L			05/07/15 13:33	20
Total Organic Carbon	**4.0**		1.0		mg/L			05/14/15 17:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**420**		5.0		mg/L			05/06/15 08:24	1
Carbon Dioxide, Free	**25**		5.0		mg/L			05/06/15 08:24	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-C1-F(0.2)-0515

Date Collected: 05/04/15 12:56
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-9

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		05/07/15 11:31	05/08/15 00:52	1
Manganese, Dissolved	0.45		0.010		mg/L		05/07/15 11:31	05/08/15 00:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.8		1.0		mg/L			05/14/15 19:47	1

LAB 5/29/15

Client Sample ID: ESL-MW-C1-0515-EB
Date Collected: 05/04/15 13:25
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-10
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			05/06/15 15:59	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:59	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:59	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:59	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 15:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*70 - 130*		*05/06/15 15:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*		*05/06/15 15:59*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*05/06/15 15:59*	*1*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*		*05/06/15 15:59*	*1*

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-A-0515

Date Collected: 05/04/15 14:20
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-11

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			05/06/15 16:20	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:20	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:20	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:20	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/06/15 16:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 130*		*05/06/15 16:20*	*1*
Dibromofluoromethane (Surr)	*89*		*70 - 130*		*05/06/15 16:20*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*05/06/15 16:20*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 20:49	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 20:49	1
Methane	**6.3**		0.58		ug/L			05/11/15 20:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**12**		0.050		mg/L		05/08/15 09:01	05/11/15 21:53	1
Manganese	**0.38**		0.010		mg/L		05/08/15 09:01	05/11/15 21:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	78	D	2.0		mg/L			05/06/15 11:52	2
Nitrate as N	**0.34**		0.050		mg/L			05/05/15 16:44	1
Sulfate	**470**	D	100		mg/L			05/07/15 13:33	20
Total Organic Carbon	**2.7**		1.0		mg/L			05/14/15 17:25	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**330**		5.0		mg/L			05/06/15 08:32	1
Carbon Dioxide, Free	**17**		5.0		mg/L			05/06/15 08:32	1

LAB 5/29/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: ESL-MW-A-F(0.2)-0515
Date Collected: 05/04/15 14:20
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-12
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		05/07/15 11:31	05/08/15 00:39	1
Manganese, Dissolved	0.36		0.010		mg/L		05/07/15 11:31	05/08/15 00:39	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.1		1.0		mg/L			05/14/15 19:53	1

LAB 5/29/15

Client Sample ID: 2Q15 LTM Trip Blank #1

Lab Sample ID: 680-112188-13

Date Collected: 05/04/15 00:00
Matrix: Water
Date Received: 05/05/15 09:49

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			05/06/15 16:41	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:41	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:41	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:41	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*88*		*70 - 130*		*05/06/15 16:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*		*05/06/15 16:41*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*05/06/15 16:41*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*05/06/15 16:41*	*1*

LAB 5/29/15

Surrogate Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (70-130)	12DCE (70-130)	DBFM (70-130)	BFB (70-130)
680-112188-1	PM1D-0515	103	102	100	91
680-112188-3	PM1D-0515-AD	103	95	97	94
680-112188-4	PM1M-0515	97	92	96	96
680-112188-6	ESL-MW-D1-0515	95	123	112	95
680-112188-8	ESL-MW-C1-0515	97	93	93	90
680-112188-10	ESL-MW-C1-0515-EB	91	90	92	88
680-112188-11	ESL-MW-A-0515	92	89	89	92
680-112188-11 MS	ESL-MW-A-0515	84	90	92	83
680-112188-11 MSD	ESL-MW-A-0515	99	93	97	81
680-112188-13	2Q15 LTM Trip Blank #1	88	90	92	98
LCS 680-381641/4	Lab Control Sample	103	103	104	85
LCSD 680-381641/5	Lab Control Sample Dup	99	103	105	90
MB 680-381641/9	Method Blank	101	94	97	92

Surrogate Legend

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

LAB 5/29/15

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

Lab Sample ID: MB 680-381641/9
Matrix: Water
Analysis Batch: 381641

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			05/06/15 10:20	1
Chlorobenzene	1.0	U	1.0		ug/L			05/06/15 10:20	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 10:20	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 10:20	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/06/15 10:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/06/15 10:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/06/15 10:20*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*05/06/15 10:20*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*05/06/15 10:20*	*1*

Lab Sample ID: LCS 680-381641/4
Matrix: Water
Analysis Batch: 381641

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	50.6		ug/L		101	73 - 131
Chlorobenzene	50.0	51.3		ug/L		103	80 - 120
1,2-Dichlorobenzene	50.0	50.9		ug/L		102	80 - 120
1,3-Dichlorobenzene	50.0	51.0		ug/L		102	80 - 120
1,4-Dichlorobenzene	50.0	50.2		ug/L		100	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*

Lab Sample ID: LCSD 680-381641/5
Matrix: Water
Analysis Batch: 381641

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.4		ug/L		101	73 - 131	0	30
Chlorobenzene	50.0	51.4		ug/L		103	80 - 120	0	20
1,2-Dichlorobenzene	50.0	49.9		ug/L		100	80 - 120	2	20
1,3-Dichlorobenzene	50.0	49.7		ug/L		99	80 - 120	2	20
1,4-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*

LAB 5/29/15

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

Lab Sample ID: 680-112188-11 MS
Matrix: Water
Analysis Batch: 381641

Client Sample ID: ESL-MW-A-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.0	U	50.0	47.7		ug/L		95	73 - 131
Chlorobenzene	1.0	U	50.0	49.0		ug/L		98	80 - 120
1,2-Dichlorobenzene	1.0	U	50.0	48.6		ug/L		96	80 - 120
1,3-Dichlorobenzene	1.0	U	50.0	48.9		ug/L		98	80 - 120
1,4-Dichlorobenzene	1.0	U	50.0	48.3		ug/L		95	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*84*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*
Dibromofluoromethane (Surr)	*92*		*70 - 130*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*

Lab Sample ID: 680-112188-11 MSD
Matrix: Water
Analysis Batch: 381641

Client Sample ID: ESL-MW-A-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.0	U	50.0	48.0		ug/L		96	73 - 131	1	30
Chlorobenzene	1.0	U	50.0	50.9		ug/L		102	80 - 120	4	20
1,2-Dichlorobenzene	1.0	U	50.0	51.1		ug/L		101	80 - 120	5	20
1,3-Dichlorobenzene	1.0	U	50.0	50.6		ug/L		101	80 - 120	3	20
1,4-Dichlorobenzene	1.0	U	50.0	50.2		ug/L		99	80 - 120	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-382554/8
Matrix: Water
Analysis Batch: 382554

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 19:14	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 19:14	1
Methane	0.58	U	0.58		ug/L			05/11/15 19:14	1

Lab Sample ID: LCS 680-382554/5
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	313		ug/L		109	75 - 125
Ethylene	269	287		ug/L		106	75 - 125

LAB 5/29/15

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

Lab Sample ID: LCS 680-382554/5
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	154	174		ug/L		113	75 - 125

Lab Sample ID: LCSD 680-382554/30
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	245		ug/L		85	75 - 125	24	30
Ethylene	269	220		ug/L		82	75 - 125	26	30
Methane	154	136		ug/L		89	75 - 125	24	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-381916/1-A
Matrix: Water
Analysis Batch: 382111

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 381916

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		05/07/15 11:27	05/07/15 23:18	1
Manganese, Dissolved	0.010	U	0.010		mg/L		05/07/15 11:27	05/07/15 23:18	1

Lab Sample ID: LCS 680-381916/2-A
Matrix: Water
Analysis Batch: 382111

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 381916

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	5.00	5.10		mg/L		102	80 - 120
Manganese, Dissolved	0.500	0.523		mg/L		105	80 - 120

Lab Sample ID: MB 680-382057/1-A
Matrix: Water
Analysis Batch: 382623

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		05/08/15 09:01	05/11/15 20:59	1
Manganese	0.010	U	0.010		mg/L		05/08/15 09:01	05/11/15 20:59	1

Lab Sample ID: LCS 680-382057/2-A
Matrix: Water
Analysis Batch: 382623

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 382057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.21		mg/L		104	80 - 120
Manganese	0.500	0.534		mg/L		107	80 - 120

LAB 5/29/15

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

Lab Sample ID: 680-112188-1 MS — **Client Sample ID: PM1D-0515**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 382623 — **Prep Batch: 382057**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	13		5.00	17.4		mg/L		89	75 - 125
Manganese	0.41		0.500	0.921		mg/L		102	75 - 125

Lab Sample ID: 680-112188-1 MSD — **Client Sample ID: PM1D-0515**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 382623 — **Prep Batch: 382057**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	13		5.00	17.5		mg/L		93	75 - 125	1	20
Manganese	0.41		0.500	0.924		mg/L		103	75 - 125	0	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-381700/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381700

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			05/06/15 05:52	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			05/06/15 05:52	1

Lab Sample ID: LCS 680-381700/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381700

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	255		mg/L		102	80 - 120

Lab Sample ID: LCSD 680-381700/32 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381700

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	246		mg/L		98	80 - 120	3	30

Lab Sample ID: 680-112188-6 DU — **Client Sample ID: ESL-MW-D1-0515**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381700

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	400		390		mg/L		2	30
Carbon Dioxide, Free	26		24.2		mg/L		6	30

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Method: 325.2 - Chloride

Lab Sample ID: MB 680-381754/2
Matrix: Water
Analysis Batch: 381754

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			05/06/15 11:38	1

Lab Sample ID: LCS 680-381754/1
Matrix: Water
Analysis Batch: 381754

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	26.2		mg/L		105	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-381622/13
Matrix: Water
Analysis Batch: 381622

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			05/05/15 16:12	1

Lab Sample ID: LCS 680-381622/16
Matrix: Water
Analysis Batch: 381622

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	0.560		mg/L		112	75 - 125
Nitrate Nitrite as N	1.00	1.07		mg/L		107	90 - 110
Nitrite as N	0.500	0.514		mg/L		103	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-381953/39
Matrix: Water
Analysis Batch: 381953

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			05/07/15 13:30	1

Lab Sample ID: LCS 680-381953/7
Matrix: Water
Analysis Batch: 381953

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.0		mg/L		100	75 - 125

Lab Sample ID: LCSD 680-381953/38
Matrix: Water
Analysis Batch: 381953

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	20.0		mg/L		100	75 - 125	0	30

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Method: 415.1 - DOC

Lab Sample ID: MB 160-191880/57
Matrix: Water
Analysis Batch: 191880

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			05/14/15 19:02	1

Lab Sample ID: LCS 160-191880/58
Matrix: Water
Analysis Batch: 191880

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.72		mg/L		97	90 - 110

Lab Sample ID: 680-112188-2 MS
Matrix: Water
Analysis Batch: 191880

Client Sample ID: PM1D-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	2.5		5.00	7.71		mg/L		104	82 - 132

Lab Sample ID: 680-112188-2 DU
Matrix: Water
Analysis Batch: 191880

Client Sample ID: PM1D-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	2.5		2.51		mg/L		0.4	20

Method: 415.1 - TOC

Lab Sample ID: MB 160-191879/33
Matrix: Water
Analysis Batch: 191879

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			05/14/15 16:26	1

Lab Sample ID: LCS 160-191879/34
Matrix: Water
Analysis Batch: 191879

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.28		mg/L		93	90 - 110

Lab Sample ID: 680-112188-1 MS
Matrix: Water
Analysis Batch: 191879

Client Sample ID: PM1D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2.4		5.00	7.73		mg/L		107	76 - 120

LAB 5/29/15

Method: 415.1 - TOC (Continued)

Lab Sample ID: 680-112188-1 DU
Matrix: Water
Analysis Batch: 191879

Client Sample ID: PM1D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	2.4			2.65		mg/L				10	20

LAB 5/29/15

QC Association Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

GC/MS VOA

Analysis Batch: 381641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	8260B	
680-112188-3	PM1D-0515-AD	Total/NA	Water	8260B	
680-112188-4	PM1M-0515	Total/NA	Water	8260B	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	8260B	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	8260B	
680-112188-10	ESL-MW-C1-0515-EB	Total/NA	Water	8260B	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	8260B	
680-112188-11 MS	ESL-MW-A-0515	Total/NA	Water	8260B	
680-112188-11 MSD	ESL-MW-A-0515	Total/NA	Water	8260B	
680-112188-13	2Q15 LTM Trip Blank #1	Total/NA	Water	8260B	
LCS 680-381641/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-381641/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-381641/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 382554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	RSK-175	
680-112188-4	PM1M-0515	Total/NA	Water	RSK-175	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	RSK-175	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	RSK-175	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	RSK-175	
LCS 680-382554/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-382554/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-382554/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 381916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-2	PM1D-F(0.2)-0515	Dissolved	Water	3005A	
680-112188-5	PM1M-F(0.2)-0515	Dissolved	Water	3005A	
680-112188-7	ESL-MW-D1-F(0.2)-0515	Dissolved	Water	3005A	
680-112188-9	ESL-MW-C1-F(0.2)-0515	Dissolved	Water	3005A	
680-112188-12	ESL-MW-A-F(0.2)-0515	Dissolved	Water	3005A	
LCS 680-381916/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-381916/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 382057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total Recoverable	Water	3005A	
680-112188-1 MS	PM1D-0515	Total Recoverable	Water	3005A	
680-112188-1 MSD	PM1D-0515	Total Recoverable	Water	3005A	
680-112188-4	PM1M-0515	Total Recoverable	Water	3005A	
680-112188-6	ESL-MW-D1-0515	Total Recoverable	Water	3005A	
680-112188-8	ESL-MW-C1-0515	Total Recoverable	Water	3005A	
680-112188-11	ESL-MW-A-0515	Total Recoverable	Water	3005A	
LCS 680-382057/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-382057/1-A	Method Blank	Total Recoverable	Water	3005A	

LAB 5/29/15

Metals (Continued)

Analysis Batch: 382111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-2	PM1D-F(0.2)-0515	Dissolved	Water	6010C	381916
680-112188-5	PM1M-F(0.2)-0515	Dissolved	Water	6010C	381916
680-112188-7	ESL-MW-D1-F(0.2)-0515	Dissolved	Water	6010C	381916
680-112188-9	ESL-MW-C1-F(0.2)-0515	Dissolved	Water	6010C	381916
680-112188-12	ESL-MW-A-F(0.2)-0515	Dissolved	Water	6010C	381916
LCS 680-381916/2-A	Lab Control Sample	Total Recoverable	Water	6010C	381916
MB 680-381916/1-A	Method Blank	Total Recoverable	Water	6010C	381916

Analysis Batch: 382623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total Recoverable	Water	6010C	382057
680-112188-1 MS	PM1D-0515	Total Recoverable	Water	6010C	382057
680-112188-1 MSD	PM1D-0515	Total Recoverable	Water	6010C	382057
680-112188-4	PM1M-0515	Total Recoverable	Water	6010C	382057
680-112188-6	ESL-MW-D1-0515	Total Recoverable	Water	6010C	382057
680-112188-8	ESL-MW-C1-0515	Total Recoverable	Water	6010C	382057
680-112188-11	ESL-MW-A-0515	Total Recoverable	Water	6010C	382057
LCS 680-382057/2-A	Lab Control Sample	Total Recoverable	Water	6010C	382057
MB 680-382057/1-A	Method Blank	Total Recoverable	Water	6010C	382057

General Chemistry

Analysis Batch: 191879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	415.1	
680-112188-1 DU	PM1D-0515	Total/NA	Water	415.1	
680-112188-1 MS	PM1D-0515	Total/NA	Water	415.1	
680-112188-4	PM1M-0515	Total/NA	Water	415.1	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	415.1	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	415.1	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	415.1	
LCS 160-191879/34	Lab Control Sample	Total/NA	Water	415.1	
MB 160-191879/33	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 191880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-2	PM1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-2 DU	PM1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-2 MS	PM1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-5	PM1M-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-7	ESL-MW-D1-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-9	ESL-MW-C1-F(0.2)-0515	Dissolved	Water	415.1	
680-112188-12	ESL-MW-A-F(0.2)-0515	Dissolved	Water	415.1	
LCS 160-191880/58	Lab Control Sample	Dissolved	Water	415.1	
MB 160-191880/57	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 381622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	353.2	
680-112188-4	PM1M-0515	Total/NA	Water	353.2	

LAB 5/29/15

General Chemistry (Continued)

Analysis Batch: 381622 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	353.2	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	353.2	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	353.2	
LCS 680-381622/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-381622/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 381700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	310.1	
680-112188-4	PM1M-0515	Total/NA	Water	310.1	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	310.1	
680-112188-6 DU	ESL-MW-D1-0515	Total/NA	Water	310.1	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	310.1	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	310.1	
LCS 680-381700/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-381700/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-381700/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 381754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	325.2	
680-112188-4	PM1M-0515	Total/NA	Water	325.2	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	325.2	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	325.2	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	325.2	
LCS 680-381754/1	Lab Control Sample	Total/NA	Water	325.2	
MB 680-381754/2	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 381953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112188-1	PM1D-0515	Total/NA	Water	375.4	
680-112188-4	PM1M-0515	Total/NA	Water	375.4	
680-112188-6	ESL-MW-D1-0515	Total/NA	Water	375.4	
680-112188-8	ESL-MW-C1-0515	Total/NA	Water	375.4	
680-112188-11	ESL-MW-A-0515	Total/NA	Water	375.4	
LCS 680-381953/7	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-381953/38	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-381953/39	Method Blank	Total/NA	Water	375.4	

LAB 5/29/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Client Sample ID: PM1D-0515

Lab Sample ID: 680-112188-1
Matrix: Water
Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 14:34	JLK	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 19:57	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:17	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381700	05/06/15 07:42	LBH	TAL SAV
Total/NA	Analysis	325.2		2	381754	05/06/15 11:51	JME	TAL SAV
Total/NA	Analysis	353.2		1	381622	05/05/15 16:37	GRX	TAL SAV
Total/NA	Analysis	375.4		10	381953	05/07/15 13:27	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 16:47	JCB	TAL SL

Client Sample ID: PM1D-F(0.2)-0515

Lab Sample ID: 680-112188-2
Matrix: Water
Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			381916	05/07/15 11:31	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382111	05/08/15 00:43	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:21	JCB	TAL SL

Client Sample ID: PM1D-0515-AD

Lab Sample ID: 680-112188-3
Matrix: Water
Date Collected: 05/04/15 09:34
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 14:55	JLK	TAL SAV

Client Sample ID: PM1M-0515

Lab Sample ID: 680-112188-4
Matrix: Water
Date Collected: 05/04/15 10:27
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 15:16	JLK	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 20:10	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:39	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381700	05/06/15 07:52	LBH	TAL SAV
Total/NA	Analysis	325.2		10	381754	05/06/15 12:08	JME	TAL SAV
Total/NA	Analysis	353.2		1	381622	05/05/15 16:41	GRX	TAL SAV
Total/NA	Analysis	375.4		5	381953	05/07/15 12:29	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 17:03	JCB	TAL SL

LAB 5/29/15

Client Sample ID: PM1M-F(0.2)-0515

Lab Sample ID: 680-112188-5

Date Collected: 05/04/15 10:27
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			381916	05/07/15 11:31	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382111	05/08/15 00:48	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:37	JCB	TAL SL

Client Sample ID: ESL-MW-D1-0515

Lab Sample ID: 680-112188-6

Date Collected: 05/04/15 11:25
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	381641	05/06/15 14:13	JLK	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 20:23	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:44	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381700	05/06/15 08:02	LBH	TAL SAV
Total/NA	Analysis	325.2		5	381754	05/06/15 12:08	JME	TAL SAV
Total/NA	Analysis	353.2		1	381622	05/05/15 16:42	GRX	TAL SAV
Total/NA	Analysis	375.4		20	381953	05/07/15 13:33	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 17:12	JCB	TAL SL

Client Sample ID: ESL-MW-D1-F(0.2)-0515

Lab Sample ID: 680-112188-7

Date Collected: 05/04/15 11:25
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			381916	05/07/15 11:31	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382111	05/08/15 00:57	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:42	JCB	TAL SL

Client Sample ID: ESL-MW-C1-0515

Lab Sample ID: 680-112188-8

Date Collected: 05/04/15 12:56
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 15:38	JLK	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 20:36	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:48	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381700	05/06/15 08:24	LBH	TAL SAV
Total/NA	Analysis	325.2		2	381754	05/06/15 11:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	381622	05/05/15 16:43	GRX	TAL SAV
Total/NA	Analysis	375.4		20	381953	05/07/15 13:33	JME	TAL SAV

LAB 5/29/15

Client Sample ID: ESL-MW-C1-0515

Lab Sample ID: 680-112188-8
Date Collected: 05/04/15 12:56
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	415.1		1	191879	05/14/15 17:20	JCB	TAL SL

Client Sample ID: ESL-MW-C1-F(0.2)-0515

Lab Sample ID: 680-112188-9
Date Collected: 05/04/15 12:56
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			381916	05/07/15 11:31	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382111	05/08/15 00:52	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:47	JCB	TAL SL

Client Sample ID: ESL-MW-C1-0515-EB

Lab Sample ID: 680-112188-10
Date Collected: 05/04/15 13:25
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 15:59	JLK	TAL SAV

Client Sample ID: ESL-MW-A-0515

Lab Sample ID: 680-112188-11
Date Collected: 05/04/15 14:20
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 16:20	JLK	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 20:49	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:53	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381700	05/06/15 08:32	LBH	TAL SAV
Total/NA	Analysis	325.2		2	381754	05/06/15 11:52	JME	TAL SAV
Total/NA	Analysis	353.2		1	381622	05/05/15 16:44	GRX	TAL SAV
Total/NA	Analysis	375.4		20	381953	05/07/15 13:33	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 17:25	JCB	TAL SL

Client Sample ID: ESL-MW-A-F(0.2)-0515

Lab Sample ID: 680-112188-12
Date Collected: 05/04/15 14:20
Matrix: Water
Date Received: 05/05/15 09:49

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			381916	05/07/15 11:31	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382111	05/08/15 00:39	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:53	JCB	TAL SL

LAB 5/29/15

Client Sample ID: 2Q15 LTM Trip Blank #1
Date Collected: 05/04/15 00:00
Date Received: 05/05/15 09:49

Lab Sample ID: 680-112188-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381641	05/06/15 16:41	JLK	TAL SAV

Laboratory References:

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

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

LAB 5/29/15

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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-0515	5/4/15	0934	G	W	14	N		3	1	1	1	3	2	3			2 Coolers
PMID-F(0.2)-0515					4	Y									1	3	
PMID-0515-AD					3	N		3									
PMIM-0515		1027			14	N		3	1	1	1	3	2	3			
PMIM-F(0.2)-0515					4	Y									1	3	
ESL-MW-DI-0515		1125			14	N		3	1	1	1	3	2	3			
ESL-MW-DI-F(0.2)-0515					4	Y									1	3	
ESL-MW-CI-0515		1256			14	N		3	1	1	1	3	2	3			
ESL-MW-CI-F(0.2)-0515					4	Y									1	3	
ESL-MW-CI-0515-EB		1325			3	N		3									
ESL-MW-A-0515		1420			14	N		3	1	1	1	3	2	3			
ESL-MW-A-F(0.2)-0515					4	Y									1	3	
Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other								2	4	1	1	2	3	1	4		

680-112188 Chain of Custody

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112188 2.0/2.4(CF) 2.4/2.8C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531961 / 531962	Cooler Temp (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by:	Company: Golder	Date/Time: 5/4/15 1700	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by	Company:	Date/Time:
Relinquished by:	Company	Date/Time:	Received in Laboratory by:	Company: SAV.	Date/Time: 050515 0949

LAB 5/12/15

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

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lon Bindner	Date: 5/4/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	**Analysis Turnaround Time**			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 376.4	Dissolved Gases by RSK 176	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 416.1	Sample Specific Notes:
ESL-MW-A-0515-MS	5/4/15	1420	G	W	3	N		3									2 coolers
ESL-MW-A-0515-MSD	1	1	1	1	3	N		3									
2Q15 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

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112188 2.0/2.4(CF)2.4/2.8c

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531961/581962	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jon Bindner	Golder	5/4/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			[illegible]	SAV.	05-05-15 0949

LAB 5/29/15

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

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112188-1
SDG Number: KPS141

Login Number: 112188
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

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

LAB 5/29/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112188-1
SDG Number: KPS141

Login Number: 112188
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 05/08/15 07:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 5/29/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

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

* Certification renewal pending - certification considered valid.

LAB 5/29/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112188-1
SDG: KPS141

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	04-30-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-15
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 5/29/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
2Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-2Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS142
Matrix: Water

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

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

Sample Names: GWE-2D-0515, GWE-2D-F(0.2)-0515, GWE-3D-0515, GWE-3D-F(0.2)-0515, GWE-5S-0515, GWE-5S-F(0.2)-0515, GWE-5M-0515, GWE-5M-F(0.2)-0515, GWE-5D-0515, GWE-5D-F(0.2)-0515, and 2Q15 LTM Trip Blank #2

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

Comments:

VOC: Samples GWE-2D-0515, GWE-3D-0515 and GWE-5D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 382554.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples GWE-2D-0515, GWE-3D-0515, GWE-5S-0515, GWE-5M-0515, and GWE-5D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples GWE-2D-0515, GWE-3D-0515, GWE-5S-0515, GWE-5M-0515, and GWE-5D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: No deficiencies noted.

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

Comments: Some samples were received at 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 meet the ion abundance criteria?	☒	☐	☐
c) Internal Standard retention times and areas met appropriate criteria?	☒	☐	☐

Comments: None

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

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blanks were not submitted with SDG KPS142.

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: Duplicate samples were not submitted with SDG KPS142.

Additional Comments: None

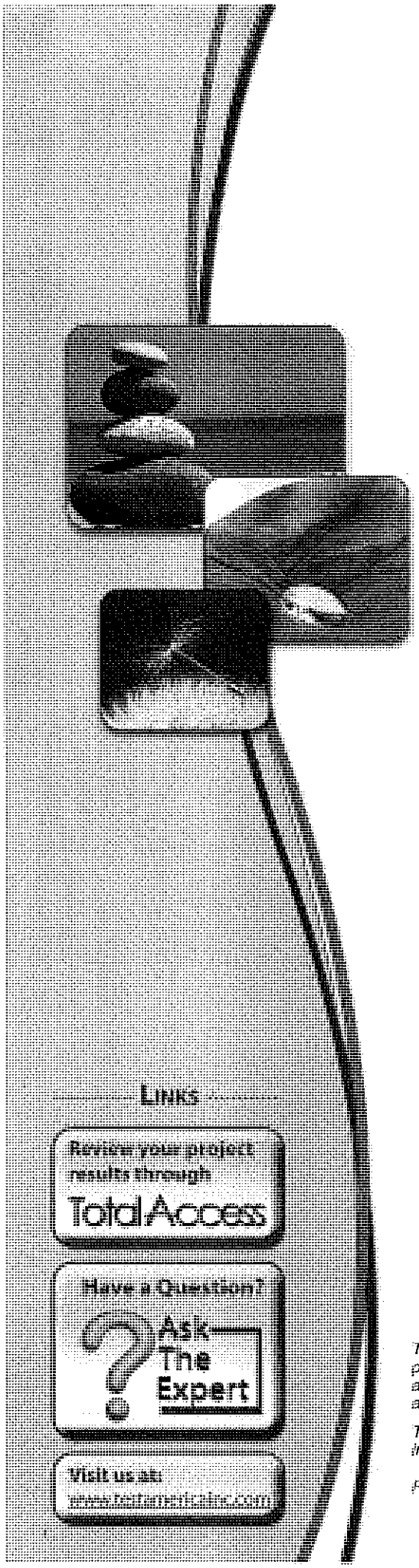
Qualifications:

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

SDG KPS142

Sample Results from:

GWE-2D
GWE-3D
GWE-5S
GWE-5M
GWE-5D



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-112212-1
TestAmerica Sample Delivery Group: KPS142
Client Project/Site: 2Q15 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:
5/22/2015 3:17:21 PM

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

LAB
6/1/15

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Job ID: 680-112212-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 2Q15 LTM GW Sampling - 1403345

Report Number: 680-112212-1

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 5/6/2015 9:33 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7), GWE-2D-0515 (680-112212-9) and 2Q15 LTM Trip Blank #2 (680-112212-11) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/07/2015.

Samples GWE-5D-0515 (680-112212-1)[2X], GWE-3D-0515 (680-112212-7)[20X] and GWE-2D-0515 (680-112212-9)[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.

DISSOLVED GASES
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 05/11/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 382554.

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

METALS (ICP)
Samples GWE-5D-F(0.2)-0515 (680-112212-2), GWE-5M-F(0.2)-0515 (680-112212-4), GWE-5S-F(0.2)-0515 (680-112212-6), GWE-3D-F(0.2)-0515 (680-112212-8) and GWE-2D-F(0.2)-0515 (680-112212-10) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/08/2015 and analyzed on 05/11/2015.

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

METALS (ICP)
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/08/2015 and analyzed on 05/11/2015.

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

Job ID: 680-112212-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

ALKALINITY
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 05/07/2015.

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

CHLORIDE
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 05/11/2015.

Samples GWE-5D-0515 (680-112212-1)[2X], GWE-5M-0515 (680-112212-3)[2X], GWE-5S-0515 (680-112212-5)[2X], GWE-3D-0515 (680-112212-7)[20X] and GWE-2D-0515 (680-112212-9)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/06/2015.

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

SULFATE
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 05/07/2015.

Samples GWE-5D-0515 (680-112212-1)[10X], GWE-5M-0515 (680-112212-3)[5X], GWE-5S-0515 (680-112212-5)[5X], GWE-3D-0515 (680-112212-7)[10X] and GWE-2D-0515 (680-112212-9)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples GWE-5D-0515 (680-112212-1), GWE-5M-0515 (680-112212-3), GWE-5S-0515 (680-112212-5), GWE-3D-0515 (680-112212-7) and GWE-2D-0515 (680-112212-9) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples GWE-5D-F(0.2)-0515 (680-112212-2), GWE-5M-F(0.2)-0515 (680-112212-4), GWE-5S-F(0.2)-0515 (680-112212-6), GWE-3D-F(0.2)-0515 (680-112212-8) and GWE-2D-F(0.2)-0515 (680-112212-10) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

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

Sample Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-112212-1	GWE-5D-0515	Water	05/05/15 09:25	05/06/15 09:33
680-112212-2	GWE-5D-F(0.2)-0515	Water	05/05/15 09:25	05/06/15 09:33
680-112212-3	GWE-5M-0515	Water	05/05/15 10:08	05/06/15 09:33
680-112212-4	GWE-5M-F(0.2)-0515	Water	05/05/15 10:08	05/06/15 09:33
680-112212-5	GWE-5S-0515	Water	05/05/15 10:45	05/06/15 09:33
680-112212-6	GWE-5S-F(0.2)-0515	Water	05/05/15 10:45	05/06/15 09:33
680-112212-7	GWE-3D-0515	Water	05/05/15 13:23	05/06/15 09:33
680-112212-8	GWE-3D-F(0.2)-0515	Water	05/05/15 13:23	05/06/15 09:33
680-112212-9	GWE-2D-0515	Water	05/05/15 16:06	05/06/15 09:33
680-112212-10	GWE-2D-F(0.2)-0515	Water	05/05/15 16:06	05/06/15 09:33
680-112212-11	2Q15 LTM Trip Blank #2	Water	05/05/15 00:00	05/06/15 09:33

LAB 6/1/15

Method Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

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

Protocol References:

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

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

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

Laboratory References:

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

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

LAB 6/1/15

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

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

Glossary

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

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5D-0515 — Lab Sample ID: 680-112212-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.6		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	97		2.0		ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	2.2		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	13		2.0		ug/L	2		8260B	Total/NA
Methane	44		0.58		ug/L	1		RSK-175	Total/NA
Iron	14		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.42		0.010		mg/L	1		6010C	Total Recoverable
Chloride	90		2.0		mg/L	2		325.2	Total/NA
Sulfate	340		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	2.5		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	390		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	30		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5D-F(0.2)-0515 — Lab Sample ID: 680-112212-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.42		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.6		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5M-0515 — Lab Sample ID: 680-112212-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	85		0.58		ug/L	1		RSK-175	Total/NA
Iron	27		0.050		mg/L	1		6010C	Total Recoverable
Manganese	1.4		0.010		mg/L	1		6010C	Total Recoverable
Chloride	54		2.0		mg/L	2		325.2	Total/NA
Sulfate	120		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	2.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	500		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	45		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5M-F(0.2)-0515 — Lab Sample ID: 680-112212-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	26		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.0		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-5S-0515 — Lab Sample ID: 680-112212-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	2.5		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.070		0.050		mg/L	1		6010C	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

LAB 6/1/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5S-0515 (Continued) — Lab Sample ID: 680-112212-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	0.42		0.010		mg/L	1		6010C	Total Recoverable
Chloride	47		2.0		mg/L	2		325.2	Total/NA
Sulfate	110		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	2.6		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	450		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	40		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-5S-F(0.2)-0515 — Lab Sample ID: 680-112212-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.37		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-3D-0515 — Lab Sample ID: 680-112212-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	34		20		ug/L	20		8260B	Total/NA
Chlorobenzene	1500		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	120		20		ug/L	20		8260B	Total/NA
Methane	110		0.58		ug/L	1		RSK-175	Total/NA
Iron	25		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.78		0.010		mg/L	1		6010C	Total Recoverable
Chloride	800		20		mg/L	20		325.2	Total/NA
Sulfate	250		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	4.4		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	41		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-3D-F(0.2)-0515 — Lab Sample ID: 680-112212-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	25		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.80		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-2D-0515 — Lab Sample ID: 680-112212-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	150		2.0		ug/L	2		8260B	Total/NA
Methane	29		0.58		ug/L	1		RSK-175	Total/NA
Iron	23		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.56		0.010		mg/L	1		6010C	Total Recoverable
Chloride	730		20		mg/L	20		325.2	Total/NA
Sulfate	620		100		mg/L	20		375.4	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

LAB 6/1/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-2D-0515 (Continued) — Lab Sample ID: 680-112212-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	3.8		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	410		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	40		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-2D-F(0.2)-0515 — Lab Sample ID: 680-112212-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	24		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.58		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 2Q15 LTM Trip Blank #2 — Lab Sample ID: 680-112212-11

No Detections.

This Detection Summary does not include radiochemical test results.

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5D-0515

Date Collected: 05/05/15 09:25
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.6**	D	2.0		ug/L			05/07/15 15:51	2
Chlorobenzene	**97**	D	2.0		ug/L			05/07/15 15:51	2
1,2-Dichlorobenzene	**2.2**	D	2.0		ug/L			05/07/15 15:51	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			05/07/15 15:51	2
1,4-Dichlorobenzene	**13**	D	2.0		ug/L			05/07/15 15:51	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/07/15 15:51*	*2*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*05/07/15 15:51*	*2*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*05/07/15 15:51*	*2*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*05/07/15 15:51*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 21:02	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 21:02	1
Methane	**44**		0.58		ug/L			05/11/15 21:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**14**		0.050		mg/L		05/08/15 09:01	05/11/15 21:57	1
Manganese	**0.42**		0.010		mg/L		05/08/15 09:01	05/11/15 21:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**90**	D	2.0		mg/L			05/11/15 12:25	2
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:20	1
Sulfate	**340**	D	50		mg/L			05/07/15 13:25	10
Total Organic Carbon	**2.5**		1.0		mg/L			05/14/15 17:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**390**		5.0		mg/L			05/07/15 06:35	1
Carbon Dioxide, Free	**30**		5.0		mg/L			05/07/15 06:35	1

LAB 6/1/15

Client Sample ID: GWE-5D-F(0.2)-0515
Date Collected: 05/05/15 09:25
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-2
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		05/08/15 09:01	05/11/15 22:11	1
Manganese, Dissolved	0.42		0.010		mg/L		05/08/15 09:01	05/11/15 22:11	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.6		1.0		mg/L			05/14/15 19:58	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5M-0515

Date Collected: 05/05/15 10:08
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			05/07/15 16:12	1
Chlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:12	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:12	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:12	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/07/15 16:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/07/15 16:12*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*05/07/15 16:12*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/07/15 16:12*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 21:15	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 21:15	1
Methane	**85**		0.58		ug/L			05/11/15 21:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**27**		0.050		mg/L		05/08/15 09:01	05/11/15 22:15	1
Manganese	**1.4**		0.010		mg/L		05/08/15 09:01	05/11/15 22:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**54**	D	2.0		mg/L			05/11/15 12:28	2
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:24	1
Sulfate	**120**	D	25		mg/L			05/07/15 13:30	5
Total Organic Carbon	**2.0**		1.0		mg/L			05/14/15 17:55	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**500**		5.0		mg/L			05/07/15 06:56	1
Carbon Dioxide, Free	**45**		5.0		mg/L			05/07/15 06:56	1

LAB 6/1/15

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5M-F(0.2)-0515
Date Collected: 05/05/15 10:08
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-4
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		05/08/15 09:01	05/11/15 22:20	1
Manganese, Dissolved	1.3		0.010		mg/L		05/08/15 09:01	05/11/15 22:20	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.0		1.0		mg/L			05/14/15 20:22	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5S-0515

Date Collected: 05/05/15 10:45
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-5

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			05/07/15 16:32	1
Chlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:32	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:32	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:32	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*05/07/15 16:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*05/07/15 16:32*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*05/07/15 16:32*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*05/07/15 16:32*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 21:27	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 21:27	1
Methane	**2.5**		0.58		ug/L			05/11/15 21:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.070		0.050		mg/L		05/08/15 09:01	05/11/15 22:24	1
Manganese	**0.42**		0.010		mg/L		05/08/15 09:01	05/11/15 22:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**47**	D	2.0		mg/L			05/11/15 12:25	2
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:26	1
Sulfate	**110**	D	25		mg/L			05/07/15 13:30	5
Total Organic Carbon	**2.6**		1.0		mg/L			05/14/15 18:00	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**450**		5.0		mg/L			05/07/15 07:06	1
Carbon Dioxide, Free	**40**		5.0		mg/L			05/07/15 07:06	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5S-F(0.2)-0515

Date Collected: 05/05/15 10:45
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-6

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.050	U	0.050		mg/L		05/08/15 09:01	05/11/15 22:28	1
Manganese, Dissolved	0.37		0.010		mg/L		05/08/15 09:01	05/11/15 22:28	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.4		1.0		mg/L			05/14/15 20:27	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-3D-0515

Date Collected: 05/05/15 13:23
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	34	D	20		ug/L			05/07/15 16:52	20
Chlorobenzene	1500	D	20		ug/L			05/07/15 16:52	20
1,2-Dichlorobenzene	20	U	20		ug/L			05/07/15 16:52	20
1,3-Dichlorobenzene	20	U	20		ug/L			05/07/15 16:52	20
1,4-Dichlorobenzene	120	D	20		ug/L			05/07/15 16:52	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/07/15 16:52*	*20*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*		*05/07/15 16:52*	*20*
Dibromofluoromethane (Surr)	*107*		*70 - 130*		*05/07/15 16:52*	*20*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*05/07/15 16:52*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 21:40	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 21:40	1
Methane	110		0.58		ug/L			05/11/15 21:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	25		0.050		mg/L		05/08/15 09:01	05/11/15 22:33	1
Manganese	0.78		0.010		mg/L		05/08/15 09:01	05/11/15 22:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	800	D	20		mg/L			05/11/15 14:05	20
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:29	1
Sulfate	250	D	50		mg/L			05/07/15 13:25	10
Total Organic Carbon	4.4		1.0		mg/L			05/14/15 18:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			05/07/15 07:14	1
Carbon Dioxide, Free	41		5.0		mg/L			05/07/15 07:14	1

LAB 6/1/15

Client Sample ID: GWE-3D-F(0.2)-0515

Date Collected: 05/05/15 13:23
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-8

Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	25		0.050		mg/L		05/08/15 09:01	05/11/15 22:37	1
Manganese, Dissolved	0.80		0.010		mg/L		05/08/15 09:01	05/11/15 22:37	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.1		1.0		mg/L			05/14/15 20:37	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-2D-0515

Date Collected: 05/05/15 16:06
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-9

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.0	U	2.0		ug/L			05/07/15 17:13	2
Chlorobenzene	**150**	D	2.0		ug/L			05/07/15 17:13	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			05/07/15 17:13	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			05/07/15 17:13	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			05/07/15 17:13	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/07/15 17:13*	*2*
1,2-Dichloroethane-d4 (Surr)	*120*		*70 - 130*		*05/07/15 17:13*	*2*
Dibromofluoromethane (Surr)	*113*		*70 - 130*		*05/07/15 17:13*	*2*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/07/15 17:13*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 21:53	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 21:53	1
Methane	**29**		0.58		ug/L			05/11/15 21:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**23**		0.050		mg/L		05/08/15 09:01	05/11/15 22:42	1
Manganese	**0.56**		0.010		mg/L		05/08/15 09:01	05/11/15 22:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**730**	D	20		mg/L			05/11/15 14:06	20
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:31	1
Sulfate	**620**	D	100		mg/L			05/07/15 13:32	20
Total Organic Carbon	**3.8**		1.0		mg/L			05/14/15 18:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**410**		5.0		mg/L			05/07/15 07:24	1
Carbon Dioxide, Free	**40**		5.0		mg/L			05/07/15 07:24	1

LAB 6/1/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-2D-F(0.2)-0515
Date Collected: 05/05/15 16:06
Date Received: 05/06/15 09:33

Lab Sample ID: 680-112212-10
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	24		0.050		mg/L		05/08/15 09:01	05/11/15 22:46	1
Manganese, Dissolved	0.58		0.010		mg/L		05/08/15 09:01	05/11/15 22:46	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.5		1.0		mg/L			05/14/15 20:42	1

LAB 6/1/15

Client Sample ID: 2Q15 LTM Trip Blank #2

Lab Sample ID: 680-112212-11

Date Collected: 05/05/15 00:00
Matrix: Water
Date Received: 05/06/15 09:33

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			05/07/15 17:34	1
Chlorobenzene	1.0	U	1.0		ug/L			05/07/15 17:34	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 17:34	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 17:34	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*05/07/15 17:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*05/07/15 17:34*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*05/07/15 17:34*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/07/15 17:34*	*1*

LAB 6/1/15

Surrogate Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (70-130)	12DCE (70-130)	DBFM (70-130)	BFB (70-130)
680-112212-1	GWE-5D-0515	105	114	107	98
680-112212-3	GWE-5M-0515	103	94	98	100
680-112212-5	GWE-5S-0515	102	95	97	99
680-112212-7	GWE-3D-0515	103	112	107	101
680-112212-9	GWE-2D-0515	104	120	113	100
680-112212-11	2Q15 LTM Trip Blank #2	100	93	99	100
LCS 680-381821/4	Lab Control Sample	101	91	94	99
LCSD 680-381821/5	Lab Control Sample Dup	101	90	95	100
MB 680-381821/9	Method Blank	103	95	100	101

Surrogate Legend

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

LAB 6/1/15

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

Lab Sample ID: MB 680-381821/9
Matrix: Water
Analysis Batch: 381821

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			05/07/15 11:17	1
Chlorobenzene	1.0	U	1.0		ug/L			05/07/15 11:17	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 11:17	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 11:17	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/07/15 11:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/07/15 11:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*05/07/15 11:17*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*05/07/15 11:17*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*05/07/15 11:17*	*1*

Lab Sample ID: LCS 680-381821/4
Matrix: Water
Analysis Batch: 381821

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	48.2		ug/L		96	73 - 131
Chlorobenzene	50.0	47.2		ug/L		94	80 - 120
1,2-Dichlorobenzene	50.0	50.2		ug/L		100	80 - 120
1,3-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,4-Dichlorobenzene	50.0	48.0		ug/L		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 130*
Dibromofluoromethane (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 680-381821/5
Matrix: Water
Analysis Batch: 381821

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	48.6		ug/L		97	73 - 131	1	30
Chlorobenzene	50.0	48.1		ug/L		96	80 - 120	2	20
1,2-Dichlorobenzene	50.0	50.7		ug/L		101	80 - 120	1	20
1,3-Dichlorobenzene	50.0	49.6		ug/L		99	80 - 120	1	20
1,4-Dichlorobenzene	50.0	48.5		ug/L		97	80 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*
Dibromofluoromethane (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

LAB 6/1/15

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-382554/8
Matrix: Water
Analysis Batch: 382554

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 19:14	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 19:14	1
Methane	0.58	U	0.58		ug/L			05/11/15 19:14	1

Lab Sample ID: LCS 680-382554/5
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	313		ug/L		109	75 - 125
Ethylene	269	287		ug/L		106	75 - 125
Methane	154	174		ug/L		113	75 - 125

Lab Sample ID: LCSD 680-382554/30
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	245		ug/L		85	75 - 125	24	30
Ethylene	269	220		ug/L		82	75 - 125	26	30
Methane	154	136		ug/L		89	75 - 125	24	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-382057/1-A
Matrix: Water
Analysis Batch: 382623

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		05/08/15 09:01	05/11/15 20:59	1
Iron, Dissolved	0.050	U	0.050		mg/L		05/08/15 09:01	05/11/15 20:59	1
Manganese	0.010	U	0.010		mg/L		05/08/15 09:01	05/11/15 20:59	1
Manganese, Dissolved	0.010	U	0.010		mg/L		05/08/15 09:01	05/11/15 20:59	1

Lab Sample ID: LCS 680-382057/2-A
Matrix: Water
Analysis Batch: 382623

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 382057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.21		mg/L		104	80 - 120
Iron, Dissolved	5.00	5.21		mg/L		104	80 - 120
Manganese	0.500	0.534		mg/L		107	80 - 120
Manganese, Dissolved	0.500	0.534		mg/L		107	80 - 120

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Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-381849/5
Matrix: Water
Analysis Batch: 381849

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			05/07/15 05:53	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			05/07/15 05:53	1

Lab Sample ID: LCS 680-381849/6
Matrix: Water
Analysis Batch: 381849

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	244		mg/L		97	80 - 120

Lab Sample ID: LCSD 680-381849/24
Matrix: Water
Analysis Batch: 381849

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	244		mg/L		97	80 - 120	0	30

Lab Sample ID: 680-112212-1 DU
Matrix: Water
Analysis Batch: 381849

Client Sample ID: GWE-5D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	390		377		mg/L		3	30
Carbon Dioxide, Free	30		28.9		mg/L		5	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-382564/2
Matrix: Water
Analysis Batch: 382564

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			05/11/15 10:00	1

Lab Sample ID: LCS 680-382564/30
Matrix: Water
Analysis Batch: 382564

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	26.1		mg/L		104	85 - 115

Lab Sample ID: 680-112212-5 MS
Matrix: Water
Analysis Batch: 382564

Client Sample ID: GWE-5S-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	47		25.0	70.6		mg/L		96	85 - 115

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Method: 325.2 - Chloride (Continued)

Lab Sample ID: 680-112212-5 MSD — **Client Sample ID: GWE-5S-0515**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 382564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	47		25.0	70.4		mg/L		95	85 - 115	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-381798/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381798

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			05/06/15 16:15	1

Lab Sample ID: LCS 680-381798/16 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381798

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.542		mg/L		108	75 - 125
Nitrate Nitrite as N	1.00	1.06		mg/L		106	90 - 110
Nitrite as N	0.500	0.515		mg/L		103	90 - 110

Lab Sample ID: 680-112212-1 MS — **Client Sample ID: GWE-5D-0515**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381798

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.050	U	0.500	0.546		mg/L		109	75 - 125
Nitrate Nitrite as N	0.050	U	1.00	1.07		mg/L		107	90 - 110
Nitrite as N	0.050	U	0.500	0.522		mg/L		102	90 - 110

Lab Sample ID: 680-112212-1 MSD — **Client Sample ID: GWE-5D-0515**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381798

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	0.561		mg/L		112	75 - 125	3	30
Nitrate Nitrite as N	0.050	U	1.00	1.08		mg/L		108	90 - 110	1	10
Nitrite as N	0.050	U	0.500	0.517		mg/L		101	90 - 110	1	10

Lab Sample ID: 680-112212-3 DU — **Client Sample ID: GWE-5M-0515**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 381798

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.050	U	0.050	U	mg/L		NC	30

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-381953/39
Matrix: Water
Analysis Batch: 381953

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			05/07/15 13:30	1

Lab Sample ID: LCS 680-381953/7
Matrix: Water
Analysis Batch: 381953

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.0		mg/L		100	75 - 125

Lab Sample ID: LCSD 680-381953/38
Matrix: Water
Analysis Batch: 381953

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	20.0		mg/L		100	75 - 125	0	30

Lab Sample ID: 680-112212-5 DU
Matrix: Water
Analysis Batch: 381953

Client Sample ID: GWE-5S-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	110		115		mg/L		0.3	30

Method: 415.1 - DOC

Lab Sample ID: MB 160-191880/57
Matrix: Water
Analysis Batch: 191880

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			05/14/15 19:02	1

Lab Sample ID: LCS 160-191880/58
Matrix: Water
Analysis Batch: 191880

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.72		mg/L		97	90 - 110

Method: 415.1 - TOC

Lab Sample ID: MB 160-191879/33
Matrix: Water
Analysis Batch: 191879

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			05/14/15 16:26	1

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Method: 415.1 - TOC (Continued)

Lab Sample ID: LCS 160-191879/34
Matrix: Water
Analysis Batch: 191879

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.28		mg/L		93	90 - 110

LAB 6/1/15

QC Association Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

GC/MS VOA

Analysis Batch: 381821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	8260B	
680-112212-3	GWE-5M-0515	Total/NA	Water	8260B	
680-112212-5	GWE-5S-0515	Total/NA	Water	8260B	
680-112212-7	GWE-3D-0515	Total/NA	Water	8260B	
680-112212-9	GWE-2D-0515	Total/NA	Water	8260B	
680-112212-11	2Q15 LTM Trip Blank #2	Total/NA	Water	8260B	
LCS 680-381821/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-381821/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-381821/9	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 382554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	RSK-175	
680-112212-3	GWE-5M-0515	Total/NA	Water	RSK-175	
680-112212-5	GWE-5S-0515	Total/NA	Water	RSK-175	
680-112212-7	GWE-3D-0515	Total/NA	Water	RSK-175	
680-112212-9	GWE-2D-0515	Total/NA	Water	RSK-175	
LCS 680-382554/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-382554/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-382554/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 382057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total Recoverable	Water	3005A	
680-112212-2	GWE-5D-F(0.2)-0515	Dissolved	Water	3005A	
680-112212-3	GWE-5M-0515	Total Recoverable	Water	3005A	
680-112212-4	GWE-5M-F(0.2)-0515	Dissolved	Water	3005A	
680-112212-5	GWE-5S-0515	Total Recoverable	Water	3005A	
680-112212-6	GWE-5S-F(0.2)-0515	Dissolved	Water	3005A	
680-112212-7	GWE-3D-0515	Total Recoverable	Water	3005A	
680-112212-8	GWE-3D-F(0.2)-0515	Dissolved	Water	3005A	
680-112212-9	GWE-2D-0515	Total Recoverable	Water	3005A	
680-112212-10	GWE-2D-F(0.2)-0515	Dissolved	Water	3005A	
LCS 680-382057/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-382057/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 382623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total Recoverable	Water	6010C	382057
680-112212-2	GWE-5D-F(0.2)-0515	Dissolved	Water	6010C	382057
680-112212-3	GWE-5M-0515	Total Recoverable	Water	6010C	382057
680-112212-4	GWE-5M-F(0.2)-0515	Dissolved	Water	6010C	382057
680-112212-5	GWE-5S-0515	Total Recoverable	Water	6010C	382057
680-112212-6	GWE-5S-F(0.2)-0515	Dissolved	Water	6010C	382057
680-112212-7	GWE-3D-0515	Total Recoverable	Water	6010C	382057
680-112212-8	GWE-3D-F(0.2)-0515	Dissolved	Water	6010C	382057

LAB 6/1/15

Metals (Continued)

Analysis Batch: 382623 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-9	GWE-2D-0515	Total Recoverable	Water	6010C	382057
680-112212-10	GWE-2D-F(0.2)-0515	Dissolved	Water	6010C	382057
LCS 680-382057/2-A	Lab Control Sample	Total Recoverable	Water	6010C	382057
MB 680-382057/1-A	Method Blank	Total Recoverable	Water	6010C	382057

General Chemistry

Analysis Batch: 191879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	415.1	
680-112212-3	GWE-5M-0515	Total/NA	Water	415.1	
680-112212-5	GWE-5S-0515	Total/NA	Water	415.1	
680-112212-7	GWE-3D-0515	Total/NA	Water	415.1	
680-112212-9	GWE-2D-0515	Total/NA	Water	415.1	
LCS 160-191879/34	Lab Control Sample	Total/NA	Water	415.1	
MB 160-191879/33	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 191880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-2	GWE-5D-F(0.2)-0515	Dissolved	Water	415.1	
680-112212-4	GWE-5M-F(0.2)-0515	Dissolved	Water	415.1	
680-112212-6	GWE-5S-F(0.2)-0515	Dissolved	Water	415.1	
680-112212-8	GWE-3D-F(0.2)-0515	Dissolved	Water	415.1	
680-112212-10	GWE-2D-F(0.2)-0515	Dissolved	Water	415.1	
LCS 160-191880/58	Lab Control Sample	Dissolved	Water	415.1	
MB 160-191880/57	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 381798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	353.2	
680-112212-1 MS	GWE-5D-0515	Total/NA	Water	353.2	
680-112212-1 MSD	GWE-5D-0515	Total/NA	Water	353.2	
680-112212-3	GWE-5M-0515	Total/NA	Water	353.2	
680-112212-3 DU	GWE-5M-0515	Total/NA	Water	353.2	
680-112212-5	GWE-5S-0515	Total/NA	Water	353.2	
680-112212-7	GWE-3D-0515	Total/NA	Water	353.2	
680-112212-9	GWE-2D-0515	Total/NA	Water	353.2	
LCS 680-381798/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-381798/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 381849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	310.1	
680-112212-1 DU	GWE-5D-0515	Total/NA	Water	310.1	
680-112212-3	GWE-5M-0515	Total/NA	Water	310.1	
680-112212-5	GWE-5S-0515	Total/NA	Water	310.1	
680-112212-7	GWE-3D-0515	Total/NA	Water	310.1	
680-112212-9	GWE-2D-0515	Total/NA	Water	310.1	
LCS 680-381849/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-381849/24	Lab Control Sample Dup	Total/NA	Water	310.1	

QC Association Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

General Chemistry (Continued)

Analysis Batch: 381849 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-381849/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 381953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	375.4	
680-112212-3	GWE-5M-0515	Total/NA	Water	375.4	
680-112212-5	GWE-5S-0515	Total/NA	Water	375.4	
680-112212-5 DU	GWE-5S-0515	Total/NA	Water	375.4	
680-112212-7	GWE-3D-0515	Total/NA	Water	375.4	
680-112212-9	GWE-2D-0515	Total/NA	Water	375.4	
LCS 680-381953/7	Lab Control Sample	Total/NA	Water	375.4	
LCSD 680-381953/38	Lab Control Sample Dup	Total/NA	Water	375.4	
MB 680-381953/39	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 382564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112212-1	GWE-5D-0515	Total/NA	Water	325.2	
680-112212-3	GWE-5M-0515	Total/NA	Water	325.2	
680-112212-5	GWE-5S-0515	Total/NA	Water	325.2	
680-112212-5 MS	GWE-5S-0515	Total/NA	Water	325.2	
680-112212-5 MSD	GWE-5S-0515	Total/NA	Water	325.2	
680-112212-7	GWE-3D-0515	Total/NA	Water	325.2	
680-112212-9	GWE-2D-0515	Total/NA	Water	325.2	
LCS 680-382564/30	Lab Control Sample	Total/NA	Water	325.2	
MB 680-382564/2	Method Blank	Total/NA	Water	325.2	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5D-0515

Lab Sample ID: 680-112212-1
Matrix: Water
Date Collected: 05/05/15 09:25
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	381821	05/07/15 15:51	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 21:02	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 21:57	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381849	05/07/15 06:35	DAM	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:25	JME	TAL SAV
Total/NA	Analysis	353.2		1	381798	05/06/15 16:20	JER	TAL SAV
Total/NA	Analysis	375.4		10	381953	05/07/15 13:25	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 17:30	JCB	TAL SL

Client Sample ID: GWE-5D-F(0.2)-0515

Lab Sample ID: 680-112212-2
Matrix: Water
Date Collected: 05/05/15 09:25
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382623	05/11/15 22:11	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 19:58	JCB	TAL SL

Client Sample ID: GWE-5M-0515

Lab Sample ID: 680-112212-3
Matrix: Water
Date Collected: 05/05/15 10:08
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381821	05/07/15 16:12	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 21:15	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 22:15	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381849	05/07/15 06:56	DAM	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	381798	05/06/15 16:24	JER	TAL SAV
Total/NA	Analysis	375.4		5	381953	05/07/15 13:30	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 17:55	JCB	TAL SL

Client Sample ID: GWE-5M-F(0.2)-0515

Lab Sample ID: 680-112212-4
Matrix: Water
Date Collected: 05/05/15 10:08
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382623	05/11/15 22:20	BCB	TAL SAV

LAB 6/1/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-5M-F(0.2)-0515

Lab Sample ID: 680-112212-4
Matrix: Water
Date Collected: 05/05/15 10:08
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	191880	05/14/15 20:22	JCB	TAL SL

Client Sample ID: GWE-5S-0515

Lab Sample ID: 680-112212-5
Matrix: Water
Date Collected: 05/05/15 10:45
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381821	05/07/15 16:32	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 21:27	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 22:24	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381849	05/07/15 07:06	DAM	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:25	JME	TAL SAV
Total/NA	Analysis	353.2		1	381798	05/06/15 16:26	JER	TAL SAV
Total/NA	Analysis	375.4		5	381953	05/07/15 13:30	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:00	JCB	TAL SL

Client Sample ID: GWE-5S-F(0.2)-0515

Lab Sample ID: 680-112212-6
Matrix: Water
Date Collected: 05/05/15 10:45
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382623	05/11/15 22:28	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 20:27	JCB	TAL SL

Client Sample ID: GWE-3D-0515

Lab Sample ID: 680-112212-7
Matrix: Water
Date Collected: 05/05/15 13:23
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	381821	05/07/15 16:52	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 21:40	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 22:33	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381849	05/07/15 07:14	DAM	TAL SAV
Total/NA	Analysis	325.2		20	382564	05/11/15 14:05	JME	TAL SAV
Total/NA	Analysis	353.2		1	381798	05/06/15 16:29	JER	TAL SAV
Total/NA	Analysis	375.4		10	381953	05/07/15 13:25	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:05	JCB	TAL SL

LAB 6/1/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Client Sample ID: GWE-3D-F(0.2)-0515

Lab Sample ID: 680-112212-8

Date Collected: 05/05/15 13:23
Matrix: Water
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382623	05/11/15 22:37	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 20:37	JCB	TAL SL

Client Sample ID: GWE-2D-0515

Lab Sample ID: 680-112212-9

Date Collected: 05/05/15 16:06
Matrix: Water
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	381821	05/07/15 17:13	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 21:53	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	382623	05/11/15 22:42	BCB	TAL SAV
Total/NA	Analysis	310.1		1	381849	05/07/15 07:24	DAM	TAL SAV
Total/NA	Analysis	325.2		20	382564	05/11/15 14:06	JME	TAL SAV
Total/NA	Analysis	353.2		1	381798	05/06/15 16:31	JER	TAL SAV
Total/NA	Analysis	375.4		20	381953	05/07/15 13:32	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:10	JCB	TAL SL

Client Sample ID: GWE-2D-F(0.2)-0515

Lab Sample ID: 680-112212-10

Date Collected: 05/05/15 16:06
Matrix: Water
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382057	05/08/15 09:01	BJB	TAL SAV
Dissolved	Analysis	6010C		1	382623	05/11/15 22:46	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 20:42	JCB	TAL SL

Client Sample ID: 2Q15 LTM Trip Blank #2

Lab Sample ID: 680-112212-11

Date Collected: 05/05/15 00:00
Matrix: Water
Date Received: 05/06/15 09:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	381821	05/07/15 17:34	JD1	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858
TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354 7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/5/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 1 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes
GWE-5D-0515	5/5/15	0925	G	W	14	N		3	1	1	1	3	2	3			2 Coolers
GWE-5D-F(0.2)-0515		1			4	Y									1	3	
GWE-5M-0515		1008			14	N		3	1	1	1	3	2	3			
GWE-5M-F(0.2)-0515		1			4	Y									1	3	
GWE-5S-0515		1045			14	N		3	1	1	1	3	2	3			
GWE-5S-F(0.2)-0515		1			4	Y									1	3	
GWE-3D-0515		1323			14	N		3	1	1	1	3	2	3			
GWE-3D-F(0.2)-0515		1			4	Y									1	3	
GWE-2D-0515		1606			14	N		3	1	1	1	3	2	3			
GWE-2D-F(0.2)-0515	1	1606	1	1	4	Y									1	3	
2Q15 LTM Trip Blank #2	—	—	—	—	2	N		2									
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6=Other								2	4	3	1	2	1	3	4	3	

680-112212 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)

1.4°C 1.8CF / 2.0°C 2.4CF

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531963 / 531964	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Lori Bindner	Golder	5/5/15/1800		TA	5/6/15 9:33
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

LAB 6/1/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112212-1
SDG Number: KPS142

Login Number: 112212
List Number: 1
Creator: White, Menica R

List Source: TestAmerica Savannah

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

LAB 6/1/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112212-1
SDG Number: KPS142

Login Number: 112212
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 05/08/15 07:11 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4,1.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	Sample 4 received on 5-9
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 6/1/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

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

* Certification renewal pending - certification considered valid.

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112212-1
SDG: KPS142

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	04-30-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-15
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 6/1/15

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
2Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-2Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS143
Matrix: Water

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

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

Sample Names: CPA-MW-1D-0515, CPA-MW-1D-F(0.2)-0515, CPA-MW-2D-0515, CPA-MW-2D-0515-AD, CPA-MW-2D-F(0.2)-0515, CPA-MW-5D-0515, CPA-MW-5D-F(0.2)-0515, GWE-1D-0515, GWE-1D-F(0.2)-0515, BSA-MW-3D-0515, BSA-MW-3D-F(0.2)-0515, BSA-MW-3D-0515-EB, and 2Q15 LTM Trip Blank #3

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

Comments:

VOC: Samples CPA-MW-1D-0515, CPA-MW-2D-0515, CPA-MW-2D-0515-AD, CPA-MW-5D-0515, and BSA-MW-3D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: The RPD of the LCS/LSCD recovered outside control limits for methane associated with batch 382673. Insufficient volume to perform MS/MSD associated with batch 382673.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples CPA-MW-1D-0515, CPA-MW-2D-0515, CPA-MW-5D-0515, GWE-1D-0515, and BSA-MW-3D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples CPA-MW-1D-0515, CPA-MW-2D-0515, CPA-MW-5D-0515, GWE-1D-0515, and BSA-MW-3D-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: No deficiencies noted.

DOC: MS recovery was exceeded for sample CPA-MW-1D-F(0.2)-0515 in batch 191880.

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: None

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

Comments: Detections in diluted analysis were qualified.

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

Comments: None

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

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank BSA-MW-3D-0515 was submitted with SDG KPS143. Chlorobenzene and 1,4-dichlorobenzene were detected in the EB. Qualification was not required based on the 5 times rule.

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

Comments: MS/MSD for CPA-MW-1D-F(0.2)-0515 recovered low for DOC in batch 191880. Data was not qualified based on MS/MSD data alone.

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

Comments: The LCSD RPD recovered outside control limits for methane associated with batch 382673. Qualification not required.

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-0515-AD was submitted with SDG KPS143.

Additional Comments: None

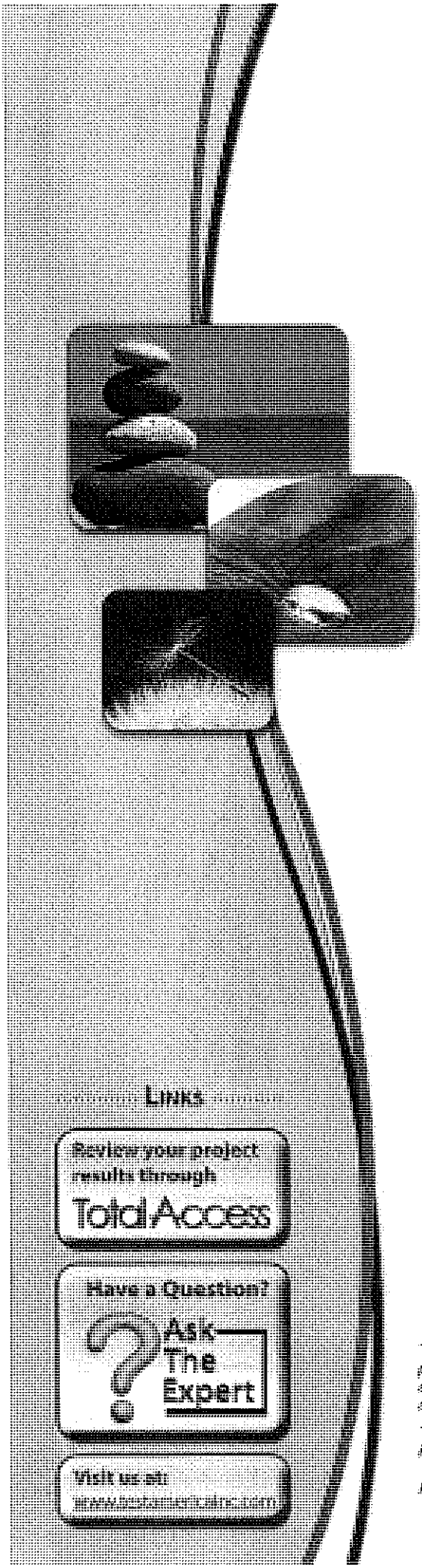
Qualifications:

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

SDG KPS143

Sample Results from:

GWE-1D
BSA-MW-3D
CPA-MW-1D
CPA-MW-2D
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: 680-112279-1
TestAmerica Sample Delivery Group: KPS143
Client Project/Site: 2Q15 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:
5/22/2015 3:20:27 PM

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

LAB
6/5/15

Table of Contents

LAB 6/5/15

Job ID: 680-112279-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 2Q15 LTM GW Sampling - 1403345

Report Number: 680-112279-1

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 5/7/2015 9:04 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 2.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-2D-0515-AD (680-112279-5), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8), BSA-MW-3D-0515 (680-112279-10), BSA-MW-3D-0515-EB (680-112279-12) and 2015 LTM Trip Blank #3 (680-112279-13) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/15/2015.

Samples CPA-MW-1D-0515 (680-112279-1)[250X], CPA-MW-2D-0515 (680-112279-3)[250X], CPA-MW-2D-0515-AD (680-112279-5) [250X], CPA-MW-5D-0515 (680-112279-6)[20X] and BSA-MW-3D-0515 (680-112279-10)[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.

DISSOLVED GASES
Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 05/12/2015.

The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) associated with 680-382673 recovered outside control limits for the following analytes: Methane (TCD).

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 680-382673.

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

METALS (ICP)
Samples CPA-MW-1D-F(0.2)-0515 (680-112279-2), CPA-MW-2D-F(0.2)-0515 (680-112279-4), CPA-MW-5D-F(0.2)-0515 (680-112279-7), GWE-1D-F(0.2)-0515 (680-112279-9) and BSA-MW-3D-F(0.2)-0515 (680-112279-11) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/11/2015 and analyzed on 05/13/2015.

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

METALS (ICP)
Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515

Job ID: 680-112279-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

(680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/11/2015 and analyzed on 05/13/2015.

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

ALKALINITY

Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 05/08/2015.

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

CHLORIDE

Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 05/11/2015.

Samples CPA-MW-1D-0515 (680-112279-1)[2X], CPA-MW-2D-0515 (680-112279-3)[2X], CPA-MW-5D-0515 (680-112279-6)[10X], GWE-1D-0515 (680-112279-8)[2X] and BSA-MW-3D-0515 (680-112279-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN

Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/07/2015.

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

SULFATE

Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 05/11/2015.

Samples CPA-MW-2D-0515 (680-112279-3)[2X], CPA-MW-5D-0515 (680-112279-6)[2X], GWE-1D-0515 (680-112279-8)[10X] and BSA-MW-3D-0515 (680-112279-10)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON

Samples CPA-MW-1D-0515 (680-112279-1), CPA-MW-2D-0515 (680-112279-3), CPA-MW-5D-0515 (680-112279-6), GWE-1D-0515 (680-112279-8) and BSA-MW-3D-0515 (680-112279-10) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

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

DISSOLVED ORGANIC CARBON (DOC)

Samples CPA-MW-1D-F(0.2)-0515 (680-112279-2), CPA-MW-2D-F(0.2)-0515 (680-112279-4), CPA-MW-5D-F(0.2)-0515 (680-112279-7), GWE-1D-F(0.2)-0515 (680-112279-9) and BSA-MW-3D-F(0.2)-0515 (680-112279-11) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 05/14/2015.

Dissolved Organic Carbon exceeded the recovery criteria low for the MS of sample CPA-MW-1D-F(0.2)-0515MS (680-112279-2) in batch 160-191880.

Job ID: 680-112279-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Refer to the QC report for details.

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

Sample Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-112279-1	CPA-MW-1D-0515	Water	05/06/15 09:15	05/07/15 09:04
680-112279-2	CPA-MW-1D-F(0.2)-0515	Water	05/06/15 09:15	05/07/15 09:04
680-112279-3	CPA-MW-2D-0515	Water	05/06/15 10:22	05/07/15 09:04
680-112279-4	CPA-MW-2D-F(0.2)-0515	Water	05/06/15 10:22	05/07/15 09:04
680-112279-5	CPA-MW-2D-0515-AD	Water	05/06/15 10:22	05/07/15 09:04
680-112279-6	CPA-MW-5D-0515	Water	05/06/15 13:46	05/07/15 09:04
680-112279-7	CPA-MW-5D-F(0.2)-0515	Water	05/06/15 13:46	05/07/15 09:04
680-112279-8	GWE-1D-0515	Water	05/06/15 12:35	05/07/15 09:04
680-112279-9	GWE-1D-F(0.2)-0515	Water	05/06/15 12:35	05/07/15 09:04
680-112279-10	BSA-MW-3D-0515	Water	05/06/15 14:55	05/07/15 09:04
680-112279-11	BSA-MW-3D-F(0.2)-0515	Water	05/06/15 14:55	05/07/15 09:04
680-112279-12	BSA-MW-3D-0515-EB	Water	05/06/15 15:15	05/07/15 09:04
680-112279-13	2015 LTM Trip Blank #3	Water	05/06/15 00:00	05/07/15 09:04

Method Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

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

Protocol References:

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

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

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

Laboratory References:

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

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

Definitions/Glossary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

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.
*	RPD of the LCS and LCSD exceeds the control limits

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.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

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

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-1D-0515 — Lab Sample ID: 680-112279-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4700		250		ug/L	250		8260B	Total/NA
Chlorobenzene	16000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	13000		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	1200		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	10000		250		ug/L	250		8260B	Total/NA
Ethane	22		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	18000	*	390		ug/L	1		RSK-175	Total/NA
Iron	0.40		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.071		0.010		mg/L	1		6010C	Total Recoverable
Chloride	87		2.0		mg/L	2		325.2	Total/NA
Total Organic Carbon	10		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	920		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-1D-F(0.2)-0515 — Lab Sample ID: 680-112279-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.16		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.052		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	12	F1	1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-2D-0515 — Lab Sample ID: 680-112279-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	410		250		ug/L	250		8260B	Total/NA
Chlorobenzene	29000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	270		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	370		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	9000		250		ug/L	250		8260B	Total/NA
Ethane	1.4		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	1100	*	390		ug/L	1		RSK-175	Total/NA
Iron	9.6		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.47		0.010		mg/L	1		6010C	Total Recoverable
Chloride	52		2.0		mg/L	2		325.2	Total/NA
Sulfate	57		10		mg/L	2		375.4	Total/NA
Total Organic Carbon	7.3		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	500		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	27		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-2D-F(0.2)-0515 — Lab Sample ID: 680-112279-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	9.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.47		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.6		1.0		mg/L	1		415.1	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-2D-0515-AD — Lab Sample ID: 680-112279-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	430		250		ug/L	250		8260B	Total/NA
Chlorobenzene	30000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	280		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	370		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	9400		250		ug/L	250		8260B	Total/NA

Client Sample ID: CPA-MW-5D-0515 — Lab Sample ID: 680-112279-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1600		20		ug/L	20		8260B	Total/NA
Ethane	7.2		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	750	*	390		ug/L	1		RSK-175	Total/NA
Iron	18		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.62		0.010		mg/L	1		6010C	Total Recoverable
Chloride	270		10		mg/L	10		325.2	Total/NA
Sulfate	61		10		mg/L	2		375.4	Total/NA
Total Organic Carbon	4.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	610		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	53		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-5D-F(0.2)-0515 — Lab Sample ID: 680-112279-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	19		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.68		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: GWE-1D-0515 — Lab Sample ID: 680-112279-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichlorobenzene	1.2		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.2		1.0		ug/L	1		8260B	Total/NA
Methane	9.3		0.58		ug/L	1		RSK-175	Total/NA
Iron	22		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.66		0.010		mg/L	1		6010C	Total Recoverable
Chloride	72		2.0		mg/L	2		325.2	Total/NA
Sulfate	260		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	3.1		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	510		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: GWE-1D-F(0.2)-0515 — Lab Sample ID: 680-112279-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	22		0.050		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: GWE-1D-F(0.2)-0515 (Continued) — Lab Sample ID: 680-112279-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.67		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	2.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-3D-0515 — Lab Sample ID: 680-112279-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	61		20		ug/L	20		8260B	Total/NA
Chlorobenzene	1200		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	270		20		ug/L	20		8260B	Total/NA
Ethane	4.5		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	2.9		1.0		ug/L	1		RSK-175	Total/NA
Methane (TCD)	1500	*	390		ug/L	1		RSK-175	Total/NA
Iron	9.7		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.60		0.010		mg/L	1		6010C	Total Recoverable
Chloride	140		5.0		mg/L	5		325.2	Total/NA
Sulfate	110		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	2.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	490		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	27		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-3D-F(0.2)-0515 — Lab Sample ID: 680-112279-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	9.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.60		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.1		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-3D-0515-EB — Lab Sample ID: 680-112279-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	2.3		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	1.4		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: 2015 LTM Trip Blank #3 — Lab Sample ID: 680-112279-13

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-1D-0515

Date Collected: 05/06/15 09:15
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4700	D	250		ug/L			05/15/15 18:05	250
Chlorobenzene	16000	D	250		ug/L			05/15/15 18:05	250
1,2-Dichlorobenzene	13000	D	250		ug/L			05/15/15 18:05	250
1,3-Dichlorobenzene	1200	D	250		ug/L			05/15/15 18:05	250
1,4-Dichlorobenzene	10000	D	250		ug/L			05/15/15 18:05	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/15/15 18:05*	*250*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/15/15 18:05*	*250*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/15/15 18:05*	*250*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*05/15/15 18:05*	*250*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	22		1.1		ug/L			05/12/15 13:51	1
Ethylene	1.0	U	1.0		ug/L			05/12/15 13:51	1
Methane (TCD)	18000		390		ug/L			05/12/15 13:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.40		0.050		mg/L		05/11/15 12:55	05/13/15 16:54	1
Manganese	0.071		0.010		mg/L		05/11/15 12:55	05/13/15 16:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	87	D	2.0		mg/L			05/11/15 12:28	2
Nitrate as N	0.050	U	0.050		mg/L			05/07/15 16:46	1
Sulfate	5.0	U	5.0		mg/L			05/11/15 10:14	1
Total Organic Carbon	10		1.0		mg/L			05/14/15 18:15	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	920		5.0		mg/L			05/08/15 15:49	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			05/08/15 15:49	1

LAB 6/5/15

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-1D-F(0.2)-0515
Date Collected: 05/06/15 09:15
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.16		0.050		mg/L		05/11/15 12:55	05/13/15 16:59	1
Manganese, Dissolved	0.052		0.010		mg/L		05/11/15 12:55	05/13/15 16:59	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	12	F1	1.0		mg/L			05/14/15 20:47	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-2D-0515

Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	410	D	250		ug/L			05/15/15 16:40	250
Chlorobenzene	29000	D	250		ug/L			05/15/15 16:40	250
1,2-Dichlorobenzene	270	D	250		ug/L			05/15/15 16:40	250
1,3-Dichlorobenzene	370	D	250		ug/L			05/15/15 16:40	250
1,4-Dichlorobenzene	9000	D	250		ug/L			05/15/15 16:40	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/15/15 16:40*	*250*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/15/15 16:40*	*250*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/15/15 16:40*	*250*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/15/15 16:40*	*250*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.4		1.1		ug/L			05/12/15 14:04	1
Ethylene	1.0	U	1.0		ug/L			05/12/15 14:04	1
Methane (TCD)	1100	✓	390		ug/L			05/12/15 14:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.6		0.050		mg/L		05/11/15 12:55	05/13/15 17:04	1
Manganese	0.47		0.010		mg/L		05/11/15 12:55	05/13/15 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52	D	2.0		mg/L			05/11/15 12:28	2
Nitrate as N	0.050	U	0.050		mg/L			05/07/15 16:50	1
Sulfate	57	D	10		mg/L			05/11/15 13:14	2
Total Organic Carbon	7.3		1.0		mg/L			05/14/15 18:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	500		5.0		mg/L			05/08/15 15:26	1
Carbon Dioxide, Free	27		5.0		mg/L			05/08/15 15:26	1

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-2D-F(0.2)-0515
Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-4
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	9.4		0.050		mg/L		05/11/15 12:55	05/13/15 17:10	1
Manganese, Dissolved	0.47		0.010		mg/L		05/11/15 12:55	05/13/15 17:10	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.6		1.0		mg/L			05/14/15 20:57	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-2D-0515-AD

Lab Sample ID: 680-112279-5

Date Collected: 05/06/15 10:22
Matrix: Water
Date Received: 05/07/15 09:04

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	430	D	250		ug/L			05/15/15 17:01	250
Chlorobenzene	30000	D	250		ug/L			05/15/15 17:01	250
1,2-Dichlorobenzene	280	D	250		ug/L			05/15/15 17:01	250
1,3-Dichlorobenzene	370	D	250		ug/L			05/15/15 17:01	250
1,4-Dichlorobenzene	9400	D	250		ug/L			05/15/15 17:01	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*70 - 130*		*05/15/15 17:01*	*250*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*05/15/15 17:01*	*250*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*05/15/15 17:01*	*250*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*05/15/15 17:01*	*250*

Client Sample ID: CPA-MW-5D-0515

Date Collected: 05/06/15 13:46
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-6

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			05/15/15 17:23	20
Chlorobenzene	1600	D	20		ug/L			05/15/15 17:23	20
1,2-Dichlorobenzene	20	U	20		ug/L			05/15/15 17:23	20
1,3-Dichlorobenzene	20	U	20		ug/L			05/15/15 17:23	20
1,4-Dichlorobenzene	20	U	20		ug/L			05/15/15 17:23	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*70 - 130*		*05/15/15 17:23*	*20*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*05/15/15 17:23*	*20*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/15/15 17:23*	*20*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*05/15/15 17:23*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	7.2		1.1		ug/L			05/12/15 14:17	1
Ethylene	1.0	U	1.0		ug/L			05/12/15 14:17	1
Methane (TCD)	750		390		ug/L			05/12/15 14:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	18		0.050		mg/L		05/11/15 12:55	05/13/15 17:26	1
Manganese	0.62		0.010		mg/L		05/11/15 12:55	05/13/15 17:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270	D	10		mg/L			05/11/15 14:06	10
Nitrate as N	0.050	U	0.050		mg/L			05/07/15 16:52	1
Sulfate	61	D	10		mg/L			05/11/15 13:14	2
Total Organic Carbon	4.9		1.0		mg/L			05/14/15 18:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	610		5.0		mg/L			05/08/15 16:09	1
Carbon Dioxide, Free	53		5.0		mg/L			05/08/15 16:09	1

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-5D-F(0.2)-0515
Date Collected: 05/06/15 13:46
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-7
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		05/11/15 12:55	05/13/15 17:31	1
Manganese, Dissolved	0.68		0.010		mg/L		05/11/15 12:55	05/13/15 17:31	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.1		1.0		mg/L			05/14/15 21:04	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: GWE-1D-0515
Date Collected: 05/06/15 12:35
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-8
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			05/15/15 12:47	1
Chlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:47	1
1,2-Dichlorobenzene	**1.2**		1.0		ug/L			05/15/15 12:47	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:47	1
1,4-Dichlorobenzene	**1.2**		1.0		ug/L			05/15/15 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*88*		*70 - 130*		*05/15/15 12:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*05/15/15 12:47*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/15/15 12:47*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/15/15 12:47*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/12/15 14:30	1
Ethylene	1.0	U	1.0		ug/L			05/12/15 14:30	1
Methane	**9.3**		0.58		ug/L			05/12/15 14:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**22**		0.050		mg/L		05/11/15 12:55	05/13/15 17:36	1
Manganese	**0.66**		0.010		mg/L		05/11/15 12:55	05/13/15 17:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**72**	D	2.0		mg/L			05/11/15 12:28	2
Nitrate as N	0.050	U	0.050		mg/L			05/07/15 16:54	1
Sulfate	**260**	D	50		mg/L			05/11/15 14:02	10
Total Organic Carbon	**3.1**		1.0		mg/L			05/14/15 18:39	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**510**		5.0		mg/L			05/08/15 15:37	1
Carbon Dioxide, Free	**32**		5.0		mg/L			05/08/15 15:37	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: GWE-1D-F(0.2)-0515
Date Collected: 05/06/15 12:35
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-9
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	22		0.050		mg/L		05/11/15 12:55	05/13/15 17:41	1
Manganese, Dissolved	0.67		0.010		mg/L		05/11/15 12:55	05/13/15 17:41	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	2.8		1.0		mg/L			05/14/15 21:09	1

Client Sample ID: BSA-MW-3D-0515

Lab Sample ID: 680-112279-10

Date Collected: 05/06/15 14:55
Matrix: Water
Date Received: 05/07/15 09:04

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	61	D	20		ug/L			05/15/15 17:44	20
Chlorobenzene	1200	D	20		ug/L			05/15/15 17:44	20
1,2-Dichlorobenzene	20	U	20		ug/L			05/15/15 17:44	20
1,3-Dichlorobenzene	20	U	20		ug/L			05/15/15 17:44	20
1,4-Dichlorobenzene	270	D	20		ug/L			05/15/15 17:44	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/15/15 17:44*	*20*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*05/15/15 17:44*	*20*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*05/15/15 17:44*	*20*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/15/15 17:44*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	4.5		1.1		ug/L			05/12/15 14:43	1
Ethylene	2.9		1.0		ug/L			05/12/15 14:43	1
Methane (TCD)	1500	✗	390		ug/L			05/12/15 14:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.7		0.050		mg/L		05/11/15 12:55	05/13/15 17:47	1
Manganese	0.60		0.010		mg/L		05/11/15 12:55	05/13/15 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	140	D	5.0		mg/L			05/11/15 13:27	5
Nitrate as N	0.050	U	0.050		mg/L			05/07/15 16:55	1
Sulfate	110	D	25		mg/L			05/11/15 14:03	5
Total Organic Carbon	2.9		1.0		mg/L			05/14/15 18:44	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	490		5.0		mg/L			05/08/15 15:58	1
Carbon Dioxide, Free	27		5.0		mg/L			05/08/15 15:58	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: BSA-MW-3D-F(0.2)-0515
Date Collected: 05/06/15 14:55
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-11
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	9.4		0.050		mg/L		05/11/15 12:55	05/13/15 17:52	1
Manganese, Dissolved	0.60		0.010		mg/L		05/11/15 12:55	05/13/15 17:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.1		1.0		mg/L			05/14/15 21:14	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: BSA-MW-3D-0515-EB
Date Collected: 05/06/15 15:15
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-12
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			05/15/15 13:09	1
Chlorobenzene	**2.3**		1.0		ug/L			05/15/15 13:09	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 13:09	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 13:09	1
1,4-Dichlorobenzene	**1.4**		1.0		ug/L			05/15/15 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*05/15/15 13:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*05/15/15 13:09*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*05/15/15 13:09*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/15/15 13:09*	*1*

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: 2015 LTM Trip Blank #3

Date Collected: 05/06/15 00:00
Date Received: 05/07/15 09:04

Lab Sample ID: 680-112279-13

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			05/15/15 12:26	1
Chlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:26	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:26	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:26	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 12:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*89*		*70 - 130*		*05/15/15 12:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*05/15/15 12:26*	*1*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*05/15/15 12:26*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*05/15/15 12:26*	*1*

Surrogate Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	TOL (70-130)	12DCE (70-130)	DBFM (70-130)	BFB (70-130)
680-112279-1	CPA-MW-1D-0515	93	94	95	99
680-112279-3	CPA-MW-2D-0515	92	94	95	97
680-112279-5	CPA-MW-2D-0515-AD	91	94	94	99
680-112279-6	CPA-MW-5D-0515	93	92	95	96
680-112279-8	GWE-1D-0515	88	95	95	100
680-112279-10	BSA-MW-3D-0515	95	95	96	100
680-112279-12	BSA-MW-3D-0515-EB	95	92	93	100
680-112279-13	2015 LTM Trip Blank #3	89	93	94	102
LCS 680-383216/7	Lab Control Sample	92	94	98	93
LCSD 680-383216/8	Lab Control Sample Dup	97	109	105	92
MB 680-383216/11	Method Blank	92	92	95	101

Surrogate Legend

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

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

Lab Sample ID: MB 680-383216/11
Matrix: Water
Analysis Batch: 383216

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			05/15/15 11:17	1
Chlorobenzene	1.0	U	1.0		ug/L			05/15/15 11:17	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 11:17	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 11:17	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/15/15 11:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/15/15 11:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*05/15/15 11:17*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/15/15 11:17*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*05/15/15 11:17*	*1*

Lab Sample ID: LCS 680-383216/7
Matrix: Water
Analysis Batch: 383216

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	50.8		ug/L		102	73 - 131
Chlorobenzene	50.0	48.8		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	49.0		ug/L		98	80 - 120
1,3-Dichlorobenzene	50.0	48.1		ug/L		96	80 - 120
1,4-Dichlorobenzene	50.0	48.0		ug/L		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 680-383216/8
Matrix: Water
Analysis Batch: 383216

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	50.8		ug/L		102	73 - 131	0	30
Chlorobenzene	50.0	49.6		ug/L		99	80 - 120	2	20
1,2-Dichlorobenzene	50.0	50.1		ug/L		100	80 - 120	2	20
1,3-Dichlorobenzene	50.0	47.6		ug/L		95	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)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-382673/7
Matrix: Water
Analysis Batch: 382673

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/12/15 12:00	1
Ethylene	1.0	U	1.0		ug/L			05/12/15 12:00	1
Methane	0.58	U	0.58		ug/L			05/12/15 12:00	1
Methane (TCD)	390	U	390		ug/L			05/12/15 12:00	1

Lab Sample ID: LCS 680-382673/2
Matrix: Water
Analysis Batch: 382673

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	1570		ug/L		82	75 - 125

Lab Sample ID: LCS 680-382673/5
Matrix: Water
Analysis Batch: 382673

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	320		ug/L		111	75 - 125
Ethylene	269	295		ug/L		110	75 - 125
Methane	154	176		ug/L		115	75 - 125

Lab Sample ID: LCSD 680-382673/3
Matrix: Water
Analysis Batch: 382673

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2140	*	ug/L		111	75 - 125	31	30

Lab Sample ID: LCSD 680-382673/6
Matrix: Water
Analysis Batch: 382673

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	333		ug/L		116	75 - 125	4	30
Ethylene	269	313		ug/L		116	75 - 125	6	30
Methane	154	181		ug/L		118	75 - 125	3	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-382519/1-A
Matrix: Water
Analysis Batch: 383030

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382519

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		05/11/15 12:55	05/13/15 15:34	1
Iron, Dissolved	0.050	U	0.050		mg/L		05/11/15 12:55	05/13/15 15:34	1
Manganese	0.010	U	0.010		mg/L		05/11/15 12:55	05/13/15 15:34	1
Manganese, Dissolved	0.010	U	0.010		mg/L		05/11/15 12:55	05/13/15 15:34	1

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

Lab Sample ID: LCS 680-382519/2-A
Matrix: Water
Analysis Batch: 383030

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 382519

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.28		mg/L		106	80 - 120
Iron, Dissolved	5.00	5.28		mg/L		106	80 - 120
Manganese	0.500	0.542		mg/L		108	80 - 120
Manganese, Dissolved	0.500	0.542		mg/L		108	80 - 120

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-382325/5
Matrix: Water
Analysis Batch: 382325

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			05/08/15 15:10	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			05/08/15 15:10	1

Lab Sample ID: LCS 680-382325/6
Matrix: Water
Analysis Batch: 382325

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	204		mg/L		82	80 - 120

Lab Sample ID: LCSD 680-382325/32
Matrix: Water
Analysis Batch: 382325

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	248		mg/L		99	80 - 120	19	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-382564/2
Matrix: Water
Analysis Batch: 382564

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			05/11/15 10:00	1

Lab Sample ID: LCS 680-382564/30
Matrix: Water
Analysis Batch: 382564

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	26.1		mg/L		104	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-382109/12
Matrix: Water
Analysis Batch: 382109

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			05/07/15 16:30	1

Lab Sample ID: LCS 680-382109/18
Matrix: Water
Analysis Batch: 382109

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	0.574		mg/L		115	75 - 125
Nitrate Nitrite as N	1.00	1.10		mg/L		110	90 - 110
Nitrite as N	0.500	0.523		mg/L		105	90 - 110

Lab Sample ID: 680-112279-1 MS
Matrix: Water
Analysis Batch: 382109

Client Sample ID: CPA-MW-1D-0515
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	0.541		mg/L		108	75 - 125
Nitrate Nitrite as N	0.050	U	1.00	1.09		mg/L		106	90 - 110
Nitrite as N	0.050	U	0.500	0.548		mg/L		103	90 - 110

Lab Sample ID: 680-112279-1 MSD
Matrix: Water
Analysis Batch: 382109

Client Sample ID: CPA-MW-1D-0515
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	0.534		mg/L		107	75 - 125	1	30
Nitrate Nitrite as N	0.050	U	1.00	1.08		mg/L		106	90 - 110	1	10
Nitrite as N	0.050	U	0.500	0.548		mg/L		103	90 - 110	0	10

Lab Sample ID: 680-112279-3 DU
Matrix: Water
Analysis Batch: 382109

Client Sample ID: CPA-MW-2D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.050	U	0.050	U	mg/L		NC	30

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-382567/28
Matrix: Water
Analysis Batch: 382567

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			05/11/15 10:55	1

LAB 6/5/15

Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-382567/15
Matrix: Water
Analysis Batch: 382567

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.8		mg/L		99	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-191880/57
Matrix: Water
Analysis Batch: 191880

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			05/14/15 19:02	1

Lab Sample ID: LCS 160-191880/58
Matrix: Water
Analysis Batch: 191880

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.72		mg/L		97	90 - 110

Lab Sample ID: 680-112279-2 MS
Matrix: Water
Analysis Batch: 191880

Client Sample ID: CPA-MW-1D-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	12	F1	5.00	15.7	F1	mg/L		74	82 - 132

Method: 415.1 - TOC

Lab Sample ID: MB 160-191879/33
Matrix: Water
Analysis Batch: 191879

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			05/14/15 16:26	1

Lab Sample ID: LCS 160-191879/34
Matrix: Water
Analysis Batch: 191879

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.28		mg/L		93	90 - 110

Lab Sample ID: 680-112279-1 MS
Matrix: Water
Analysis Batch: 191879

Client Sample ID: CPA-MW-1D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10		5.00	15.4		mg/L		108	76 - 120

GC/MS VOA

Analysis Batch: 383216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	8260B	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	8260B	
680-112279-5	CPA-MW-2D-0515-AD	Total/NA	Water	8260B	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	8260B	
680-112279-8	GWE-1D-0515	Total/NA	Water	8260B	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	8260B	
680-112279-12	BSA-MW-3D-0515-EB	Total/NA	Water	8260B	
680-112279-13	2015 LTM Trip Blank #3	Total/NA	Water	8260B	
LCS 680-383216/7	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-383216/8	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-383216/11	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 382673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	RSK-175	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	RSK-175	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	RSK-175	
680-112279-8	GWE-1D-0515	Total/NA	Water	RSK-175	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	RSK-175	
LCS 680-382673/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-382673/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-382673/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-382673/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-382673/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 382519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total Recoverable	Water	3005A	
680-112279-2	CPA-MW-1D-F(0.2)-0515	Dissolved	Water	3005A	
680-112279-3	CPA-MW-2D-0515	Total Recoverable	Water	3005A	
680-112279-4	CPA-MW-2D-F(0.2)-0515	Dissolved	Water	3005A	
680-112279-6	CPA-MW-5D-0515	Total Recoverable	Water	3005A	
680-112279-7	CPA-MW-5D-F(0.2)-0515	Dissolved	Water	3005A	
680-112279-8	GWE-1D-0515	Total Recoverable	Water	3005A	
680-112279-9	GWE-1D-F(0.2)-0515	Dissolved	Water	3005A	
680-112279-10	BSA-MW-3D-0515	Total Recoverable	Water	3005A	
680-112279-11	BSA-MW-3D-F(0.2)-0515	Dissolved	Water	3005A	
LCS 680-382519/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-382519/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 383030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total Recoverable	Water	6010C	382519
680-112279-2	CPA-MW-1D-F(0.2)-0515	Dissolved	Water	6010C	382519
680-112279-3	CPA-MW-2D-0515	Total Recoverable	Water	6010C	382519
680-112279-4	CPA-MW-2D-F(0.2)-0515	Dissolved	Water	6010C	382519

Metals (Continued)

Analysis Batch: 383030 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-6	CPA-MW-5D-0515	Total Recoverable	Water	6010C	382519
680-112279-7	CPA-MW-5D-F(0.2)-0515	Dissolved	Water	6010C	382519
680-112279-8	GWE-1D-0515	Total Recoverable	Water	6010C	382519
680-112279-9	GWE-1D-F(0.2)-0515	Dissolved	Water	6010C	382519
680-112279-10	BSA-MW-3D-0515	Total Recoverable	Water	6010C	382519
680-112279-11	BSA-MW-3D-F(0.2)-0515	Dissolved	Water	6010C	382519
LCS 680-382519/2-A	Lab Control Sample	Total Recoverable	Water	6010C	382519
MB 680-382519/1-A	Method Blank	Total Recoverable	Water	6010C	382519

General Chemistry

Analysis Batch: 191879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	415.1	
680-112279-1 MS	CPA-MW-1D-0515	Total/NA	Water	415.1	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	415.1	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	415.1	
680-112279-8	GWE-1D-0515	Total/NA	Water	415.1	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	415.1	
LCS 160-191879/34	Lab Control Sample	Total/NA	Water	415.1	
MB 160-191879/33	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 191880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-2	CPA-MW-1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112279-2 MS	CPA-MW-1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112279-4	CPA-MW-2D-F(0.2)-0515	Dissolved	Water	415.1	
680-112279-7	CPA-MW-5D-F(0.2)-0515	Dissolved	Water	415.1	
680-112279-9	GWE-1D-F(0.2)-0515	Dissolved	Water	415.1	
680-112279-11	BSA-MW-3D-F(0.2)-0515	Dissolved	Water	415.1	
LCS 160-191880/58	Lab Control Sample	Dissolved	Water	415.1	
MB 160-191880/57	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 382109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	353.2	
680-112279-1 MS	CPA-MW-1D-0515	Total/NA	Water	353.2	
680-112279-1 MSD	CPA-MW-1D-0515	Total/NA	Water	353.2	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	353.2	
680-112279-3 DU	CPA-MW-2D-0515	Total/NA	Water	353.2	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	353.2	
680-112279-8	GWE-1D-0515	Total/NA	Water	353.2	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	353.2	
LCS 680-382109/18	Lab Control Sample	Total/NA	Water	353.2	
MB 680-382109/12	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 382325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	310.1	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	310.1	

General Chemistry (Continued)

Analysis Batch: 382325 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	310.1	
680-112279-8	GWE-1D-0515	Total/NA	Water	310.1	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	310.1	
LCS 680-382325/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-382325/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-382325/5	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 382564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	325.2	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	325.2	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	325.2	
680-112279-8	GWE-1D-0515	Total/NA	Water	325.2	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	325.2	
LCS 680-382564/30	Lab Control Sample	Total/NA	Water	325.2	
MB 680-382564/2	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 382567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112279-1	CPA-MW-1D-0515	Total/NA	Water	375.4	
680-112279-3	CPA-MW-2D-0515	Total/NA	Water	375.4	
680-112279-6	CPA-MW-5D-0515	Total/NA	Water	375.4	
680-112279-8	GWE-1D-0515	Total/NA	Water	375.4	
680-112279-10	BSA-MW-3D-0515	Total/NA	Water	375.4	
LCS 680-382567/15	Lab Control Sample	Total/NA	Water	375.4	
MB 680-382567/28	Method Blank	Total/NA	Water	375.4	

LAB 6/5/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-1D-0515

Lab Sample ID: 680-112279-1
Matrix: Water
Date Collected: 05/06/15 09:15
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	383216	05/15/15 18:05	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382673	05/12/15 13:51	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 16:54	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382325	05/08/15 15:49	OLB	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	382109	05/07/15 16:46	JER	TAL SAV
Total/NA	Analysis	375.4		1	382567	05/11/15 10:14	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:15	JCB	TAL SL

Client Sample ID: CPA-MW-1D-F(0.2)-0515

Lab Sample ID: 680-112279-2
Matrix: Water
Date Collected: 05/06/15 09:15
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383030	05/13/15 16:59	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 20:47	JCB	TAL SL

Client Sample ID: CPA-MW-2D-0515

Lab Sample ID: 680-112279-3
Matrix: Water
Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	383216	05/15/15 16:40	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382673	05/12/15 14:04	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 17:04	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382325	05/08/15 15:26	OLB	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	382109	05/07/15 16:50	JER	TAL SAV
Total/NA	Analysis	375.4		2	382567	05/11/15 13:14	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:29	JCB	TAL SL

Client Sample ID: CPA-MW-2D-F(0.2)-0515

Lab Sample ID: 680-112279-4
Matrix: Water
Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383030	05/13/15 17:10	BCB	TAL SAV

LAB 6/5/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: CPA-MW-2D-F(0.2)-0515

Lab Sample ID: 680-112279-4
Matrix: Water
Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	191880	05/14/15 20:57	JCB	TAL SL

Client Sample ID: CPA-MW-2D-0515-AD

Lab Sample ID: 680-112279-5
Matrix: Water
Date Collected: 05/06/15 10:22
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	383216	05/15/15 17:01	JD1	TAL SAV

Client Sample ID: CPA-MW-5D-0515

Lab Sample ID: 680-112279-6
Matrix: Water
Date Collected: 05/06/15 13:46
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	383216	05/15/15 17:23	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382673	05/12/15 14:17	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 17:26	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382325	05/08/15 16:09	OLB	TAL SAV
Total/NA	Analysis	325.2		10	382564	05/11/15 14:06	JME	TAL SAV
Total/NA	Analysis	353.2		1	382109	05/07/15 16:52	JER	TAL SAV
Total/NA	Analysis	375.4		2	382567	05/11/15 13:14	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:34	JCB	TAL SL

Client Sample ID: CPA-MW-5D-F(0.2)-0515

Lab Sample ID: 680-112279-7
Matrix: Water
Date Collected: 05/06/15 13:46
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383030	05/13/15 17:31	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 21:04	JCB	TAL SL

Client Sample ID: GWE-1D-0515

Lab Sample ID: 680-112279-8
Matrix: Water
Date Collected: 05/06/15 12:35
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383216	05/15/15 12:47	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382673	05/12/15 14:30	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 17:36	BCB	TAL SAV

LAB 6/5/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: GWE-1D-0515

Lab Sample ID: 680-112279-8
Date Collected: 05/06/15 12:35
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	310.1		1	382325	05/08/15 15:37	OLB	TAL SAV
Total/NA	Analysis	325.2		2	382564	05/11/15 12:28	JME	TAL SAV
Total/NA	Analysis	353.2		1	382109	05/07/15 16:54	JER	TAL SAV
Total/NA	Analysis	375.4		10	382567	05/11/15 14:02	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:39	JCB	TAL SL

Client Sample ID: GWE-1D-F(0.2)-0515

Lab Sample ID: 680-112279-9
Date Collected: 05/06/15 12:35
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383030	05/13/15 17:41	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 21:09	JCB	TAL SL

Client Sample ID: BSA-MW-3D-0515

Lab Sample ID: 680-112279-10
Date Collected: 05/06/15 14:55
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	383216	05/15/15 17:44	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382673	05/12/15 14:43	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 17:47	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382325	05/08/15 15:58	OLB	TAL SAV
Total/NA	Analysis	325.2		5	382564	05/11/15 13:27	JME	TAL SAV
Total/NA	Analysis	353.2		1	382109	05/07/15 16:55	JER	TAL SAV
Total/NA	Analysis	375.4		5	382567	05/11/15 14:03	JME	TAL SAV
Total/NA	Analysis	415.1		1	191879	05/14/15 18:44	JCB	TAL SL

Client Sample ID: BSA-MW-3D-F(0.2)-0515

Lab Sample ID: 680-112279-11
Date Collected: 05/06/15 14:55
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382519	05/11/15 12:55	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383030	05/13/15 17:52	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191880	05/14/15 21:14	JCB	TAL SL

LAB 6/5/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Client Sample ID: BSA-MW-3D-0515-EB

Lab Sample ID: 680-112279-12

Date Collected: 05/06/15 15:15
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383216	05/15/15 13:09	JD1	TAL SAV

Client Sample ID: 2015 LTM Trip Blank #3

Lab Sample ID: 680-112279-13

Date Collected: 05/06/15 00:00
Matrix: Water
Date Received: 05/07/15 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383216	05/15/15 12:26	JD1	TAL SAV

Laboratory References:

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

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

LAB 6/5/15

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmeric
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/6/15	COC No.
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345				Job / SDG No.:
Site: Solutia WG Krummrich Facility				
P O # 42447936				

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 326.2/Sulfate by 376.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
CPA-MW-1D-0515	5/6/15	0915	G	W	14	N		3	1	1	1	3	2	3			2 coolers
CPA-MW-1D-F(0.2)-0515		1			4	N									1	3	*All samples
CPA-MW-2D-0515		1022			14	N		3	1	1	1	3	2	3			can be included
CPA-MW-2D-F(0.2)-0515		1			4	N									1	3	on One ~~Stack~~ LAB
CPA-MW-2D-0515-AD		1			3	N		3									SDG.
CPA-MW-5D-0515		1546			14	N		3	1	1	1	3	2	3			
CPA-MW-5D-F(0.2)-0515		1			4	N									1	3	
GWE-1D-0515		1235			14	N		3	1	1	1	3	2	3			
GWE-1D-F(0.2)-0515		1			4	N									1	3	
BSA-MW-3D-0515		1455			14	N		3	1	1	1	3	2	3			
BSA-MW-3D-F(0.2)-0515		1			4	N									1	3	
BSA-MW-3D-0515-EB	1	1515	1	1	3	N		3									

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

680-112279 Chain of Custody

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112279 1.8/2.0(CF) 2.2/2.4c

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531967/531968	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:

Relinquished by	Company:	Date/Time:	Received by:	Company:	Date/Time:
Lori Bindner	Golder	5/6/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: D Banda	Company: STAV	Date/Time: 050715 0904

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

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LAB 6/5/15

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/6/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 326.2/Sulfate by 376.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
2015 LTM Trip Blank #3	—	—	—		2	N		2									
Preservation Used: 1= Ice, 2= HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6= Other								2	1	1	2	3	3	4	3		

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112279 1.8/2.0(c) 2.2/2.4°c

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 531967 / 531968	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time.
Jen Bindner	Golder	5/6/15 1200			
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company	Date/Time:
			G Banda	SAV.	050715 0904

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

LAB 6/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112279-1
SDG Number: KPS143

Login Number: 112279
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

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

LAB 6/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112279-1
SDG Number: KPS143

Login Number: 112279
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 05/08/15 03:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	False	Received samples 2, 4, 7 & 9 not listed on COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 6/5/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

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

* Certification renewal pending - certification considered valid.

LAB 6/5/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112279-1
SDG: KPS143

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	04-30-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-15
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

Level IV Data Validation Summary
Solutia Inc., W.G. Krummrich, Sauget, Illinois
2Q15 Long-Term Monitoring Program

Company Name: Golder Associates
Project Name: WGK-2Q15 LTM
Reviewer: L. Bindner
Laboratory: TestAmerica
SDG#: KPS144
Matrix: Water

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

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

Sample Names: BSA-MW-5D-0515, BSA-MW-5D-F(0.2)-0515, BSA-MW-4D-0515, BSA-MW-4D-F(0.2)-0515, BSA-MW-2D-0515, BSA-MW-2D-F(0.2)-0515, BSA-MW-1S-0515, BSA-MW-1S-F(0.2)-0515, BSA-MW-1S-0515-EB, CPA-MW-4D-0515, CPA-MW-4D-F(0.2)-0515, CPA-MW-3D-0515, CPA-MW-3D-0515-AD, CPA-MW-3D-F(0.2)-0515, and 2Q15 LTM Trip Blank #4

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

Comments:

VOC: Samples BSA-MW-5D-0515, BSA-MW-4D-0515, BSA-MW-2D-0515, CPA-MW-4D-0515, BSA-MW-1S-0515, and BSA-MW-1S-0515-EB required dilution prior to analysis, reporting limits were adjusted accordingly.

Dissolved Gases: Insufficient volume to perform MS/MSD associated with batch 382554 and batch 382919.

Metals: No deficiencies noted.

Alkalinity: No deficiencies noted.

Chloride: Samples BSA-MW-5D-0515, BSA-MW-4D-0515, BSA-MW-2D-0515, CPA-MW-4D-0515, CPA-MW-3D-0515, and BSA-MW-1S-0515, required dilution prior to analysis, reporting limits were adjusted accordingly.

Nitrate-Nitrite as Nitrogen: No deficiencies noted.

Sulfate: Samples BSA-MW-4D-0515 and BSA-MW-1S-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

TOC: Sample BSA-MW-1S-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

DOC: Sample BSA-MW-1S-F(0.2)-0515 required dilution prior to analysis, reporting limits were adjusted accordingly.

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

Comments: Some samples were received at 1.4°C, outside the 4°C +/- 2°C criteria.

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

Comments: Detections in diluted analysis were qualified.

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

Comments: None

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

Comments: Analytes of interest met calibration standards.

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

Comments: Equipment blank BSA-MW-1S-0515-EB was submitted with SDG KPS144. Benzene was detected in the EB. Qualification was not required based on the 5 times rule.

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

Comments: None

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

Comments: None

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

Comments: None

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

Comments: Duplicate sample CPA-MW-3D-0515-AD was submitted with SDG KPS144.

Additional Comments: None

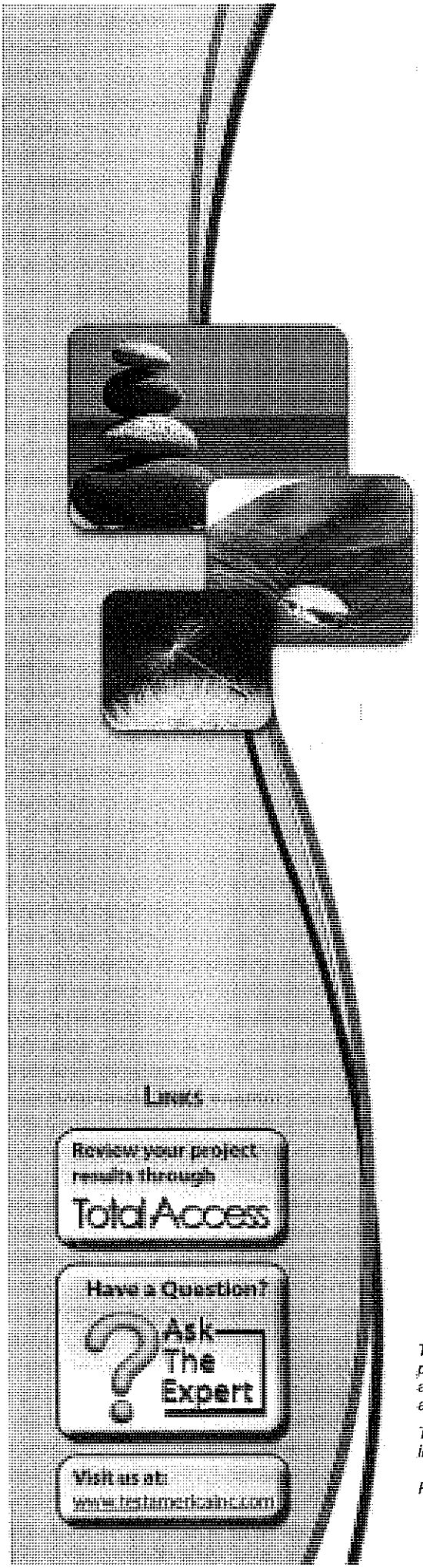
Qualifications:

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

SDG KPS144

Sample Results from:

BSA-MW-1S
BSA-MW-2D
BSA-MW-4D
BSA-MW-5D
CPA-MW-3D
CPA-MW-4D



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 680-112363-1
TestAmerica Sample Delivery Group: KPS144
Client Project/Site: 2Q15 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:
5/22/2015 3:29:34 PM

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

LAB 6/5/15

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Job ID: 680-112363-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: 2Q15 LTM GW Sampling - 1403345

Report Number: 680-112363-1

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 5/8/2015 9:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 2.8° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11), CPA-MW-3D-0515-AD (680-112363-13), 2Q15 LTM Trip Blank #4 (680-112363-14), BSA-MW-1S-0515 (680-112363-15) and BSA-MW-1S-0515-EB (680-112363-17) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/19/2015 and 05/20/2015.

Samples BSA-MW-5D-0515 (680-112363-1)[2X], BSA-MW-4D-0515 (680-112363-5)[20X], BSA-MW-2D-0515 (680-112363-7)[1000X], CPA-MW-4D-0515 (680-112363-9)[2X], BSA-MW-1S-0515 (680-112363-15)[10000X] and BSA-MW-1S-0515-EB (680-112363-17)[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.

DISSOLVED GASES
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 05/11/2015 and 05/13/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 382554.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 382919.

Sample CPA-MW-3D-0515 (680-112363-11)[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.

METALS (ICP)
Samples BSA-MW-5D-F(0.2)-0515 (680-112363-2), BSA-MW-4D-F(0.2)-0515 (680-112363-6), BSA-MW-2D-F(0.2)-0515 (680-112363-8), CPA-MW-4D-F(0.2)-0515 (680-112363-10), CPA-MW-3D-F(0.2)-0515 (680-112363-12) and BSA-MW-1S-F(0.2)-0515 (680-112363-16) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/13/2015 and analyzed on 05/16/2015.

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

Job ID: 680-112363-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/12/2015 and 05/13/2015 and analyzed on 05/13/2015 and 05/16/2015.

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

ALKALINITY
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 05/09/2015.

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

CHLORIDE
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 05/11/2015.

Samples BSA-MW-5D-0515 (680-112363-1)[5X], BSA-MW-4D-0515 (680-112363-5)[2X], BSA-MW-2D-0515 (680-112363-7)[5X], CPA-MW-4D-0515 (680-112363-9)[5X], CPA-MW-3D-0515 (680-112363-11)[10X] and BSA-MW-1S-0515 (680-112363-15)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/08/2015.

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

SULFATE
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 05/11/2015.

Samples BSA-MW-4D-0515 (680-112363-5)[5X] and BSA-MW-1S-0515 (680-112363-15)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

TOTAL ORGANIC CARBON
Samples BSA-MW-5D-0515 (680-112363-1), BSA-MW-4D-0515 (680-112363-5), BSA-MW-2D-0515 (680-112363-7), CPA-MW-4D-0515 (680-112363-9), CPA-MW-3D-0515 (680-112363-11) and BSA-MW-1S-0515 (680-112363-15) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 05/18/2015 and 05/19/2015.

Sample BSA-MW-1S-0515 (680-112363-15)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED ORGANIC CARBON (DOC)
Samples BSA-MW-5D-F(0.2)-0515 (680-112363-2), BSA-MW-4D-F(0.2)-0515 (680-112363-6), BSA-MW-2D-F(0.2)-0515 (680-112363-8), CPA-MW-4D-F(0.2)-0515 (680-112363-10), CPA-MW-3D-F(0.2)-0515 (680-112363-12) and BSA-MW-1S-F(0.2)-0515 (680-112363-16)

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Job ID: 680-112363-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 05/18/2015 and 05/19/2015.

Sample BSA-MW-1S-F(0.2)-0515 (680-112363-16)[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.

Sample Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-112363-1	BSA-MW-5D-0515	Water	05/07/15 09:12	05/08/15 09:38
680-112363-2	BSA-MW-5D-F(0.2)-0515	Water	05/07/15 09:12	05/08/15 09:38
680-112363-5	BSA-MW-4D-0515	Water	05/07/15 11:15	05/08/15 09:38
680-112363-6	BSA-MW-4D-F(0.2)-0515	Water	05/07/15 11:15	05/08/15 09:38
680-112363-7	BSA-MW-2D-0515	Water	05/07/15 13:46	05/08/15 09:38
680-112363-8	BSA-MW-2D-F(0.2)-0515	Water	05/07/15 13:46	05/08/15 09:38
680-112363-9	CPA-MW-4D-0515	Water	05/07/15 10:14	05/08/15 09:38
680-112363-10	CPA-MW-4D-F(0.2)-0515	Water	05/07/15 10:14	05/08/15 09:38
680-112363-11	CPA-MW-3D-0515	Water	05/07/15 12:57	05/08/15 09:38
680-112363-12	CPA-MW-3D-F(0.2)-0515	Water	05/07/15 12:57	05/08/15 09:38
680-112363-13	CPA-MW-3D-0515-AD	Water	05/07/15 12:57	05/08/15 09:38
680-112363-14	2Q15 LTM Trip Blank #4	Water	05/07/15 00:00	05/08/15 09:38
680-112363-15	BSA-MW-1S-0515	Water	05/07/15 14:54	05/08/15 09:38
680-112363-16	BSA-MW-1S-F(0.2)-0515	Water	05/07/15 14:54	05/08/15 09:38
680-112363-17	BSA-MW-1S-0515-EB	Water	05/07/15 15:15	05/08/15 09:38

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Method Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

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

Protocol References:

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

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

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

Laboratory References:

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

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

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Qualifiers

GC/MS VOA

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

GC VOA

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

Metals

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

General Chemistry

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

Glossary

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

LAB 6/5/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-5D-0515 — Lab Sample ID: 680-112363-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	63		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	160		2.0		ug/L	2		8260B	Total/NA
Ethane	26		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	18000		390		ug/L	1		RSK-175	Total/NA
Iron	11		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.31		0.010		mg/L	1		6010C	Total Recoverable
Chloride	220		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	8.2		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	620		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-5D-F(0.2)-0515 — Lab Sample ID: 680-112363-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.29		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-4D-0515 — Lab Sample ID: 680-112363-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	20		20		ug/L	20		8260B	Total/NA
Chlorobenzene	1600		20		ug/L	20		8260B	Total/NA
1,4-Dichlorobenzene	59		20		ug/L	20		8260B	Total/NA
Ethane	4.6		1.1		ug/L	1		RSK-175	Total/NA
Methane	280		0.58		ug/L	1		RSK-175	Total/NA
Iron	7.9		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.59		0.010		mg/L	1		6010C	Total Recoverable
Chloride	97		2.0		mg/L	2		325.2	Total/NA
Sulfate	130		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	4.3		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	530		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-4D-F(0.2)-0515 — Lab Sample ID: 680-112363-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	7.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.59		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.4		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: BSA-MW-2D-0515 — Lab Sample ID: 680-112363-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	41000		1000		ug/L	1000		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-2D-0515 (Continued) — Lab Sample ID: 680-112363-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethane	18		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	24000		390		ug/L	1		RSK-175	Total/NA
Iron	4.6		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.68		0.010		mg/L	1		6010C	Total Recoverable
Chloride	150		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	7.9		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	630		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	30		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-2D-F(0.2)-0515 — Lab Sample ID: 680-112363-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	4.5		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.67		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	7.6		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-4D-0515 — Lab Sample ID: 680-112363-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	150		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	2.7		2.0		ug/L	2		8260B	Total/NA
Ethane	32		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	33000		390		ug/L	1		RSK-175	Total/NA
Iron	16		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.46		0.010		mg/L	1		6010C	Total Recoverable
Chloride	240		5.0		mg/L	5		325.2	Total/NA
Total Organic Carbon	8.0		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	660		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	40		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-4D-F(0.2)-0515 — Lab Sample ID: 680-112363-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	16		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.46		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	7.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-0515 — Lab Sample ID: 680-112363-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	48		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	95		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	1.4		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	2.6		1.0		ug/L	1		8260B	Total/NA
Ethane	38		1.1		ug/L	1		RSK-175	Total/NA

This Detection Summary does not include radiochemical test results.

LAB 6/5/15

Detection Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: CPA-MW-3D-0515 (Continued) — Lab Sample ID: 680-112363-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (TCD)	20000		2000		ug/L	5		RSK-175	Total/NA
Iron	14		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.78		0.010		mg/L	1		6010C	Total Recoverable
Chloride	270		10		mg/L	10		325.2	Total/NA
Total Organic Carbon	7.3		1.0		mg/L	1		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	650		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	50		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-MW-3D-F(0.2)-0515 — Lab Sample ID: 680-112363-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.79		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	7.8		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-MW-3D-0515-AD — Lab Sample ID: 680-112363-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	42		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	96		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	1.4		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	2.6		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: 2Q15 LTM Trip Blank #4 — Lab Sample ID: 680-112363-14

No Detections.

Client Sample ID: BSA-MW-1S-0515 — Lab Sample ID: 680-112363-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	850000		10000		ug/L	10000		8260B	Total/NA
Methane (TCD)	11000		390		ug/L	1		RSK-175	Total/NA
Iron	9.3		0.050		mg/L	1		6010C	Total Recoverable
Manganese	1.0		0.010		mg/L	1		6010C	Total Recoverable
Chloride	120		5.0		mg/L	5		325.2	Total/NA
Sulfate	120		25		mg/L	5		375.4	Total/NA
Total Organic Carbon - RADL	30		5.0		mg/L	5		415.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	910		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	42		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: BSA-MW-1S-F(0.2)-0515 — Lab Sample ID: 680-112363-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.9		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.1		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: BSA-MW-1S-F(0.2)-0515 (Continued) — Lab Sample ID: 680-112363-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Organic Carbon - RADL	23		5.0		mg/L	5		415.1	Dissolved

Client Sample ID: BSA-MW-1S-0515-EB — Lab Sample ID: 680-112363-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	250		2.0		ug/L	2		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample ID: BSA-MW-5D-0515

Date Collected: 05/07/15 09:12
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	63	D	2.0		ug/L			05/19/15 13:12	2
Chlorobenzene	160	D	2.0		ug/L			05/19/15 13:12	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 13:12	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 13:12	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 13:12	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/19/15 13:12*	*2*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*05/19/15 13:12*	*2*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*05/19/15 13:12*	*2*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*		*05/19/15 13:12*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	26		1.1		ug/L			05/11/15 22:06	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 22:06	1
Methane (TCD)	18000		390		ug/L			05/11/15 22:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	11		0.050		mg/L		05/12/15 09:26	05/13/15 15:00	1
Manganese	0.31		0.010		mg/L		05/12/15 09:26	05/13/15 15:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220	D	5.0		mg/L			05/11/15 13:27	5
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:00	1
Sulfate	5.0	U	5.0		mg/L			05/11/15 10:27	1
Total Organic Carbon	8.2		1.0		mg/L			05/18/15 18:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	620		5.0		mg/L			05/09/15 18:15	1
Carbon Dioxide, Free	32		5.0		mg/L			05/09/15 18:15	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-5D-F(0.2)-0515
Date Collected: 05/07/15 09:12
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-2
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	11		0.050		mg/L		05/13/15 10:52	05/16/15 18:38	1
Manganese, Dissolved	0.29		0.010		mg/L		05/13/15 10:52	05/16/15 18:38	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.4		1.0		mg/L			05/18/15 21:39	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-4D-0515

Lab Sample ID: 680-112363-5

Date Collected: 05/07/15 11:15
Matrix: Water
Date Received: 05/08/15 09:38

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20	D	20		ug/L			05/19/15 12:30	20
Chlorobenzene	1600	D	20		ug/L			05/19/15 12:30	20
1,2-Dichlorobenzene	20	U	20		ug/L			05/19/15 12:30	20
1,3-Dichlorobenzene	20	U	20		ug/L			05/19/15 12:30	20
1,4-Dichlorobenzene	59	D	20		ug/L			05/19/15 12:30	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/19/15 12:30*	*20*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*05/19/15 12:30*	*20*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/19/15 12:30*	*20*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*05/19/15 12:30*	*20*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	4.6		1.1		ug/L			05/11/15 22:19	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 22:19	1
Methane	280		0.58		ug/L			05/11/15 22:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.9		0.050		mg/L		05/12/15 09:26	05/13/15 15:16	1
Manganese	0.59		0.010		mg/L		05/12/15 09:26	05/13/15 15:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	97	D	2.0		mg/L			05/11/15 12:34	2
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:02	1
Sulfate	130	D	25		mg/L			05/11/15 13:30	5
Total Organic Carbon	4.3		1.0		mg/L			05/18/15 19:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	530		5.0		mg/L			05/09/15 18:25	1
Carbon Dioxide, Free	32		5.0		mg/L			05/09/15 18:25	1

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-4D-F(0.2)-0515
Date Collected: 05/07/15 11:15
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-6
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.8		0.050		mg/L		05/13/15 10:52	05/16/15 18:52	1
Manganese, Dissolved	0.59		0.010		mg/L		05/13/15 10:52	05/16/15 18:52	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.4		1.0		mg/L			05/18/15 22:21	1

LAB 6/5/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-2D-0515

Date Collected: 05/07/15 13:46
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-7

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	41000	D	1000		ug/L			05/19/15 11:05	1000
Chlorobenzene	1000	U	1000		ug/L			05/19/15 11:05	1000
1,2-Dichlorobenzene	1000	U	1000		ug/L			05/19/15 11:05	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			05/19/15 11:05	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			05/19/15 11:05	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/19/15 11:05*	*1000*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*05/19/15 11:05*	*1000*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*05/19/15 11:05*	*1000*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*05/19/15 11:05*	*1000*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	18		1.1		ug/L			05/11/15 22:32	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 22:32	1
Methane (TCD)	24000		390		ug/L			05/11/15 22:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	4.6		0.050		mg/L		05/12/15 09:26	05/13/15 15:24	1
Manganese	0.68		0.010		mg/L		05/12/15 09:26	05/13/15 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150	D	5.0		mg/L			05/11/15 13:27	5
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:03	1
Sulfate	5.0	U	5.0		mg/L			05/11/15 10:46	1
Total Organic Carbon	7.9		1.0		mg/L			05/18/15 19:09	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	630		5.0		mg/L			05/09/15 18:50	1
Carbon Dioxide, Free	30		5.0		mg/L			05/09/15 18:50	1

LAB 6/5/15

Client Sample ID: BSA-MW-2D-F(0.2)-0515
Date Collected: 05/07/15 13:46
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-8
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	4.5		0.050		mg/L		05/13/15 10:52	05/16/15 19:15	1
Manganese, Dissolved	0.67		0.010		mg/L		05/13/15 10:52	05/16/15 19:15	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.6		1.0		mg/L			05/18/15 22:25	1

LAB 6/5/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: CPA-MW-4D-0515

Date Collected: 05/07/15 10:14
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-9

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.0	U	2.0		ug/L			05/19/15 13:33	2
Chlorobenzene	**150**	D	2.0		ug/L			05/19/15 13:33	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 13:33	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 13:33	2
1,4-Dichlorobenzene	**2.7**	D	2.0		ug/L			05/19/15 13:33	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/19/15 13:33*	*2*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*05/19/15 13:33*	*2*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*05/19/15 13:33*	*2*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*05/19/15 13:33*	*2*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	**32**		1.1		ug/L			05/11/15 22:45	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 22:45	1
Methane (TCD)	**33000**		390		ug/L			05/11/15 22:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**16**		0.050		mg/L		05/13/15 10:52	05/16/15 19:20	1
Manganese	**0.46**		0.010		mg/L		05/13/15 10:52	05/16/15 19:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**240**	D	5.0		mg/L			05/11/15 13:27	5
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:04	1
Sulfate	5.0	U	5.0		mg/L			05/11/15 10:46	1
Total Organic Carbon	**8.0**		1.0		mg/L			05/18/15 19:13	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**660**		5.0		mg/L			05/09/15 19:00	1
Carbon Dioxide, Free	**40**		5.0		mg/L			05/09/15 19:00	1

Client Sample ID: CPA-MW-4D-F(0.2)-0515

Date Collected: 05/07/15 10:14
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-10

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		05/13/15 10:52	05/16/15 19:24	1
Manganese, Dissolved	0.46		0.010		mg/L		05/13/15 10:52	05/16/15 19:24	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.7		1.0		mg/L			05/18/15 22:30	1

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Client Sample ID: CPA-MW-3D-0515

Lab Sample ID: 680-112363-11

Date Collected: 05/07/15 12:57
Matrix: Water
Date Received: 05/08/15 09:38

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	48		1.0		ug/L			05/20/15 01:49	1
Chlorobenzene	95		1.0		ug/L			05/20/15 01:49	1
1,2-Dichlorobenzene	1.4		1.0		ug/L			05/20/15 01:49	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/20/15 01:49	1
1,4-Dichlorobenzene	2.6		1.0		ug/L			05/20/15 01:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/20/15 01:49*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*05/20/15 01:49*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*05/20/15 01:49*	*1*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*		*05/20/15 01:49*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	38		1.1		ug/L			05/11/15 22:57	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 22:57	1
Methane (TCD)	20000	D	2000		ug/L			05/13/15 16:19	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	14		0.050		mg/L		05/12/15 09:26	05/13/15 15:29	1
Manganese	0.78		0.010		mg/L		05/12/15 09:26	05/13/15 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270	D	10		mg/L			05/11/15 14:06	10
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:05	1
Sulfate	5.0	U	5.0		mg/L			05/11/15 10:46	1
Total Organic Carbon	7.3		1.0		mg/L			05/18/15 19:18	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	650		5.0		mg/L			05/09/15 19:11	1
Carbon Dioxide, Free	50		5.0		mg/L			05/09/15 19:11	1

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: CPA-MW-3D-F(0.2)-0515
Date Collected: 05/07/15 12:57
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-12
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		05/13/15 10:52	05/16/15 19:29	1
Manganese, Dissolved	0.79		0.010		mg/L		05/13/15 10:52	05/16/15 19:29	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.8		1.0		mg/L			05/18/15 22:35	1

LAB 6/5/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: CPA-MW-3D-0515-AD
Date Collected: 05/07/15 12:57
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-13
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**42**		1.0		ug/L			05/20/15 02:10	1
Chlorobenzene	**96**		1.0		ug/L			05/20/15 02:10	1
1,2-Dichlorobenzene	**1.4**		1.0		ug/L			05/20/15 02:10	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/20/15 02:10	1
1,4-Dichlorobenzene	**2.6**		1.0		ug/L			05/20/15 02:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*05/20/15 02:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*05/20/15 02:10*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*05/20/15 02:10*	*1*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*		*05/20/15 02:10*	*1*

Client Sample ID: 2Q15 LTM Trip Blank #4

Lab Sample ID: 680-112363-14

Date Collected: 05/07/15 00:00
Matrix: Water
Date Received: 05/08/15 09:38

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			05/19/15 13:55	1
Chlorobenzene	1.0	U	1.0		ug/L			05/19/15 13:55	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 13:55	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 13:55	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*70 - 130*		*05/19/15 13:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*05/19/15 13:55*	*1*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*05/19/15 13:55*	*1*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*05/19/15 13:55*	*1*

LAB 6/5/15

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-1S-0515

Date Collected: 05/07/15 14:54
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-15

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**850000**	D	10000		ug/L			05/19/15 11:26	10000
Chlorobenzene	10000	U	10000		ug/L			05/19/15 11:26	10000
1,2-Dichlorobenzene	10000	U	10000		ug/L			05/19/15 11:26	10000
1,3-Dichlorobenzene	10000	U	10000		ug/L			05/19/15 11:26	10000
1,4-Dichlorobenzene	10000	U	10000		ug/L			05/19/15 11:26	10000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*05/19/15 11:26*	*10000*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*05/19/15 11:26*	*10000*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/19/15 11:26*	*10000*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*		*05/19/15 11:26*	*10000*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 23:10	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 23:10	1
Methane (TCD)	**11000**		390		ug/L			05/11/15 23:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**9.3**		0.050		mg/L		05/13/15 10:52	05/16/15 19:33	1
Manganese	**1.0**		0.010		mg/L		05/13/15 10:52	05/16/15 19:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**	D	5.0		mg/L			05/11/15 13:27	5
Nitrate as N	0.050	U	0.050		mg/L			05/08/15 16:06	1
Sulfate	**120**	D	25		mg/L			05/11/15 13:30	5

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**910**		5.0		mg/L			05/09/15 19:24	1
Carbon Dioxide, Free	**42**		5.0		mg/L			05/09/15 19:24	1

General Chemistry - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**30**	D	5.0		mg/L			05/19/15 11:54	5

Client Sample Results

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-1S-F(0.2)-0515
Date Collected: 05/07/15 14:54
Date Received: 05/08/15 09:38

Lab Sample ID: 680-112363-16
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.9		0.050		mg/L		05/13/15 10:52	05/16/15 19:38	1
Manganese, Dissolved	1.1		0.010		mg/L		05/13/15 10:52	05/16/15 19:38	1

General Chemistry - Dissolved - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	23	D	5.0		mg/L			05/19/15 13:10	5

LAB 6/5/15

Client Sample ID: BSA-MW-1S-0515-EB

Lab Sample ID: 680-112363-17

Date Collected: 05/07/15 15:15
Matrix: Water
Date Received: 05/08/15 09:38

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	250	D	2.0		ug/L			05/19/15 12:51	2
Chlorobenzene	2.0	U	2.0		ug/L			05/19/15 12:51	2
1,2-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 12:51	2
1,3-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 12:51	2
1,4-Dichlorobenzene	2.0	U	2.0		ug/L			05/19/15 12:51	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*05/19/15 12:51*	*2*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*05/19/15 12:51*	*2*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*05/19/15 12:51*	*2*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*05/19/15 12:51*	*2*

Surrogate Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	DBFM	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
680-112363-1	BSA-MW-5D-0515	101	100	92	113
680-112363-1 MS	BSA-MW-5D-0515	95	107	99	113
680-112363-1 MSD	BSA-MW-5D-0515	89	103	95	114
680-112363-5	BSA-MW-4D-0515	101	98	95	110
680-112363-7	BSA-MW-2D-0515	105	100	91	111
680-112363-9	CPA-MW-4D-0515	101	99	94	111
680-112363-11	CPA-MW-3D-0515	101	102	103	89
680-112363-13	CPA-MW-3D-0515-AD	99	103	103	90
680-112363-14	2Q15 LTM Trip Blank #4	101	98	93	111
680-112363-15	BSA-MW-1S-0515	99	101	95	116
680-112363-17	BSA-MW-1S-0515-EB	100	102	93	115
LCS 680-383721/4	Lab Control Sample	98	111	102	109
LCS 680-383902/4	Lab Control Sample	97	97	98	92
LCSD 680-383721/5	Lab Control Sample Dup	102	112	103	110
LCSD 680-383902/5	Lab Control Sample Dup	104	103	105	95
MB 680-383721/9	Method Blank	103	99	92	107
MB 680-383902/8	Method Blank	102	98	101	91

Surrogate Legend

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

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

Lab Sample ID: MB 680-383721/9
Matrix: Water
Analysis Batch: 383721

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			05/19/15 10:44	1
Chlorobenzene	1.0	U	1.0		ug/L			05/19/15 10:44	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 10:44	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 10:44	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 10:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*05/19/15 10:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*		*05/19/15 10:44*	*1*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*05/19/15 10:44*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*05/19/15 10:44*	*1*

Lab Sample ID: LCS 680-383721/4
Matrix: Water
Analysis Batch: 383721

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	52.6		ug/L		105	73 - 131
Chlorobenzene	50.0	46.7		ug/L		93	80 - 120
1,2-Dichlorobenzene	50.0	52.8		ug/L		106	80 - 120
1,3-Dichlorobenzene	50.0	50.0		ug/L		100	80 - 120
1,4-Dichlorobenzene	50.0	49.5		ug/L		99	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: LCSD 680-383721/5
Matrix: Water
Analysis Batch: 383721

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	53.1		ug/L		106	73 - 131	1	30
Chlorobenzene	50.0	48.2		ug/L		96	80 - 120	3	20
1,2-Dichlorobenzene	50.0	53.9		ug/L		108	80 - 120	2	20
1,3-Dichlorobenzene	50.0	51.6		ug/L		103	80 - 120	3	20
1,4-Dichlorobenzene	50.0	51.3		ug/L		103	80 - 120	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*

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

Lab Sample ID: 680-112363-1 MS
Matrix: Water
Analysis Batch: 383721

Client Sample ID: BSA-MW-5D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	63		100	176		ug/L		113	73 - 131
Chlorobenzene	160		100	267		ug/L		107	80 - 120
1,2-Dichlorobenzene	2.0	U	100	101		ug/L		100	80 - 120
1,3-Dichlorobenzene	2.0	U	100	98.6		ug/L		99	80 - 120
1,4-Dichlorobenzene	2.0	U	100	101		ug/L		99	80 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*

Lab Sample ID: 680-112363-1 MSD
Matrix: Water
Analysis Batch: 383721

Client Sample ID: BSA-MW-5D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	63		100	175		ug/L		112	73 - 131	0	30
Chlorobenzene	160		100	266		ug/L		105	80 - 120	1	20
1,2-Dichlorobenzene	2.0	U	100	99.2		ug/L		98	80 - 120	2	20
1,3-Dichlorobenzene	2.0	U	100	97.3		ug/L		97	80 - 120	1	20
1,4-Dichlorobenzene	2.0	U	100	100		ug/L		98	80 - 120	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*95*		*70 - 130*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*

Lab Sample ID: MB 680-383902/8
Matrix: Water
Analysis Batch: 383902

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			05/19/15 21:09	1
Chlorobenzene	1.0	U	1.0		ug/L			05/19/15 21:09	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 21:09	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 21:09	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			05/19/15 21:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*05/19/15 21:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*05/19/15 21:09*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*05/19/15 21:09*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*05/19/15 21:09*	*1*

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

Lab Sample ID: LCS 680-383902/4
Matrix: Water
Analysis Batch: 383902

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	46.1		ug/L		92	73 - 131
Chlorobenzene	50.0	49.0		ug/L		98	80 - 120
1,2-Dichlorobenzene	50.0	49.3		ug/L		99	80 - 120
1,3-Dichlorobenzene	50.0	48.7		ug/L		97	80 - 120
1,4-Dichlorobenzene	50.0	47.8		ug/L		96	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*

Lab Sample ID: LCSD 680-383902/5
Matrix: Water
Analysis Batch: 383902

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	49.1		ug/L		98	73 - 131	6	30
Chlorobenzene	50.0	52.5		ug/L		105	80 - 120	7	20
1,2-Dichlorobenzene	50.0	52.2		ug/L		104	80 - 120	6	20
1,3-Dichlorobenzene	50.0	51.7		ug/L		103	80 - 120	6	20
1,4-Dichlorobenzene	50.0	50.4		ug/L		101	80 - 120	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-382554/8
Matrix: Water
Analysis Batch: 382554

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			05/11/15 19:14	1
Ethylene	1.0	U	1.0		ug/L			05/11/15 19:14	1
Methane	0.58	U	0.58		ug/L			05/11/15 19:14	1
Methane (TCD)	390	U	390		ug/L			05/11/15 19:14	1

Lab Sample ID: LCS 680-382554/2
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2070		ug/L		108	75 - 125

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

Lab Sample ID: LCS 680-382554/5
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	313		ug/L		109	75 - 125
Ethylene	269	287		ug/L		106	75 - 125
Methane	154	174		ug/L		113	75 - 125

Lab Sample ID: LCSD 680-382554/3
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2260		ug/L		117	75 - 125	9	30

Lab Sample ID: LCSD 680-382554/30
Matrix: Water
Analysis Batch: 382554

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	245		ug/L		85	75 - 125	24	30
Ethylene	269	220		ug/L		82	75 - 125	26	30
Methane	154	136		ug/L		89	75 - 125	24	30

Lab Sample ID: MB 680-382919/7
Matrix: Water
Analysis Batch: 382919

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	390	U	390		ug/L			05/13/15 15:57	1

Lab Sample ID: LCS 680-382919/2
Matrix: Water
Analysis Batch: 382919

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2090		ug/L		109	75 - 125

Lab Sample ID: LCSD 680-382919/3
Matrix: Water
Analysis Batch: 382919

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2290		ug/L		119	75 - 125	9	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-382628/1-A
Matrix: Water
Analysis Batch: 383030

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		05/12/15 09:26	05/13/15 12:11	1

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

Lab Sample ID: MB 680-382628/1-A
Matrix: Water
Analysis Batch: 383030

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.010	U	0.010		mg/L		05/12/15 09:26	05/13/15 12:11	1

Lab Sample ID: LCS 680-382628/2-A
Matrix: Water
Analysis Batch: 383030

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 382628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.25		mg/L		105	80 - 120
Manganese	0.500	0.531		mg/L		106	80 - 120

Lab Sample ID: MB 680-382867/1-A
Matrix: Water
Analysis Batch: 383553

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 382867

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		05/13/15 10:52	05/16/15 18:29	1
Iron, Dissolved	0.050	U	0.050		mg/L		05/13/15 10:52	05/16/15 18:29	1
Manganese	0.010	U	0.010		mg/L		05/13/15 10:52	05/16/15 18:29	1
Manganese, Dissolved	0.010	U	0.010		mg/L		05/13/15 10:52	05/16/15 18:29	1

Lab Sample ID: LCS 680-382867/2-A
Matrix: Water
Analysis Batch: 383553

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 382867

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.21		mg/L		104	80 - 120
Iron, Dissolved	5.00	5.21		mg/L		104	80 - 120
Manganese	0.500	0.540		mg/L		108	80 - 120
Manganese, Dissolved	0.500	0.540		mg/L		108	80 - 120

Lab Sample ID: 680-112363-2 MS
Matrix: Water
Analysis Batch: 383553

Client Sample ID: BSA-MW-5D-F(0.2)-0515
Prep Type: Dissolved
Prep Batch: 382867

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	11		5.00	15.8		mg/L		96	75 - 125
Iron, Dissolved	11		5.00	15.8		mg/L		96	75 - 125
Manganese	0.29		0.500	0.820		mg/L		105	75 - 125
Manganese, Dissolved	0.29		0.500	0.820		mg/L		105	75 - 125

Lab Sample ID: 680-112363-2 MSD
Matrix: Water
Analysis Batch: 383553

Client Sample ID: BSA-MW-5D-F(0.2)-0515
Prep Type: Dissolved
Prep Batch: 382867

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	11		5.00	15.4		mg/L		88	75 - 125	3	20
Iron, Dissolved	11		5.00	15.4		mg/L		88	75 - 125	3	20
Manganese	0.29		0.500	0.804		mg/L		102	75 - 125	2	20
Manganese, Dissolved	0.29		0.500	0.804		mg/L		102	75 - 125	2	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-382377/32
Matrix: Water
Analysis Batch: 382377

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			05/09/15 17:22	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			05/09/15 17:22	1

Lab Sample ID: LCS 680-382377/33
Matrix: Water
Analysis Batch: 382377

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	252		mg/L		101	80 - 120

Lab Sample ID: LCSD 680-382377/59
Matrix: Water
Analysis Batch: 382377

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	226		mg/L		91	80 - 120	11	30

Lab Sample ID: 680-112363-5 DU
Matrix: Water
Analysis Batch: 382377

Client Sample ID: BSA-MW-4D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	530		531		mg/L		0.4	30
Carbon Dioxide, Free	32		30.7		mg/L		3	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-382565/2
Matrix: Water
Analysis Batch: 382565

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			05/11/15 10:00	1

Lab Sample ID: LCS 680-382565/32
Matrix: Water
Analysis Batch: 382565

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	26.1		mg/L		104	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-382541/13
Matrix: Water
Analysis Batch: 382541

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			05/08/15 15:30	1

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Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-382541/16
Matrix: Water
Analysis Batch: 382541

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	0.548		mg/L		110	75 - 125
Nitrate Nitrite as N	1.00	1.07		mg/L		107	90 - 110
Nitrite as N	0.500	0.520		mg/L		104	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-382567/28
Matrix: Water
Analysis Batch: 382567

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			05/11/15 10:55	1

Lab Sample ID: LCS 680-382567/15
Matrix: Water
Analysis Batch: 382567

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.8		mg/L		99	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 160-191877/33
Matrix: Water
Analysis Batch: 191877

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			05/18/15 21:21	1

Lab Sample ID: LCS 160-191877/34
Matrix: Water
Analysis Batch: 191877

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.75		mg/L		98	90 - 110

Lab Sample ID: 680-112363-2 MS
Matrix: Water
Analysis Batch: 191877

Client Sample ID: BSA-MW-5D-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	8.4		5.00	13.5		mg/L		102	82 - 132

Lab Sample ID: 680-112363-2 DU
Matrix: Water
Analysis Batch: 191877

Client Sample ID: BSA-MW-5D-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	8.4		8.26		mg/L		2	20

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Method: 415.1 - DOC (Continued)

Lab Sample ID: MB 160-191878/4
Matrix: Water
Analysis Batch: 191878

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			05/19/15 11:39	1

Lab Sample ID: LCS 160-191878/5
Matrix: Water
Analysis Batch: 191878

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	10.0	9.15		mg/L		92	90 - 110

Method: 415.1 - DOC - RADL

Lab Sample ID: 680-112363-16 MS
Matrix: Water
Analysis Batch: 191878

Client Sample ID: BSA-MW-1S-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - RADL	23		25.0	48.1		mg/L		100	82 - 132

Lab Sample ID: 680-112363-16 DU
Matrix: Water
Analysis Batch: 191878

Client Sample ID: BSA-MW-1S-F(0.2)-0515
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon - RADL	23		24.4		mg/L		6	20

Method: 415.1 - TOC

Lab Sample ID: MB 160-191875/4
Matrix: Water
Analysis Batch: 191875

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			05/18/15 18:36	1

Lab Sample ID: LCS 160-191875/5
Matrix: Water
Analysis Batch: 191875

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.40		mg/L		94	90 - 110

Lab Sample ID: 680-112363-1 MS
Matrix: Water
Analysis Batch: 191875

Client Sample ID: BSA-MW-5D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	8.2		5.00	13.4		mg/L		104	76 - 120

LAB 6/5/15

Method: 415.1 - TOC (Continued)

Lab Sample ID: 680-112363-1 DU
Matrix: Water
Analysis Batch: 191875

Client Sample ID: BSA-MW-5D-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	8.2		8.22		mg/L		0.2	20

Lab Sample ID: MB 160-191876/4
Matrix: Water
Analysis Batch: 191876

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			05/19/15 11:39	1

Lab Sample ID: LCS 160-191876/5
Matrix: Water
Analysis Batch: 191876

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.15		mg/L		92	90 - 110

Method: 415.1 - TOC - RADL

Lab Sample ID: 680-112363-15 MS
Matrix: Water
Analysis Batch: 191876

Client Sample ID: BSA-MW-1S-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - RADL	30		25.0	54.8		mg/L		99	76 - 120

Lab Sample ID: 680-112363-15 DU
Matrix: Water
Analysis Batch: 191876

Client Sample ID: BSA-MW-1S-0515
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon - RADL	30		27.9		mg/L		7	20

LAB 6/5/15

QC Association Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

GC/MS VOA

Analysis Batch: 383721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	8260B	
680-112363-1 MS	BSA-MW-5D-0515	Total/NA	Water	8260B	
680-112363-1 MSD	BSA-MW-5D-0515	Total/NA	Water	8260B	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	8260B	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	8260B	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	8260B	
680-112363-14	2Q15 LTM Trip Blank #4	Total/NA	Water	8260B	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	8260B	
680-112363-17	BSA-MW-1S-0515-EB	Total/NA	Water	8260B	
LCS 680-383721/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-383721/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-383721/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 383902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	8260B	
680-112363-13	CPA-MW-3D-0515-AD	Total/NA	Water	8260B	
LCS 680-383902/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-383902/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-383902/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 382554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	RSK-175	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	RSK-175	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	RSK-175	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	RSK-175	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	RSK-175	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	RSK-175	
LCS 680-382554/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-382554/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-382554/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-382554/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-382554/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 382919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	RSK-175	
LCS 680-382919/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-382919/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-382919/7	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 382628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total Recoverable	Water	3005A	
680-112363-5	BSA-MW-4D-0515	Total Recoverable	Water	3005A	

LAB 6/5/15

Metals (Continued)

Prep Batch: 382628 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-7	BSA-MW-2D-0515	Total Recoverable	Water	3005A	
680-112363-11	CPA-MW-3D-0515	Total Recoverable	Water	3005A	
LCS 680-382628/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-382628/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 382867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-2	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-2 MS	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-2 MSD	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-6	BSA-MW-4D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-8	BSA-MW-2D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-9	CPA-MW-4D-0515	Total Recoverable	Water	3005A	
680-112363-10	CPA-MW-4D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-12	CPA-MW-3D-F(0.2)-0515	Dissolved	Water	3005A	
680-112363-15	BSA-MW-1S-0515	Total Recoverable	Water	3005A	
680-112363-16	BSA-MW-1S-F(0.2)-0515	Dissolved	Water	3005A	
LCS 680-382867/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-382867/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 383030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total Recoverable	Water	6010C	382628
680-112363-5	BSA-MW-4D-0515	Total Recoverable	Water	6010C	382628
680-112363-7	BSA-MW-2D-0515	Total Recoverable	Water	6010C	382628
680-112363-11	CPA-MW-3D-0515	Total Recoverable	Water	6010C	382628
LCS 680-382628/2-A	Lab Control Sample	Total Recoverable	Water	6010C	382628
MB 680-382628/1-A	Method Blank	Total Recoverable	Water	6010C	382628

Analysis Batch: 383553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-2	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-2 MS	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-2 MSD	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-6	BSA-MW-4D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-8	BSA-MW-2D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-9	CPA-MW-4D-0515	Total Recoverable	Water	6010C	382867
680-112363-10	CPA-MW-4D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-12	CPA-MW-3D-F(0.2)-0515	Dissolved	Water	6010C	382867
680-112363-15	BSA-MW-1S-0515	Total Recoverable	Water	6010C	382867
680-112363-16	BSA-MW-1S-F(0.2)-0515	Dissolved	Water	6010C	382867
LCS 680-382867/2-A	Lab Control Sample	Total Recoverable	Water	6010C	382867
MB 680-382867/1-A	Method Blank	Total Recoverable	Water	6010C	382867

General Chemistry

Analysis Batch: 191875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	415.1	
680-112363-1 DU	BSA-MW-5D-0515	Total/NA	Water	415.1	

General Chemistry (Continued)

Analysis Batch: 191875 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1 MS	BSA-MW-5D-0515	Total/NA	Water	415.1	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	415.1	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	415.1	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	415.1	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	415.1	
LCS 160-191875/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-191875/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 191876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-15 - RADL	BSA-MW-1S-0515	Total/NA	Water	415.1	
680-112363-15 DU - RADL	BSA-MW-1S-0515	Total/NA	Water	415.1	
680-112363-15 MS - RADL	BSA-MW-1S-0515	Total/NA	Water	415.1	
LCS 160-191876/5	Lab Control Sample	Total/NA	Water	415.1	
MB 160-191876/4	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 191877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-2	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-2 DU	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-2 MS	BSA-MW-5D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-6	BSA-MW-4D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-8	BSA-MW-2D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-10	CPA-MW-4D-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-12	CPA-MW-3D-F(0.2)-0515	Dissolved	Water	415.1	
LCS 160-191877/34	Lab Control Sample	Dissolved	Water	415.1	
MB 160-191877/33	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 191878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-16 - RADL	BSA-MW-1S-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-16 DU - RADL	BSA-MW-1S-F(0.2)-0515	Dissolved	Water	415.1	
680-112363-16 MS - RADL	BSA-MW-1S-F(0.2)-0515	Dissolved	Water	415.1	
LCS 160-191878/5	Lab Control Sample	Dissolved	Water	415.1	
MB 160-191878/4	Method Blank	Dissolved	Water	415.1	

Analysis Batch: 382377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	310.1	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	310.1	
680-112363-5 DU	BSA-MW-4D-0515	Total/NA	Water	310.1	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	310.1	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	310.1	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	310.1	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	310.1	
LCS 680-382377/33	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-382377/59	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-382377/32	Method Blank	Total/NA	Water	310.1	

General Chemistry (Continued)

Analysis Batch: 382541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	353.2	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	353.2	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	353.2	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	353.2	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	353.2	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	353.2	
LCS 680-382541/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-382541/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 382565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	325.2	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	325.2	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	325.2	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	325.2	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	325.2	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	325.2	
LCS 680-382565/32	Lab Control Sample	Total/NA	Water	325.2	
MB 680-382565/2	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 382567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-112363-1	BSA-MW-5D-0515	Total/NA	Water	375.4	
680-112363-5	BSA-MW-4D-0515	Total/NA	Water	375.4	
680-112363-7	BSA-MW-2D-0515	Total/NA	Water	375.4	
680-112363-9	CPA-MW-4D-0515	Total/NA	Water	375.4	
680-112363-11	CPA-MW-3D-0515	Total/NA	Water	375.4	
680-112363-15	BSA-MW-1S-0515	Total/NA	Water	375.4	
LCS 680-382567/15	Lab Control Sample	Total/NA	Water	375.4	
MB 680-382567/28	Method Blank	Total/NA	Water	375.4	

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-5D-0515

Lab Sample ID: 680-112363-1
Matrix: Water

Date Collected: 05/07/15 09:12
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	383721	05/19/15 13:12	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 22:06	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382628	05/12/15 09:26	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 15:00	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 18:15	DAM	TAL SAV
Total/NA	Analysis	325.2		5	382565	05/11/15 13:27	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:00	JER	TAL SAV
Total/NA	Analysis	375.4		1	382567	05/11/15 10:27	JME	TAL SAV
Total/NA	Analysis	415.1		1	191875	05/18/15 18:50	JCB	TAL SL

Client Sample ID: BSA-MW-5D-F(0.2)-0515

Lab Sample ID: 680-112363-2
Matrix: Water

Date Collected: 05/07/15 09:12
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 18:38	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191877	05/18/15 21:39	JCB	TAL SL

Client Sample ID: BSA-MW-4D-0515

Lab Sample ID: 680-112363-5
Matrix: Water

Date Collected: 05/07/15 11:15
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	383721	05/19/15 12:30	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 22:19	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382628	05/12/15 09:26	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 15:16	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 18:25	DAM	TAL SAV
Total/NA	Analysis	325.2		2	382565	05/11/15 12:34	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:02	JER	TAL SAV
Total/NA	Analysis	375.4		5	382567	05/11/15 13:30	JME	TAL SAV
Total/NA	Analysis	415.1		1	191875	05/18/15 19:04	JCB	TAL SL

Client Sample ID: BSA-MW-4D-F(0.2)-0515

Lab Sample ID: 680-112363-6
Matrix: Water

Date Collected: 05/07/15 11:15
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 18:52	BCB	TAL SAV

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-4D-F(0.2)-0515

Lab Sample ID: 680-112363-6
Date Collected: 05/07/15 11:15
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	191877	05/18/15 22:21	JCB	TAL SL

Client Sample ID: BSA-MW-2D-0515

Lab Sample ID: 680-112363-7
Date Collected: 05/07/15 13:46
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	383721	05/19/15 11:05	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 22:32	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382628	05/12/15 09:26	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 15:24	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 18:50	DAM	TAL SAV
Total/NA	Analysis	325.2		5	382565	05/11/15 13:27	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:03	JER	TAL SAV
Total/NA	Analysis	375.4		1	382567	05/11/15 10:46	JME	TAL SAV
Total/NA	Analysis	415.1		1	191875	05/18/15 19:09	JCB	TAL SL

Client Sample ID: BSA-MW-2D-F(0.2)-0515

Lab Sample ID: 680-112363-8
Date Collected: 05/07/15 13:46
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 19:15	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191877	05/18/15 22:25	JCB	TAL SL

Client Sample ID: CPA-MW-4D-0515

Lab Sample ID: 680-112363-9
Date Collected: 05/07/15 10:14
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	383721	05/19/15 13:33	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 22:45	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383553	05/16/15 19:20	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 19:00	DAM	TAL SAV
Total/NA	Analysis	325.2		5	382565	05/11/15 13:27	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:04	JER	TAL SAV
Total/NA	Analysis	375.4		1	382567	05/11/15 10:46	JME	TAL SAV
Total/NA	Analysis	415.1		1	191875	05/18/15 19:13	JCB	TAL SL

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: CPA-MW-4D-F(0.2)-0515

Lab Sample ID: 680-112363-10
Date Collected: 05/07/15 10:14
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 19:24	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191877	05/18/15 22:30	JCB	TAL SL

Client Sample ID: CPA-MW-3D-0515

Lab Sample ID: 680-112363-11
Date Collected: 05/07/15 12:57
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383902	05/20/15 01:49	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 22:57	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		5	382919	05/13/15 16:19	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382628	05/12/15 09:26	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383030	05/13/15 15:29	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 19:11	DAM	TAL SAV
Total/NA	Analysis	325.2		10	382565	05/11/15 14:06	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:05	JER	TAL SAV
Total/NA	Analysis	375.4		1	382567	05/11/15 10:46	JME	TAL SAV
Total/NA	Analysis	415.1		1	191875	05/18/15 19:18	JCB	TAL SL

Client Sample ID: CPA-MW-3D-F(0.2)-0515

Lab Sample ID: 680-112363-12
Date Collected: 05/07/15 12:57
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 19:29	BCB	TAL SAV
Dissolved	Analysis	415.1		1	191877	05/18/15 22:35	JCB	TAL SL

Client Sample ID: CPA-MW-3D-0515-AD

Lab Sample ID: 680-112363-13
Date Collected: 05/07/15 12:57
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383902	05/20/15 02:10	JD1	TAL SAV

Client Sample ID: 2Q15 LTM Trip Blank #4

Lab Sample ID: 680-112363-14
Date Collected: 05/07/15 00:00
Matrix: Water
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	383721	05/19/15 13:55	JD1	TAL SAV

LAB 6/5/15

Lab Chronicle

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Client Sample ID: BSA-MW-1S-0515

Lab Sample ID: 680-112363-15
Matrix: Water

Date Collected: 05/07/15 14:54
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10000	383721	05/19/15 11:26	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	382554	05/11/15 23:10	AJMC	TAL SAV
Total Recoverable	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	383553	05/16/15 19:33	BCB	TAL SAV
Total/NA	Analysis	310.1		1	382377	05/09/15 19:24	DAM	TAL SAV
Total/NA	Analysis	325.2		5	382565	05/11/15 13:27	JME	TAL SAV
Total/NA	Analysis	353.2		1	382541	05/08/15 16:06	JER	TAL SAV
Total/NA	Analysis	375.4		5	382567	05/11/15 13:30	JME	TAL SAV
Total/NA	Analysis	415.1	RADL	5	191876	05/19/15 11:54	JCB	TAL SL

Client Sample ID: BSA-MW-1S-F(0.2)-0515

Lab Sample ID: 680-112363-16
Matrix: Water

Date Collected: 05/07/15 14:54
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			382867	05/13/15 10:52	BJB	TAL SAV
Dissolved	Analysis	6010C		1	383553	05/16/15 19:38	BCB	TAL SAV
Dissolved	Analysis	415.1	RADL	5	191878	05/19/15 13:10	JCB	TAL SL

Client Sample ID: BSA-MW-1S-0515-EB

Lab Sample ID: 680-112363-17
Matrix: Water

Date Collected: 05/07/15 15:15
Date Received: 05/08/15 09:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	383721	05/19/15 12:51	JD1	TAL SAV

Laboratory References:

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

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

LAB 6/5/15

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	1 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☑ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	VOCs by 8260	Total Fe/Mn by 6010C	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010C	DOC by 415.1	Sample Specific Notes:
BSA-MW-5D-0515	5/7/15	0912	G	W	14	N		3	1	1	1	3	2	3			* 2 coolers
BSA-MW-5D-F(0.2)-0515	"	"	"	"	4	Y									1	3	
BSA-MW-5D-0515-MS					3	N		3									
BSA-MW-5D-0515-MSD					3	N		3									
BSA-MW-4D-0515		1115			14	N		3	1	1	1	3	2	3			
BSA-MW-4D-F(0.2)-0515		"			4	Y									1	3	
BSA-MW-2D-0515		1346			14	N		3	1	1	1	3	2	3			
BSA-MW-2D-F(0.2)-0515		"			4	Y									1	3	
CPA-MW-4D-0515		1014			14	N		3	1	1	1	3	2	3			
CPA-MW-4D-F(0.2)-0515		"			4	Y									1	3	
CPA-MW-3D-0515		1257			14	N		3	1	1	1	3	2	3			
CPA-MW-3D-F(0.2)-0515		"			4	Y									1	3	

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

	2	4	1	2	1	3	2	4	3								

680-112363 Chain of Custody

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112363 1.0/2.4(CF)1.4/28°C

Custody Seals Intact. ☐ Yes ☐ No	Custody Seal No.: 531965 / 531966		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by: J Bindner	Company: Golder	Date/Time: 5/7/15/1700	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: SAV.	Date/Time: 05-08-15 0938

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LAB 6/5/15

TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912 354.7858 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Amanda Derhake	Site Contact: Lori Bindner	Date: 5/7/15	COC No:
Golder Associates Inc.	Tel/Fax: 636-724-9191	Lab Contact: Michele Kersey	Carrier: FedEx	2 of 2 COCs
820 South Main Street	Analysis Turnaround Time			Sampler:
St. Charles, MO 63301	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(636) 724-9191 Phone	TAT if different from Below Standard			Walk-in Client:
(636) 724-9323 FAX	☐ 2 weeks			Lab Sampling:
Project Name: 2Q15 LTM GW Sampling-1403345	☐ 1 week			
Site: Solutia WG Krummrich Facility	☐ 2 days			Job / SDG No.:
P O # 42447936	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	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 416.1	Sample Specific Notes:
CPA-MW-3D-0515-AD	5/7/15	1257	G	W	3	N		3									* 2 coolers
2Q15 LTM Trip Blank #4	—	—	—	—	2	N		2									
BSA-MW-1S-0515	5/7/15	1454	G	W	14	N		3	1	1	1	3	2	3			
BSA-MW-1S-F(0.2)-0515	1	1	1	1	4	N									1	3	
BSA-MW-1S-0515-EB	1	1515	1	1	3	N		3									

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

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

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

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

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

680-112363 1.0/2.4(CF)14/2.8°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 5319605 / 5319606	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
L Bindner	Golder	5/7/15 1700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
			[signature]	SAV	050815 0938

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

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LAB 6/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112363-1
SDG Number: KPS144

Login Number: 112363
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

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

LAB 6/5/15

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-112363-1
SDG Number: KPS144

Login Number: 112363
List Number: 2
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis
List Creation: 05/12/15 04:21 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LAB 6/5/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-17
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-16
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

Laboratory: TestAmerica St. Louis

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

* Certification renewal pending - certification considered valid.

LAB 6/5/15

Certification Summary

Client: Solutia Inc.
Project/Site: 2Q15 LTM GW Sampling - 1403345

TestAmerica Job ID: 680-112363-1
SDG: KPS144

Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-15
California	NELAP	9	2886	03-31-16
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-15
Illinois	NELAP	5	200023	11-30-15
Iowa	State Program	7	373	12-01-16
Kansas	NELAP	7	E-10236	04-30-15 *
Kentucky (DW)	State Program	4	90125	12-31-15
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	04080	06-30-15
Louisiana (DW)	NELAP	6	LA150017	12-31-16
Maryland	State Program	3	310	09-30-15
Missouri	State Program	7	780	06-30-15
Nevada	State Program	9	MO000542013-1	07-31-15
New Jersey	NELAP	2	MO002	06-30-15
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	03-31-16
North Dakota	State Program	8	R207	06-30-15
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-15
Pennsylvania	NELAP	3	68-00540	02-28-16
South Carolina	State Program	4	85002001	06-30-15
Texas	NELAP	6	T104704193-13-6	07-31-15
USDA	Federal		P330-07-00122	01-09-17
Utah	NELAP	8	MO000542013-5	07-31-15
Virginia	NELAP	3	460230	06-14-15
Washington	State Program	10	C592	08-30-15
West Virginia DEP	State Program	3	381	08-31-15

* Certification renewal pending - certification considered valid.

LAB 6/5/15

APPENDIX E
MICROBIAL INSIGHTS DATA PACKAGE

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Lori Bindner
Golder Associates Inc.
820 S. Main Street
Suite 100
St. Charles, MO 63301

Phone:

Fax:

Identifier: 008ME **Date Rec:** 05/01/2015 **Report Date:** 05/27/2015

Client Project #: 1403345 **Client Project Name:** WG Krummrich - LTM

Purchase Order #:

Analysis Requested: PLFA, Stable Isotope Probing, Standard Bio-Trap

Reviewed By:

Kate Clark

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Golder Associates Inc.**
Project: WG Krummrich - LTM

MI Project Number: **008ME**
Date Received: 05/01/2015

Sample Information

Sample Name:	**BSA-MW-1S-0515**	**BSA-MW-2D-0515**	**BSA-MW-3D-0515**	**BSA-MW-4D-0515**	**BSA-MW-5D-0515**
Sample Date:	04/30/2015	04/30/2015	04/30/2015	04/30/2015	04/30/2015
Sample Matrix:	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ

Biomass Concentrations

Total Biomass (cells/bead)	**1.93E+05**	**1.32E+05**	**3.01E+04**	**1.89E+04**	**3.35E+04**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**45.85**	**15.19**	**33.22**	**38.42**	**21.07**
Proteobacteria (Monos)	**33.14**	**58.45**	**40.21**	**35.88**	**56.31**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**2.81**	**4.94**	**0.00**	**0.00**	**0.00**
General (Nsats)	**10.26**	**16.54**	**25.23**	**25.71**	**18.98**
Eukaryotes (polyenoics)	**7.95**	**4.89**	**1.34**	**0.00**	**3.63**

Physiological Status (Proteobacteria only)

Slowed Growth	**1.92**	**0.26**	**0.21**	**0.60**	**0.35**
Decreased Permeability	**1.62**	**0.10**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: **Golder Associates Inc.**
Project: WG Krummrich - LTM

MI Project Number: **008ME**
Date Received: 05/01/2015

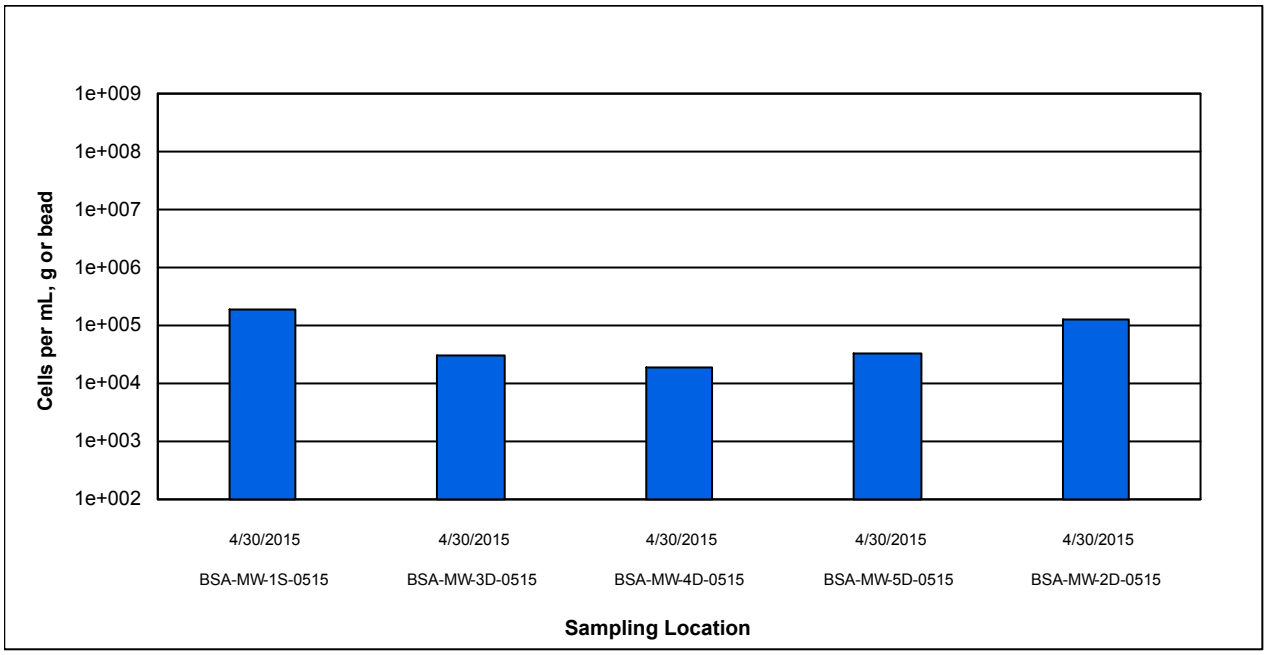

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

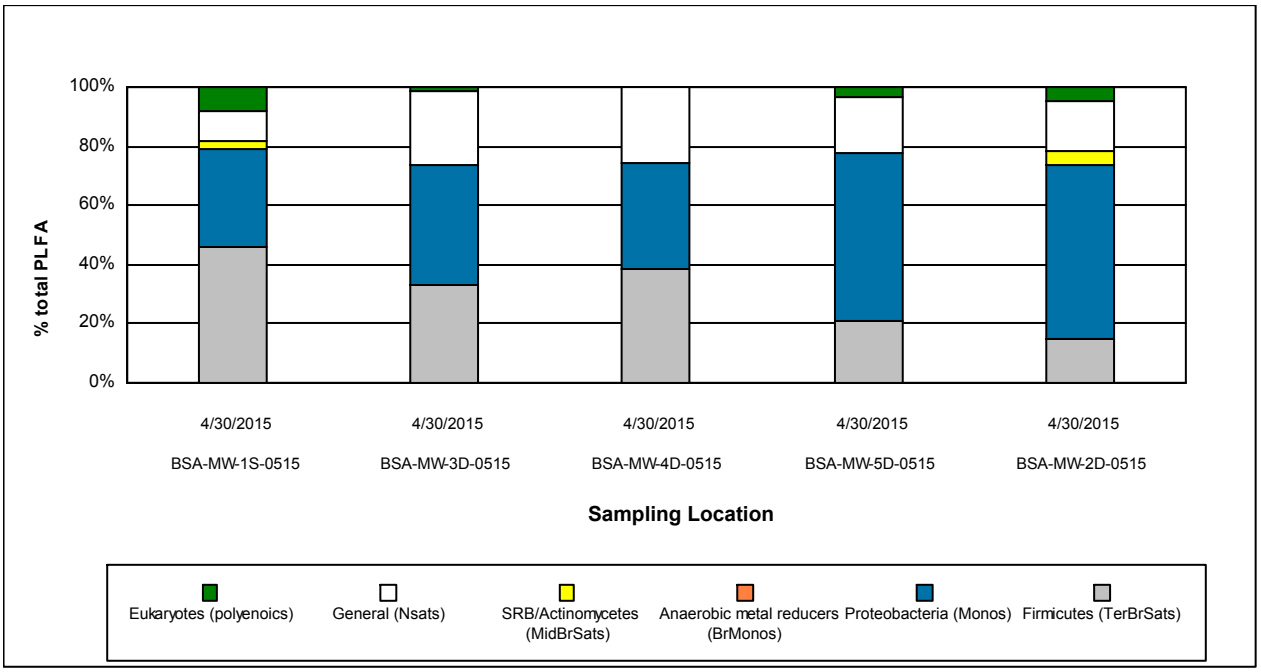

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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PLFA

Client: **Golder Associates Inc.**
Project: WG Krummrich - LTM

MI Project Number: **008ME**
Date Received: 05/01/2015

Sample Information

Sample Name:	**CPA-MW-1D-0515**	**CPA-MW-2D-0515**	**CPA-MW-3D-0515**	**CPA-MW-4D-0515**	**CPA-MW-5D-0515**
Sample Date:	04/30/2015	04/30/2015	04/30/2015	04/30/2015	04/30/2015
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Adv. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ	BJ

Biomass Concentrations

Total Biomass (cells/bead)	**3.55E+04**	**3.40E+04**	**6.67E+04**	**6.06E+04**	**2.00E+04**

Community Structure (% total PLFA)

Firmicutes (TerBrSats)	**24.13**	**25.80**	**11.50**	**32.09**	**39.31**
Proteobacteria (Monos)	**48.21**	**48.19**	**52.54**	**41.81**	**35.29**
Anaerobic metal reducers (BrMonos)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
SRB/Actinomycetes (MidBrSats)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
General (Nsats)	**25.77**	**20.72**	**31.31**	**18.04**	**25.40**
Eukaryotes (polyenoics)	**1.89**	**5.29**	**4.66**	**8.07**	**0.00**

Physiological Status (Proteobacteria only)

Slowed Growth	**0.52**	**0.40**	**0.00**	**0.50**	**1.14**
Decreased Permeability	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Legend:
NA = Not Analyzed NS = Not Sampled

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PLFA

Client: **Golder Associates Inc.**
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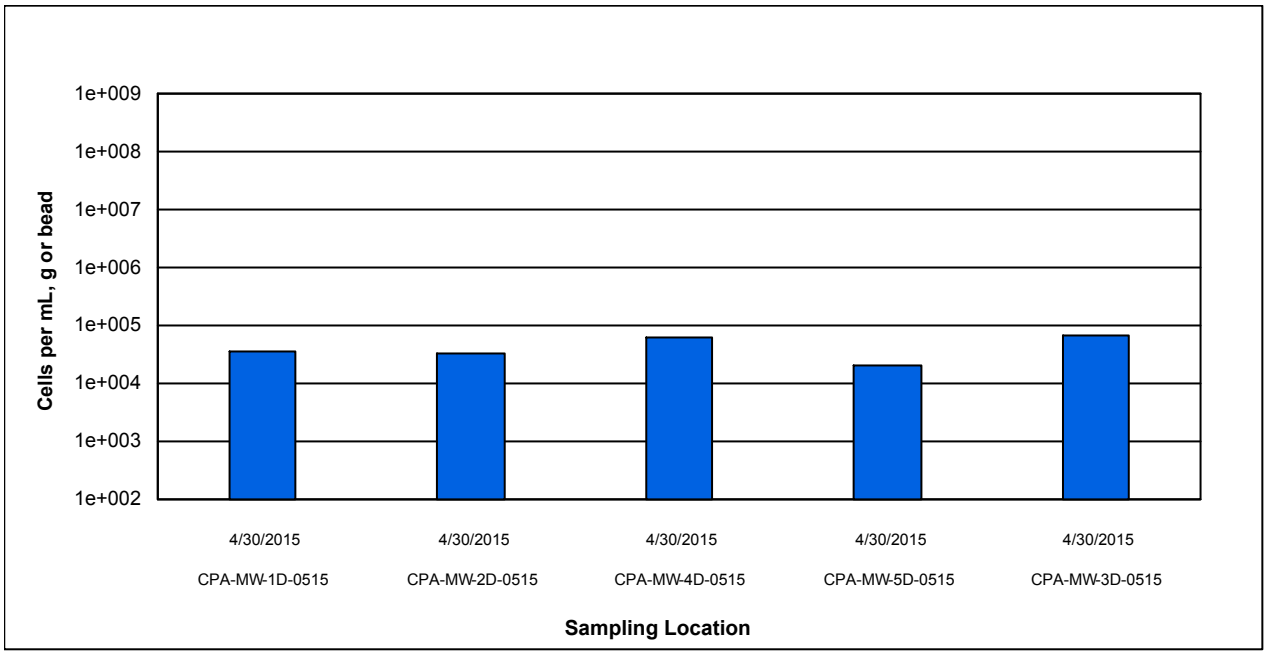

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

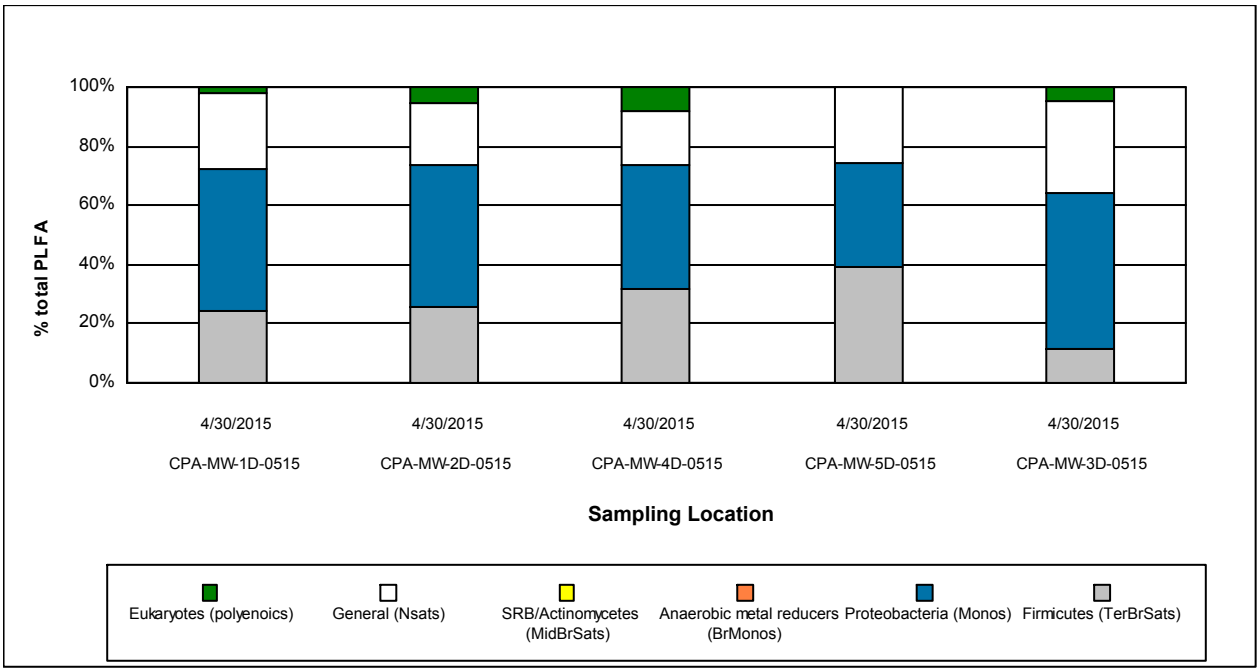

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.

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Identifier: 008ME **Date Rec:** 05/01/2015 **Report Date:** 05/27/2015

Client Project #: 1403345 **Client Project Name:** WG Krummrich - LTM

Purchase Order #:

Comments: Please note that the total biomass for samples BSA-MW-3D-0515, BSA-MW-4D-0515, BSA-MW-5D-0515, CPA-MW-1D-0515, CPA-MW-2D-0515, and CPA-MW-5D-0515 fell between the detection limit and reporting limit for PLFA analysis.

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Phospholipid Fatty Acid Analysis

Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the "skin") of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

What is the detection limit for PLFA?

Our limit of detection for PLFA analysis is ~150 picomoles of total PLFA and our limit of quantification is ~500 picomoles of total PLFA. Samples which contain PLFA amounts at or below 150 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~500 pmol are generally considered to contain too few fatty acids to discuss community composition.

How should I interpret the PLFA results?

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

Viable Biomass

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain 'fossil' lipids of dead cells.

How is biomass measured?

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

How is biomass calculated?

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmole of PLFA. This conversation factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

What does the concentration of biomass mean?

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

How do I know if a change in biomass is significant?

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.

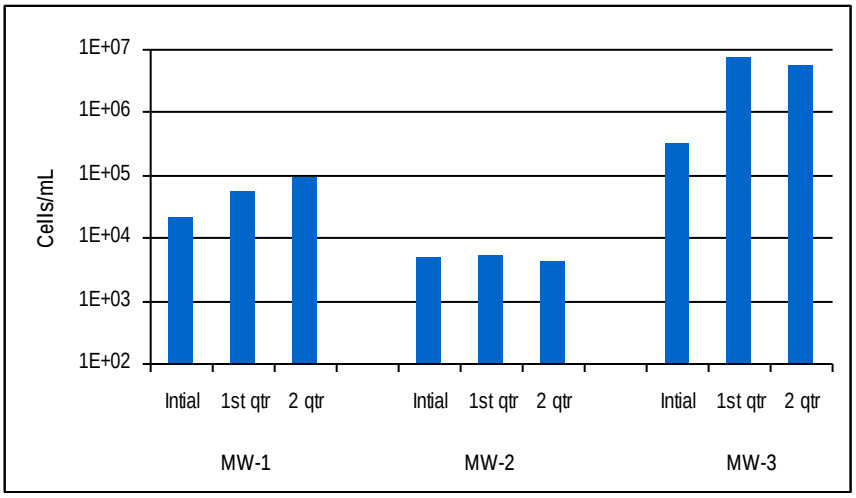

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

Conclusions from graph above:

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were ~10^4 cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1st quarter sampling events (from ~10^5 to ~10^6 cells/mL).

Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA "profile" reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

How is the community structure data presented?

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

How can community structure data be used to manage my site?

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a "fingerprint" of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

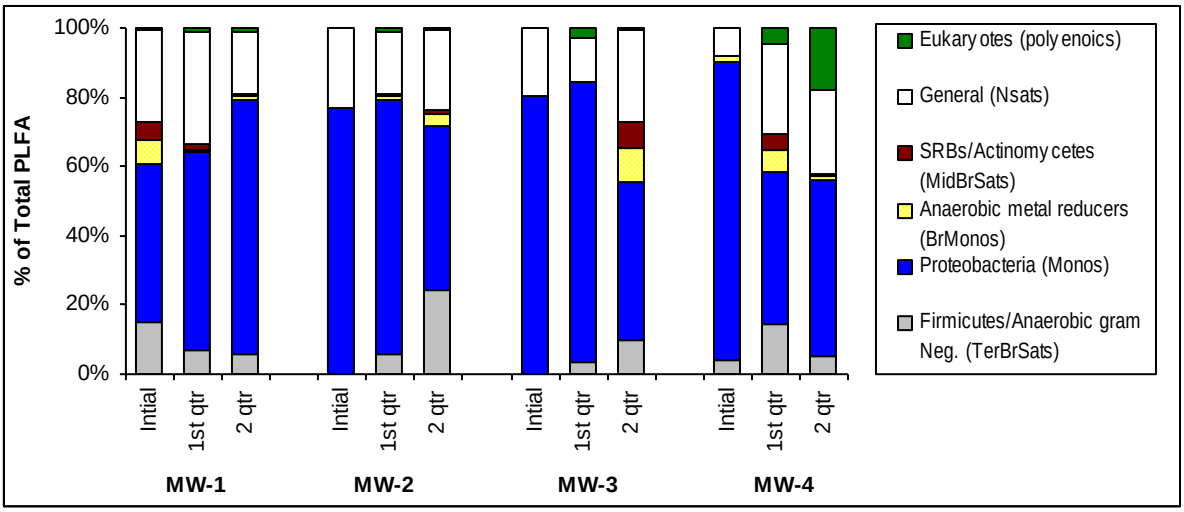

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **Increased Proteobacteria**

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobe and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

- **Increased Firmicutes/Anaerobic Gram negative bacteria**

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of H_2. Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available H_2, thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

Physiological status of Proteobacteria

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (trans/cis ratio) and for Slowed Growth (cy/cis ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

What does slowed growth or decreased permeability mean?

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the “health” of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, “healthy” growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

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SITE LOGIC Report

Stable Isotope Probing (SIP) Study

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Report Date: May 27, 2015

Project: WG Krummrich – LTM, 1403345

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-0515 and CPA-MW-3D-0515, respectively. Following a 30-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-0515 during the deployment period.
    - Total PLFA biomass for well BSA-MW-2D-0515 (1.32E+05 cells/bead) was in the moderate range.
    - The average PLFA $\delta^{13}C$ value was 706‰, indicating a moderate incorporation of ^{13}C-labeled benzene into microbial biomass.
    - The average DIC $\delta^{13}C$ value was in the high range (1123 ‰), showing substantial benzene mineralization.
    - The PLFA community structure was primarily composed of monoenoics (58.45%) in addition to normal saturates (16.54%) and firmicutes (15.19%). Indicators of actinomycetes and eukaryotes were also detected.

- Evidence for biodegradation of chlorobenzene in CPA-MW-3D-0515 was inconclusive, as the ^{13}C-enriched biomass fell below the detection limit.
    - The total PLFA biomass concentration was within the low range at 6.67E+04 cells/bead.
    - The average DIC $\delta^{13}C$ value (-6‰) was near background levels and indicated little to no chlorobenzene was mineralized during the deployment period.
    - The PLFA community structure in CPA-MW-3D-0515 was composed of a large portion of monoenoics (58.45%), followed by normal saturates (31.31%), firmicutes (11.50%), and eukaryotes (4.66%).

PLFA Analysis - Standard Bio-Traps

- Total biomass concentrations in the BSA wells fell within the low to moderate range (10^4 to 10^5 cells/bead).
    - The total biomass for samples BSA-MW-3D-0515, BSA-MW-4D-0515, and BSA-MW-5D-0515 fell between the detection limit and reporting limit for PLFA analysis.
    - The community structure in the BSA wells indicated monoenoics, firmicutes, and normal saturates were the most abundant groups.
- In the CPA wells total PLFA biomass concentrations fell within the low range (10^4 cells/bead).
    - The total biomass for samples CPA-MW-1D-0515, CPA-MW-2D-0515, and CPA-MW-5D-0515 fell between the detection limit and reporting limit for PLFA analysis.
    - The microbial community structures of the CPA wells indicated monoenoics, normal saturates, and firmicutes were the major contributors to biomass, followed by eukaryotes.

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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-0515	CPA-MW-3D-0515
^{13}C Contaminant Loss		
^{13}C Benzene Pre-deployment (µg/bead)	157 ± 18	---
^{13}C Benzene Post-deployment (µg/bead)	107 ± 5	---
^{13}C Chlorobenzene Pre-deployment (µg/bead)	---	126 ± 11
^{13}C Chlorobenzene Post-deployment (µg/bead)	---	106 ± 4
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bead)	1.32E+05	6.67E+04
^{13}C Enriched Biomass (Cells/bead)	5.96E+02	ND
Average PLFA Del (‰)	706	ND
Maximum PLFA Del (‰)	1106	ND
^{13}C Mineralization		
DIC Del (‰)	1123	-6
% 13C	2.32	1.10
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	15.19	11.50
Proteobacteria (Monos)	58.45	52.54
Anaerobic metal reducers (BrMonos)	0.00	0.00
Actinomycetes (MidBrSats)	4.94	0.00
General (Nsats)	16.54	31.31
Eukaryotes (Polyenoics)	4.89	4.66
Physiological Status (Proteobacteria only)		
Slowed Growth	0.26	0.00
Decreased Permeability	0.10	0.00

Legend: ND= Non Detect

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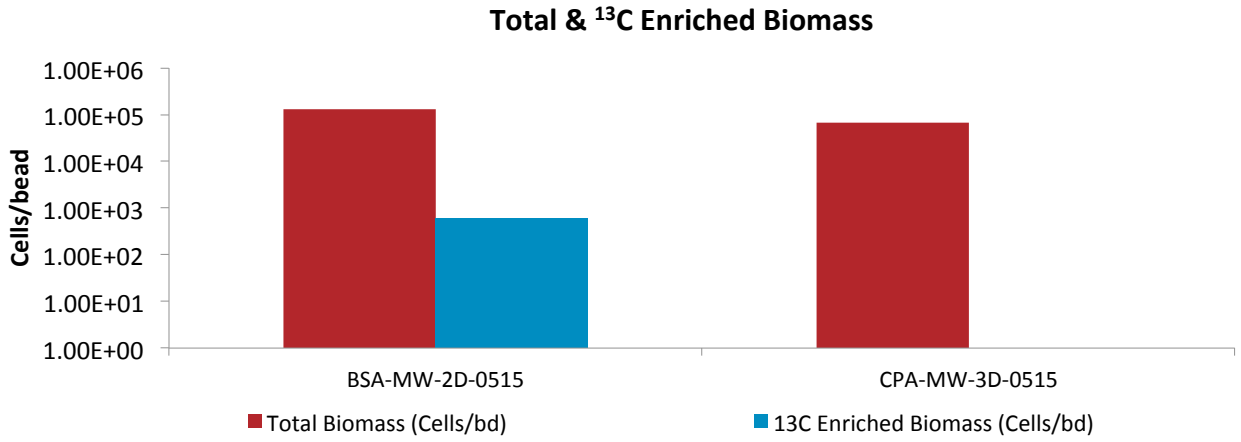

Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

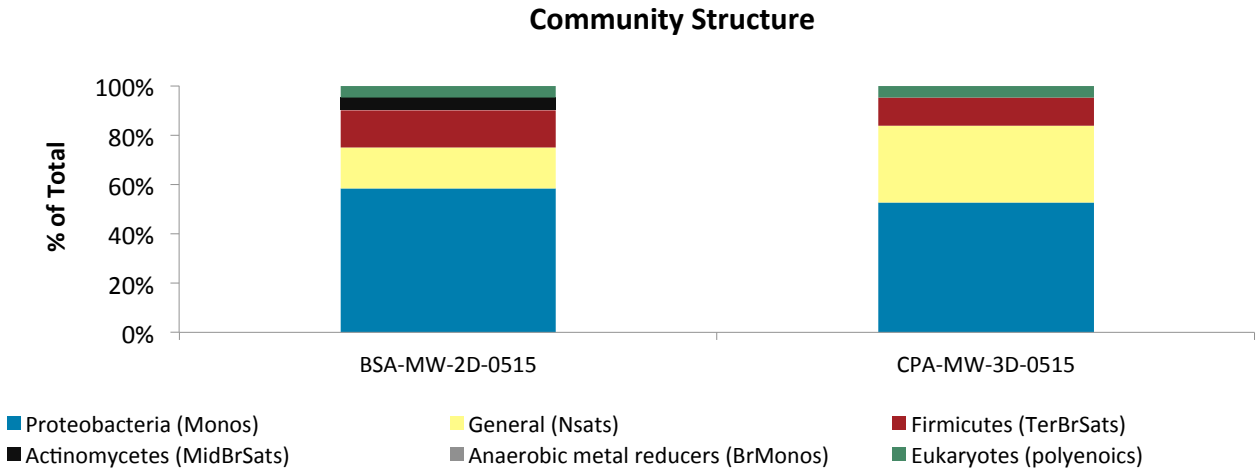

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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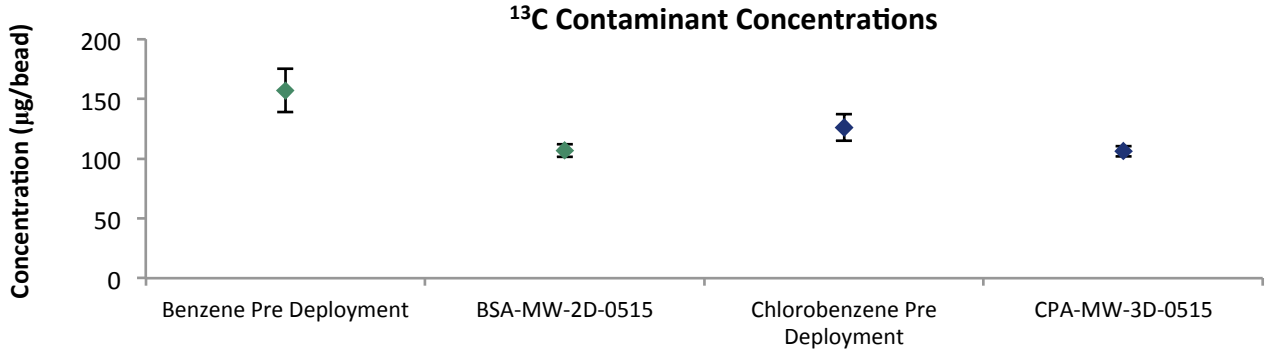

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

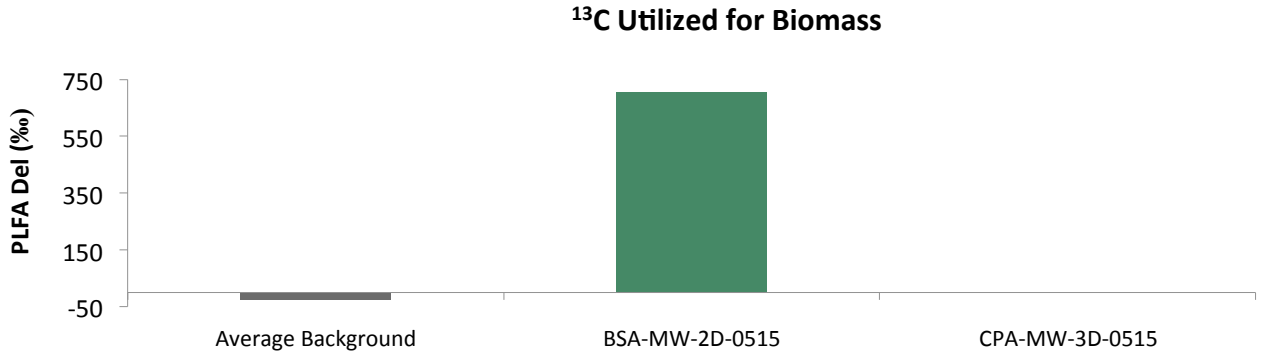

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

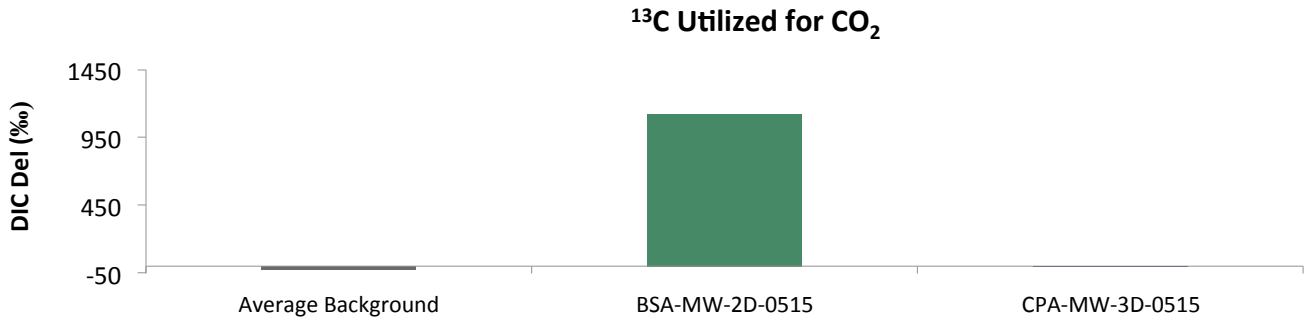

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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Table 2. Summary of the PLFA results for the benzene wells obtained from the Bio-Trap® Units.

Sample Name	BSA-MW-1S	BSA-MW-2D	BSA-MW-3D	BSA-MW-4D	BSA-MW-5D
Biomass Concentration					
Total Biomass (Cells/bead)	1.93E+05	1.32E+05	3.01E+04 (J)	1.89E+04 (J)	3.35E+04 (J)
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	45.85	15.19	33.22	38.42	21.07
Proteobacteria (Monos)	33.14	58.45	40.21	35.88	56.31
Anaerobic metal reducers (BrMonos)	0.00	0.00	0.00	0.00	0.00
Actinomycetes (MidBrSats)	2.81	4.94	0.00	0.00	0.00
General (Nsats)	10.26	16.54	25.23	25.71	18.98
Eukaryotes (Polyenoics)	7.95	4.89	1.34	0.00	3.63
Physiological Status (Proteobacteria only)					
Slowed Growth	1.92	0.26	0.21	0.60	0.35
Decreased Permeability	1.62	0.10	0.00	0.00	0.00

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
Biomass Concentration					
Total Biomass (Cells/bead)	3.55E+04 (J)	3.40E+04 (J)	6.67E+04	6.06E+04	2.00E+04 (J)
Community Structure (% total PLFA)					
Firmicutes (TerBrSats)	24.13	25.80	11.50	32.09	39.31
Proteobacteria (Monos)	48.21	48.19	52.54	41.81	35.29
Anaerobic metal reducers (BrMonos)	0.00	0.00	0.00	0.00	0.00
Actinomycetes (MidBrSats)	0.00	0.00	0.00	0.00	0.00
General (Nsats)	25.77	20.72	31.31	18.04	25.40
Eukaryotes (Polyenoics)	1.89	5.29	4.66	8.07	0.00
Physiological Status (Proteobacteria only)					
Slowed Growth	0.52	0.40	0.00	0.50	1.14
Decreased Permeability	0.00	0.00	0.00	0.00	0.00

J = Estimated value between detection limit and reporting limit.

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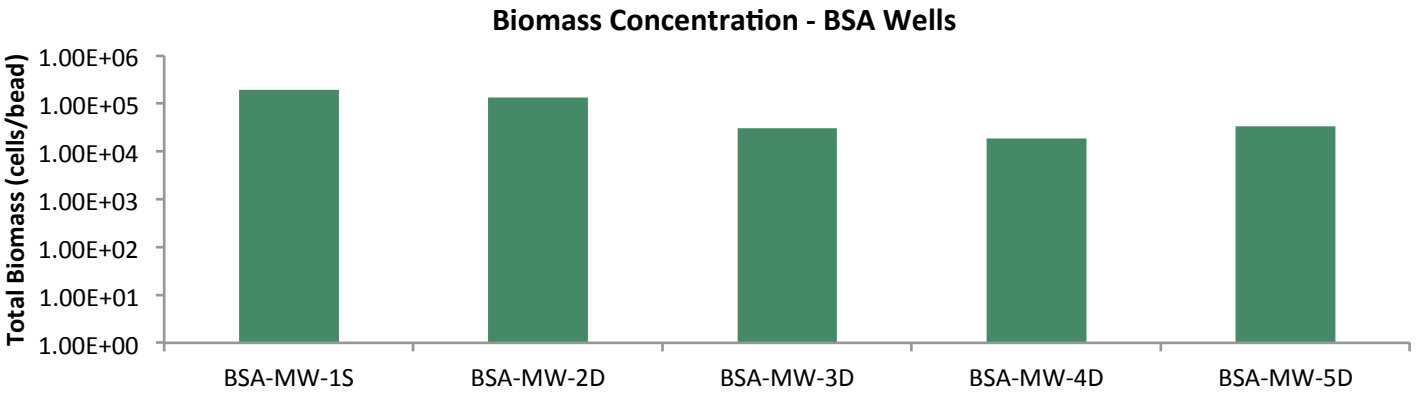

Figure 6. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

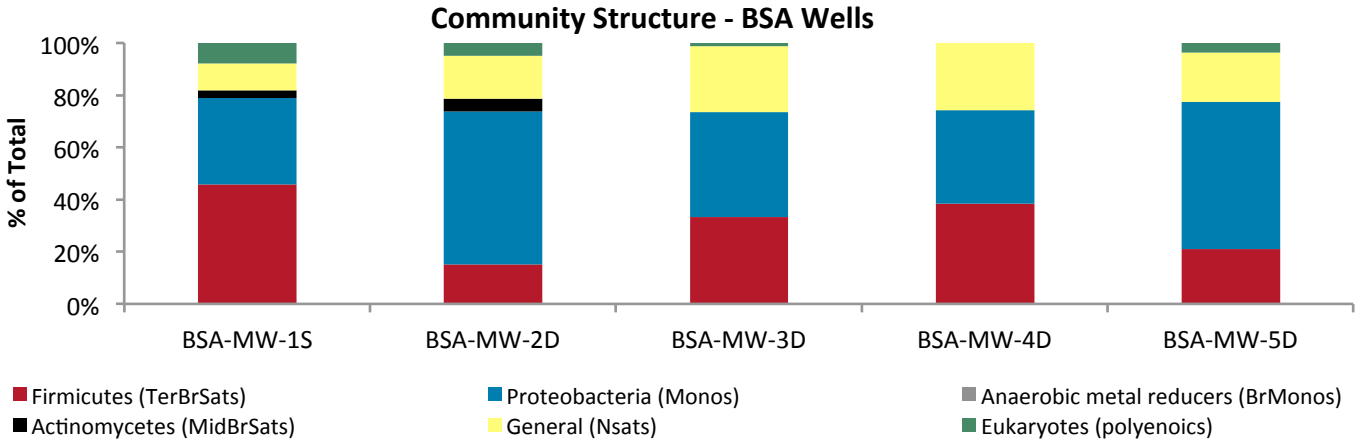

Figure 7. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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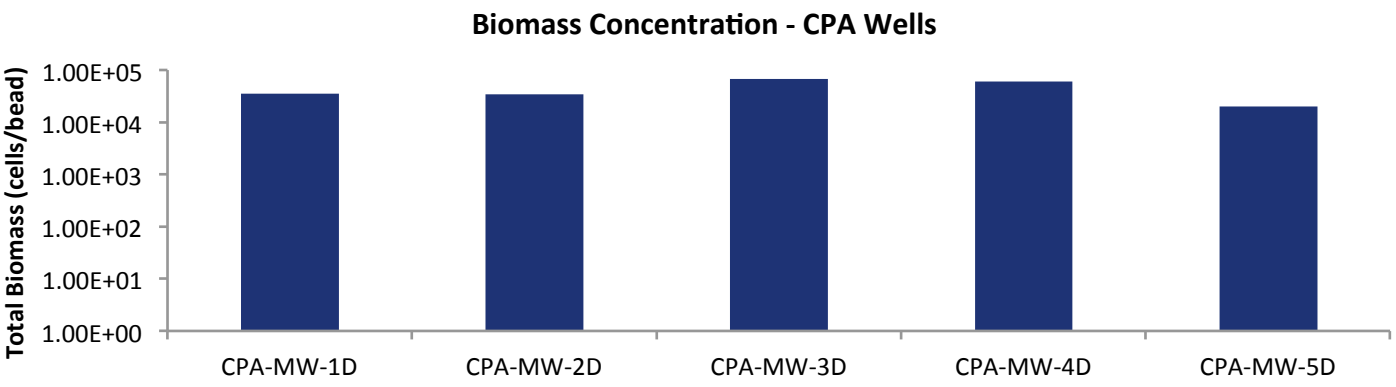

Figure 8. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

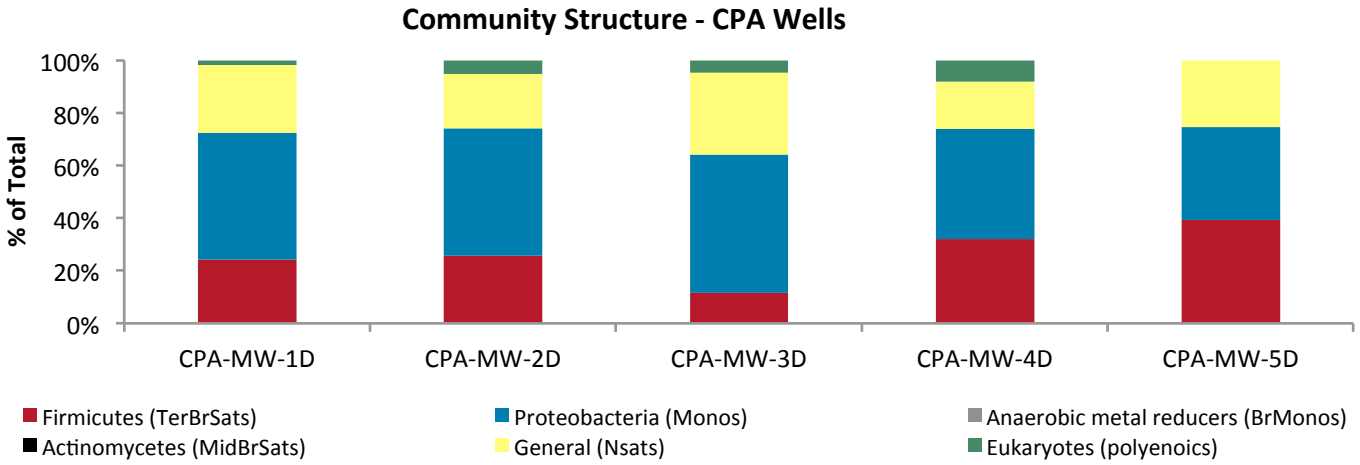

Figure 9. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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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 del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

PLFA Del (‰)		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC $\%^{13}C$ are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and $\%^{13}C$		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24%	>2.24%

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

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